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September 17, 2014

All Participants of the PUC CEUD Workgroup

Re: Data Access/Privacy Workgroup

OAH 84-2500-30800
MPUC 12-1344

To All Participants of the PUC CEUD Workgroup:

The attached Final Report of the CEUD Workgroup has been filed in eDockets today.

If you have any questions, please contact my legal assistant Denise S. Collins at (651) 361-7875 or denise.collins@state.mn.us.

Sincerely,

TAMMY L. PUST
Administrative Law Judge

TLP:dsc
Enclosure

Use and Limitations on Use of

Customer Energy Usage Data:

Balancing Customer Privacy and State's Minnesota's Energy Goals

Final Report of the CEUD Workgroup

September 15, 2014

Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

[32467/1]

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Note: The findings and recommendations in this report are those of the Workgroup, and do not necessarily reflect the views of the Commission.

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I. CEUD Overview: A Balance of Interests

Nationwide, there is a growing recognition by utilities, energy efficiency advocates and government decision-makers that utilities are in possession of detailed and potentially valuable customer energy usage data (CEUD), whether due to advancements in metering infrastructure or merely as a function of the provision of regulated services to the public. This data[1] is highly sought after as a means to promote and inform energy efficiency and conservation efforts. Responding to the growing demand for such data is an increasingly time consuming and difficult exercise for utilities. As the uses of and desire for access to this data from entities other than customer who is the subject of the data continues to increase and the processes employed by utilities to grant access continue to develop, important legal, policy and practical questions will continue to arise. Most if not all of these questions can be addressed only after examining a foundational issue: the appropriate balance to be struck between the privacy interests of individual consumers and the energy savings goals of the public as a whole.

The federal government, several states and various public policy-related organizations have undertaken efforts to examine the relevant issues as a means of identifying best practices that promote energy efficiency efforts while adequately guarding privacy and confidentiality interests. In Minnesota, any delineation of the parameters of this appropriate balance must be grounded in a thorough understanding of both the rewards to be gained through data sharing, and the risks to be avoided.

A. Potential Rewards

While achieving greater energy efficiency is the most widely recognized public purpose motivating discussions of energy usage data sharing, it is not the only identified public benefit. Workgroup members also identified reduction of greenhouse gas emissions and promotion of renewable energy efforts as key public purposes potentially served through data sharing. By accessing historical energy usage data, individuals, businesses and government agencies can make directed efforts to reduce energy consumption, increase energy efficiencies, and reap the dual benefits of increased economic competitiveness and environmental sustainability. Minnesota has long recognized the collection and understanding of energy usage data as a valuable resource for public policy-making processes. Throughout the state and across the country, discussions by regulators, utilities, energy efficiency advocates, and building owners increasingly suggest that a reassessment of the processes for collection and dissemination of utility customer usage data is critical to advancing energy policy goals.

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[1] Throughout this Final Report, the terms "data" and "CEUD" are used interchangeably unless otherwise indicated by context.

B. Possible Risks

One need look no further than local newspaper reports for evidence that unauthorized disclosures of private information, whether through data breach or otherwise, have become far too common and are of general concern for consumers.[2] Unlike in most industries in which consumers can choose whether to do business with a particular company, utility customers must accept service from the provider in their assigned service territory[3] and have very limited or no market freedom to change providers in order to be assured of greater privacy protections. As such, regulatory or other decisions that affect consumers' ability to protect their private energy usage data must withstand a high level of public scrutiny.

Very early in its discussions,[4] the CEUD Workgroup (Workgroup) identified several possible risks associated with disclosure.[5] Certain types of CEUD can reveal energy usage patterns from which it could be determined whether a residential property is regularly occupied, the schedules maintained by residents, and perhaps the existence of specific energy-dependent activities or devices such as the use of medical equipment. Knowledge of this type could be combined with other publicly available information to construct a profile of a customer's activities and finances. For a commercial or industrial customer, unauthorized release was identified by Workgroup members as a possible source of competitive risk within the marketplace. For utilities, allowing unauthorized dissemination of their customer's consumption data presents a reputational risk, which can have both economic and political ramifications even within this regulated industry. In rare and extreme cases, inappropriate disclosure of usage or customer load information could risk the reliability and security of the utility system and/or energy grid.[6]

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[2] DePass, D. (Aug. 18, 2014). "Supervalu data breach affects more than 1,000 stores nationwide." *StarTribune*. Retrieved from http://www.startribune.com/business/271406571.html. Please note that this example does not involve CEUD and is not intended to imply otherwise; it is included as a reference to the generalized risk of the nonconsensual disclosure of personal information. For more specific examples of disclosure risks linked to CEUD see also OAG'S RESPONSE TO THE OCTOBER 8, 2012 COMMENTS OF XCEL, *In the Matter of a Commission Inquiry into Privacy Policies of Rate-Regulated Energy Utilities*, Docket No. 12-1344 (hereinafter referenced as "Docket 12-1344"), at 4 (November 5, 2012).

[3] *See* Minn. Stat. §§ 216B.01, 216B.37 and 216B.40.

[4] The risks noted above were identified during early and broad-level discussions related to the general topic of CEUD sharing. Their identification herein is not intended to imply or assert that the Workgroup attempted to tie any of these risks to any particular Use Cases considered later during its deliberations; it did not.

[5] The CEUD Workgroup acknowledges that the protection of personally identifiable information is not within its charge, as specified in the Commission's Order dated June 17, 2013. As such, the CEUD Workgroup did not discuss or make any recommendations regarding the disclosure of personally identifiable information in connection with efforts to meet public policy goals.

[6] Utilities have established individual policies, practices and protections to guard against physical and cyber risks to their systems, infrastructure, and the energy grid. The CEUD Workgroup did not discuss in any detail utility systems or energy grid risks associated with expanded release of energy data.

Discussions of these risks are most often grounded in "what ifs" rather than factual evidence based in actual experience. Nevertheless, the fact that consumers' privacy expectations may be ill-defined and their disclosure fears lack concrete evidence is not determinative of their value. While anecdotal, relevant data indicates that consumers' privacy expectations are evolving and legitimate.[7] As the public's awareness of the value of an individual's consumer information is increasing, the need for reasonable privacy protections is progressively included as a necessary topic of public discussion.

II. Procedural Background

By Order dated June 17, 2013,[8] the Minnesota Public Utilities Commission (Commission) established the CEUD Workgroup to study and make recommendations on the appropriate use, and limitations on use, of customer energy usage data in the possession of rate regulated energy utilities. This effort found its start in the March 5, 2012 filing of Northern States Power Company, doing business as Xcel Energy (Xcel Energy), wherein Xcel Energy sought Commission approval of a Customer Data Privacy Tariff as an amendment to

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[7] Xcel Energy provided the Workgroup with the results of a February 2014 customer survey in which residential and small/medium business customer panels were asked to provide feedback on issues related to energy usage data access, privacy and confidentiality expectations. The results indicated varying levels of concern related to both generalized questions and specific data sharing scenarios. Two of the survey's nine questions generated the following information:

Survey Question: *What is your level of concern with third parties having access to your monthly energy usage data without your knowledge and consent?*

	Residential	Business
Not At All Concerned	9.44%	15.23%
Mildly Unconcerned	15.28%	24.50%
Slightly Concerned	36.48%	32.45%
Extremely Concerned	38.80%	27.81%

Survey Question: *How does your concern change with aggregation of your 15 minute, daily, or monthly energy reading with other customers' energy readings?*

	Residential	Business
Not At All Concerned	25.44%	33.11%
Mildly Unconcerned	25.44%	33.77%
Slightly Concerned	28.56%	19.87%
Extremely Concerned	20.56%	13.25%

Several CEUD Workgroup participants caution the Commission against relying too heavily on the survey results for any specific purpose given the limited sample size and response rate. Of the 3,900 Minnesota and Colorado customers polled, 1400 responded representing approximately 36 percent of the sample, which itself was only .11 percent of Xcel Energy's 2,630,534 electrical customer base. A complete copy of the summary report is attached as Appendix A to this Final Report.

[8] ORDER ESTABLISHING PROCEDURES FOR FURTHER COMMENT AND FOR WORKING GROUP, Docket 12-1344 (June 17, 2013).

Xcel's Electric and Natural Gas Rate Books.[9] Xcel filed the tariff in an effort to facilitate public dialogue about what it perceived as "a critical gap in current privacy protections for Minnesota energy utility customers" and to urge the Commission to adopt generally-applicable privacy principles relating to CEUD as a means to:

- Establish clear guidance and expectations for customers, energy utilities, and third-parties;
- Ensure consistency for all Minnesota energy utility customers; and
- Facilitate appropriate access for customers and third parties seeking access to CEUD for public policy reasons."[10]

After the filing of comments, the matter came on for discussion before the Commission on September 13, 2012 and December 13, 2012.

On December 13, 2012, the Commission heard comments from parties and engaged in a discussion concerning Xcel Energy's proposed tariff, filed as Docket No. E,G002/M-12-188. Noting the lack of clarity with regard to the protections afforded and uses allowed with respect to CEUD, the Commission issued a *Notice of Comment Period on Customer Data Privacy* on January 8, 2013. The Commission solicited public comment on the following summarized topics related to customer data privacy practices among rate-regulated energy utilities:

1. Do current service standards provide adequate customer data privacy protection and redress for customers in the event of a data breach?
2. Should the Commission establish uniform customer data collection and privacy policies for rate-regulated utilities?
3. Should the Commission enact or prohibit certain practices immediately?
4. With the advent of 'smart grid' and increasing awareness of energy usage in general, is there a public interest in allowing greater access to customer energy usage data? If so, what would be a reasonable balance between allowing greater access and protecting customers from the risk of identity theft or privacy intrusion?

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[9] PETITION, *In the Matter of the Petition of Northern States Power Company for Approval of a Customer Data Privacy Tariff as an Amendment to its Electric and Natural Gas Rate Books,* Docket No. E, G-002/M-12-188 (hereinafter referenced as "Docket 12-188") (March 5, 2012).
[10] COMMENTS FILED BY XCEL ENERGY, Docket 12-1344, at 4 (January 30, 2013).

5. What issues should be included or excluded as to the scope of this proceeding?

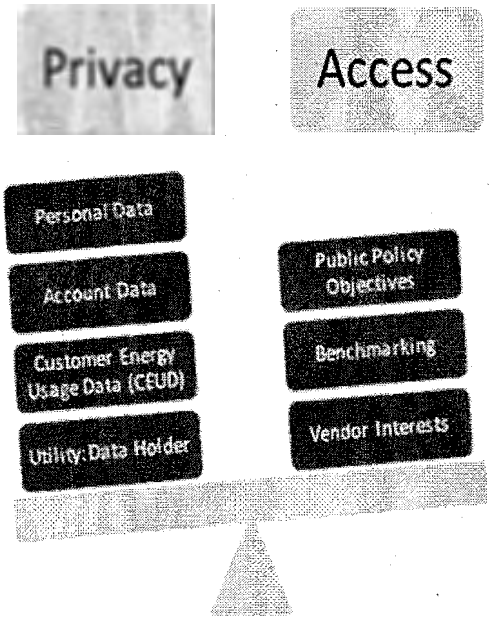
6. Are there whitepapers, federal guidelines or other state proceedings that have addressed the topics identified in Question No. 5, which should be incorporated into this docket or possible rulemaking?[11]

A broad mix of responders provided input to the Commission.[12] Comments were received from regulated utilities, cooperatives, telecommunications providers, legal and privacy advocates, public policy and consumer organizations, infrastructure and market transformation groups including some that provide energy-related consulting services, the Minnesota Office of the Attorney General – Antitrust and Utilities Division (OAG-AUD) and the Minnesota Department of Commerce (MDOC). On the whole, the submitted comments revealed the important and competing interests at stake, as illustrated below,[13] and further evidenced the need to strike a fair and maintainable balance between those interests.

[11] *See* NOTICE OF COMMENT PERIOD ON CUSTOMER DATA PRIVACY, Docket 12-1344 (January 8, 2013).

[12] Comments were received as follows. Initial Comments: Carter, Richard; CenterPoint Energy; CenturyLink, Inc.; Citizens Telecommunications Company of Minnesota, LLC and Frontier Communications of Minnesota, Inc.; Dakota Electric Association; Fresh Energy, Minnesota Green Communities and Institute for Market Transformation; Future of Privacy Forum; Great Plains Natural Gas Co.; Interstate Power and Light Company; Legal Services Advocacy Project; Midwest Energy Efficiency Alliance; Minnesota Energy Resources Corporation; Minnesota Power; Northern States Power Company d/b/a Xcel Energy; Opower, Inc.; Otter Tail Power Company; Technology Network; and Windstream Communications, Inc. Reply Comments: Fresh Energy, the Institute for Market Transformation, U.S. Green Building Council - Minnesota, Minnesota Green Communities, and Bright Power, Inc. and EnergyScoreCards, Inc.; Legal Services Advocacy Project; Minnesota Department of Commerce; Minnesota Large Industrial Group; Northern States Power Company d/b/a Xcel Energy; and Office of the Attorney General – Antitrust and Utilities Division. Supplemental Comments: CenterPoint Energy.

[13] The graphic was distributed at the Workgroup's initial meeting as a general illustration of the policy issues raised before the Commission, only a portion of which were before the Workgroup for discussion as specified in this Final Report. The illustration is included only as a reference to the identified interests; it is not intended to suggest which interests "outweigh" others.



Its review of filed comments led the Commission to issue its *Order Establishing Procedures for Further Comment and for Working Group* on June 17, 2013, wherein the Commission directed the formation of three separate tracks of inquiry focused on the following topics:

1. CEUD. The CEUD Workgroup was charged with studying and making written recommendations to the Commission on the appropriate use of, and limitations on, customer energy usage data given the necessary balance between customer privacy interests and Minnesota's energy goals.

2. Personally Identifiable Information (PII). PII, which includes a customer's name, address and other identity-related information, presents unique privacy interests and legal protections. In recognition of these facts, the Commission directed a separate effort focused specifically on the potential for development of standards for protection of PII collected by regulated utilities.[14]

3. Red Flags Rule. This additional effort addressed the utilities' compliance with the Federal Trade Commission's "Red Flags Rule,"[15] which seeks to prevent identify theft through the identification of certain "red flags" and the requirement that businesses, including regulated utilities, establish Identify Theft Prevention Programs designed to detect,

[14] *See* ORDER REQUIRING UTILITIES TO ADOPT AND DOCUMENT PROCESSES REGARDING PERSONALLY IDENTIFIABLE INFORMATION AND OTHER ACTION, Docket 12-1344 (June 24, 2014).
[15] 16 C.F.R. § 681.1, promulgated under Section 114 of the Fair and Accurate Credit Transaction Act of 2003 (FACTA), 15 U.S.C. § 1681m(e).

prevent and mitigate identify theft in connection with the use and storage of PII.[16]

This Final Report relates only to the work of the CEUD Workgroup noted above. The Commission directed separate efforts to discuss PII and the Red Flags Rule, and has issued separate orders related to those topics.[17]

On July 19, 2013, the Commission issued a notice soliciting members for the CEUD Workgroup.[18] By notice dated September 4, 2013,[19] the Commission selected Chief Administrative Law Judge Tammy L. Pust, Minnesota Office of Administrative Hearings, to manage the Workgroup meetings and submit the written report of the proceedings. The Commission identified eight meeting dates within which the Workgroup was expected to complete its discussions and published a list of approved Workgroup participants and observers.[20] The members of the Workgroup represented a broad range of interests including utilities, state agency staffs, environmental and customer advocacy organizations, local government, and other interested parties. The full list included representatives from:

- Building Owners and Managers Association
- Center for Energy and the Environment (CEE)
- CenterPoint Energy
- City of Minneapolis
- Dakota Electric Association
- Department of Commerce
- Fresh Energy
- Great Plains Natural Gas
- Minnesota Energy Resources Corporation
- Minnesota Large Industrial Group
- Minnesota Power
- Minnesota Valley Electric Cooperative
- National Federation of Independent Business
- Office of Attorney General – Antitrust and Utilities Division
- OPower
- Otter Tail Power

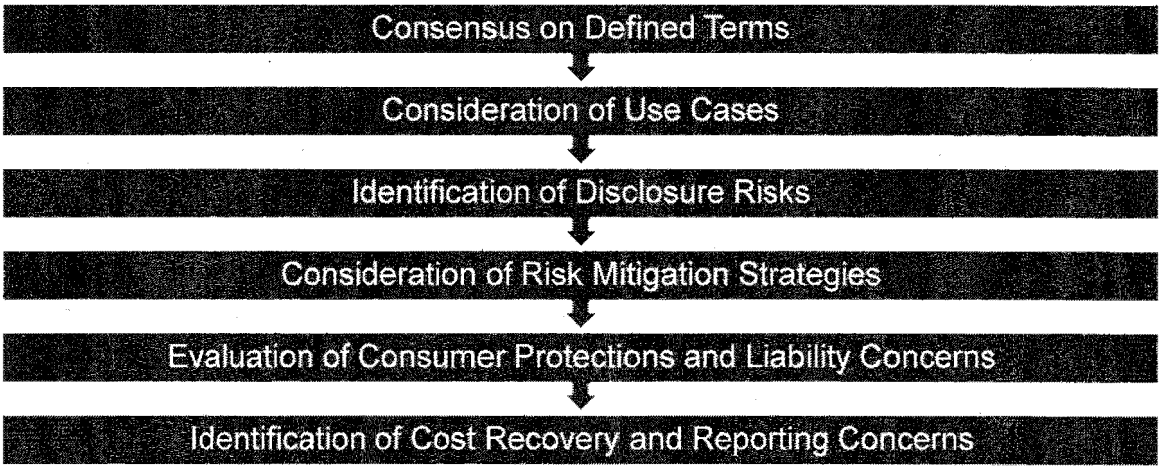
[16] *See* ORDER DETERMINING MINIMUM STANDARDS FOR GUARDING CUSTOMER DATA FROM IDENTITY THEFT, Docket 12-1344 (March 25, 2014).
[17] The Commission's orders and other relevant filings can be located in the eDockets electronic filing system, accessible at https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showeDocketsSearch&showEdocket=true.
[18] NOTICE SOLICITING CUSTOMER ENERGY USAGE DATA (CEUD) WORKGROUP MEMBERS, Docket 12-1344 (July 19, 2013).
[19] NOTICE OF CUSTOMER ENERGY USAGE DATA (CEUD) WORKGROUP SCHEDULING AND PROCESS, Docket 12-1344, (September 4, 2013).
[20] *Id.*

- Institute for Market Transformation
- Interstate Power & Light
- Midwest Energy Efficiency Alliance (MEEA)
- U.S. Green Building Council – MN (USGBC-MN)
- Xcel Energy
- Phyllis Reha, consultant with PAR Energy Solutions LLC

Collectively, these members represent decades of expertise in matters related to utility operations and oversight as well as in public policy development regarding the energy efficiency interests of both the industry and the public.

The Commission provided the CEUD Workgroup with a comprehensive, non-exclusive list of issues upon which recommendations were required.[21] Following its initial review of the most recent studies and publications representing national and state-specific efforts to address relevant issues,[22] the Workgroup developed a process plan to guide its work. The plan focused the Workgroup's discussion on specific, overarching topics and, in doing so, attempted to include each of the Commission's identified interest areas as a focus of consideration within the context of the broader discussion.

Workgroup Process Plan

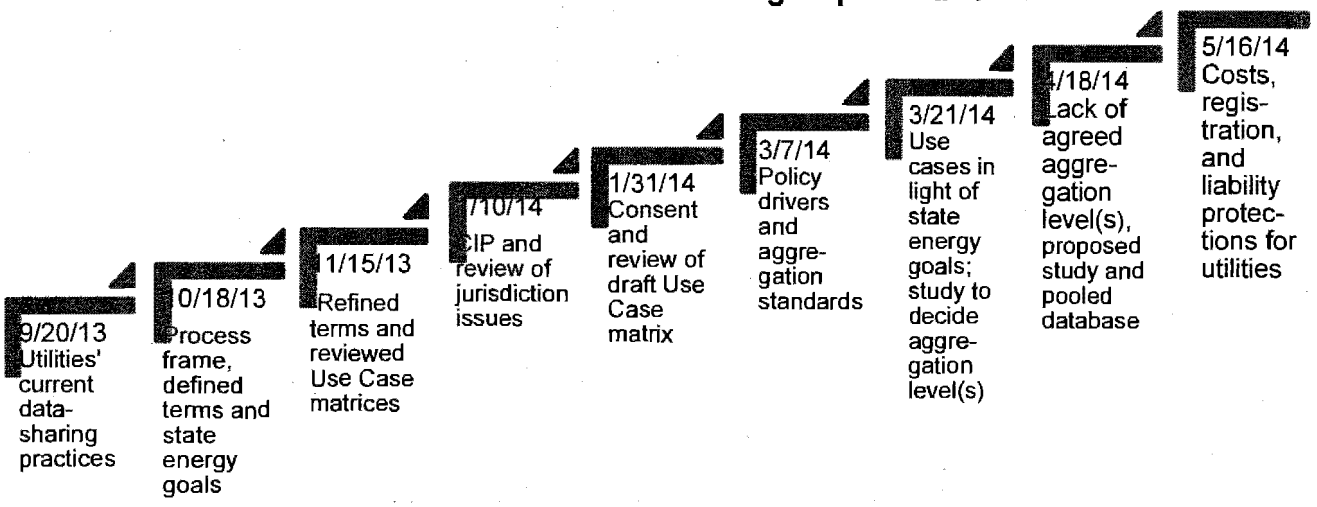


The CEUD Workgroup met for two-hour sessions on nine occasions: September 20, 2013; October 18, 2013; November 15, 2013; January 7, 2014; January 31, 2014; March 7, 2014; March 21, 2014; April 18, 2014; and May 16, 2014. In its meetings it addressed the following general topics.

[21] *See* ORDER ESTABLISHING PROCEDURES FOR FURTHER COMMENT AND FOR WORKING GROUP, Docket 12-1344, at 8-10 (June 17, 2013), attached in relevant part at Appendix B.

[22] A list of the publications provided to and reviewed by the Workgroup is attached as Appendix C to this Final Report.

Timeline and Focus of Workgroup Discussions



A subcommittee of all available Workgroup members participated in several telephone conference calls on December 11, 2013, January 14, 2014, April 2, 2014, May 21, 2014 and July 8, 2014. Participants discussed the identified Use Cases and attempted to flush out the parameters of various proposals as noted below.

Each meeting commenced with a period available for public comment. Commission staff attended the meetings, provided input when appropriate and administered the electronic posting of all meeting agendas, minutes, and written documents filed for the Workgroup's consideration. Though minutes were posted for review, CEUD Workgroup members did not formally review or approve minutes from each meeting. Copies of all meeting minutes are available online[23] and attached as Appendix D to this Final Report.

III. Commission's Regulatory Authority

As a threshold matter, the Workgroup discussed the Commission's legal authority to regulate third-party access to CEUD. Many Workgroup members noted that the Commission has broad authority to regulate the reasonableness and standards of utility service. These members concluded that action on appropriately aggregated and anonymized CEUD would be within the Commission's grant of authority. Others disagreed. While no participants questioned the Commission's role in setting rules for utilities to follow with regard to their own customers, the Minnesota Large Industrial Group (MLIG),[24] in

[23] Copies are available at https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showeDocketsSearch&showEdocket=true.

[24] MLIG is an ad-hoc consortium of large industrial users of electric energy in Minnesota, spanning multiple utilities and functioning to represent large industrial interests before regulatory and legislative bodies. *See* MLIG JURISDICTION ANALYSIS AND RISK ASSESSMENT FILED BY MLIG, Docket 12-1344 (March 14, 2014).

particular, sought to better understand from where the Commission would draw authority to mandate release of CEUD, even if aggregated, to third-parties not subject to the Commission's jurisdiction, and to identify how utilities or others would seek redress in appropriate circumstances through existing Commission processes.

A. Commission's[25] Existing Statutory Authority

The Commission's authority is set forth in Minnesota statute:

> The commission, on its own motion or upon complaint and after reasonable notice and hearing, may ascertain and fix just and reasonable standards, classifications, rules, or practices to be observed and followed by any or all public utilities with respect to the service to be furnished.[26]

The term "service" appears in the definitions section of Chapter 216B, and is defined to mean "natural, manufactured, or mixed gas and electricity; the installation, removal, or repair of equipment or facilities for delivering or measuring such gas and electricity."[27]

Under the authority of Minnesota Statutes Chapters 216A and 216B, the Commission regulates the rates of all investor-owned utilities and, with respect to natural gas, large privately-owned local distribution companies.[28] The Commission's purpose and scope of influence includes a rich mix of issues including reliability, rates, energy efficiency, renewable energy, service quality, resource planning and others. While the topic of CEUD sharing relates to many of Minnesota's statewide energy policy goals, the scope of work addressed in this CEUD Workgroup was limited to how such data sharing relates to the achievement of the state's energy conservation and efficiency policy goals. While the Commission has broad authority to regulate rates and services[29] and its scope of influence may be growing as the public demands more or new things from its energy sector, the Commission's activities are bounded by its statutory limits.[30]

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[25] Although this Final Report focuses on the statutory authority of the Commission as directed in the originating Order, the Commission is not the only state level agency with regulatory authority affecting CEUD. As discussed in detail in section IV of this Final Report, the Minnesota Department of Commerce has broad authority under state legislation to collect customer energy usage data for the purposes of maintaining "an effective program of collection, compilation, and analysis of energy statistics." in order "to insure a central state repository of energy data and so that the state may coordinate and cooperate with other governmental data collection and record-keeping programs." Minn. Stat. § 216C.17, subd. 1.

[26] Minn. Stat. § 216B.09.

[27] Minn. Stat. 216B.02, subd. 6.

[28] Minn. Stat. §§ 216B.01 - .02; 216B.025 - .026.

[29] *See*, e.g., *Hoffman v. Northern States Power Co.*, 764 N.W.2d 34, 44 (2009) ("The MPUC further enjoys broad power to 'ascertain and fix just and reasonable' policies for all public utilities.")

[30] *See Peoples Natural Gas Co. v. Minn. Public Utilities Comm'n*, 369 N.W.2d 530, 534 (Minn. 1985).

Minnesota's regulated utilities have a statutory duty to provide reasonable service to their customers.[31] While this duty has not yet been the subject of judicial interpretation in the context of consumers' privacy interests, it may provide a sufficiently broad umbrella to encompass Commission action in this field. The Commission's statutory authority includes the following directives:

> *Every public utility shall file with and as a part of the filings under subdivision 1, all rules that, in the judgment of the commission, in any manner affect the service or product*, or the rates charged or to be charged for any service or product, as well as any contracts, agreements, or arrangements relating to the service or product or the rates to be charged for any service or product to which the schedule is applicable *as the commission may by general or special order direct*; provided that contracts and agreements for electric service must be filed as required by subdivision 2a.[32]

Workgroup participants agreed that the Commission's broad authority allows it to regulate: (1) utility spending, including financial investments related to conservation projects; and (2) utility investment in generation resources, including fossil fuels, renewable energy sources, and others. A non-exclusive summary of the Commission's legal authorities with respect to resource planning and rate decisions follows.

Resource Decision Authorities

Resource Plans	Minn. Stat. § 216B.2422: The Commission sets energy conservation standards for utilities in integrated resource plans. (For cooperatives and municipal utilities, the Commission's decision is advisory.)
Renewable Energy	Minn. Stat. § 216B.1691: 15 utilities must obtain 25 percent renewable energy by 2025. (Xcel must obtain 30 percent by 2020). The Commission may modify or delay the percentage.
Carbon	Minn. Stat. § 216B.2422, subd. 4: The Commission is required to make a public interest determination on whether a utility's resource plan helps the utility achieve the greenhouse gas (GHG) reduction goals found in Minn. Stat. § 216H.02, subd. 1: 15 percent below 2005 levels by 2015; 30 percent below 2005 levels by 2025; and 80 percent below 2005 levels by 2050. Minn. Stat. § 216H.06: Annually the Commission establishes an estimate of the likely range of costs of future carbon dioxide

[31] Minn. Stat. § 216B.04.
[32] Minn. Stat. § 216B.05, subd. 2 (emphasis added).

regulation on electricity generation. The estimate must be used in all electricity generation resource acquisition proceedings.

Conservation	Minn. Stat. § 216B.16, subd. 6b: The Commission approves the recovery of CIP spending and sets conservation standards for utilities in resource plans.
Environment	Minn. Stat. § 216B.2422, subd. 3: The Commission establishes a range of environmental costs associated with each method of electricity generation. Utilities must use the values established by the Commission when evaluating and selecting resource options in all proceedings before the Commission.

Rate Decision Authorities

Overall rates	Minn. Stat. § 216B.05, subd. 1: Every public utility shall file with the Commission schedules "showing all rates, tolls, tariffs, and charges which it has established and which are in force at the time for any service performed by it within the state..."
Rates/ practices/ standards	Minn. Stat. § 216B.09, subd. 1: The Commission may "ascertain and fix just and reasonable standards, classifications, rules, or practices to be observed and followed by any or all public utilities with respect to the service to be furnished."
	Minn. Stat. § 216B.03: "Every rate made, demanded, or received by any public utility...shall be just and reasonable."
Changes in rates (rate cases/riders)	Minn. Stat. § 216B.16, subd. 1: "Unless the Commission otherwise orders, no public utility shall change a rate which has been duly established under this chapter."
	Minn. Stat. § 216B.16, subd. 6: If, after the hearing, the Commission finds the rates to be unjust or unreasonable, the Commission shall determine the rates to be charged or applied by the utility.
	Minn. Stat. § 216B.16, subd. 7b: Annual automatic adjustments of certain expenses outside of a rate case can be allowed by the Commission.

B. Scope of Commission's Authority: Participants' Divergent Views

While many participants agreed that these cited authorities provide the Commission with sufficient jurisdiction to regulate the sharing of CEUD, others did not. As such, the Workgroup did not reach consensus on whether these statutes constitute a sufficiently clear grant of authority on the jurisdictional issues present in this docket.

An Xcel Energy representative described the widely-held understanding of this legal framework as follows:

> "If we charge, it's a rate. If we provide data without charge, it's a service. Both rates and service are covered by the PUC's broad authority."[33]

The majority of Workgroup participants agreed[34] that the regulation of CEUD sharing was sufficiently included within the Commission's broad authority to regulate: (1) utility spending, including financial investments related to conservation projects; and (2) utility investment in generation resources, including fossil fuels, renewable energy sources, and others. A memorandum authored by Xcel Energy and addressing these views is attached as Appendix E to this Report.[35]

MLIG was not in agreement with this view. On behalf of its end-users, MLIG respectfully asserted that its members' energy usage data is proprietary information releasable only with explicit consent. Highlighting the fact that in some cases MLIG members are direct competitors and barred from sharing individual company data due to antitrust concerns, and noting that its members compete in a global economic marketplace, MLIG explained that CEUD has particular value for energy-intensive industries. The MLIG representative expressed the large industrial customers' fears that CEUD could be combined with other publicly available information to closely approximate the costs of production for a particular plant - something a competitor could use to gain market share at the expense of the exposed company. Further, MLIG explained that misuse of an industrial customer's CEUD by a competing industry would most likely go unnoticed until the financial injury was severe, the customer had lost significant market share, and redress had become very difficult. Positing that a third party's request for a consumer's data does not involve the provision of a utility service and so is outside the scope of the regulated process, MLIG questioned the Commission's existing jurisdiction with regard to actions involving the release of

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[33] IN-PERSON COMMENT OF XCEL ENERGY REPRESENTATIVE, Docket 12-1344 (January 10, 2014 CEUD Workgroup meeting).

[34] Specific agreement was noted by Xcel Energy, USGBC-MN, Fresh Energy, MEEA, the City of Minneapolis, and the Center for Energy and Environment.

[35] REPLY COMMENTS FILED BY XCEL ENERGY, Docket 12-1344 (April 18, 2014).

CEUD to third parties. A legal memorandum setting forth MLIG's position is attached as Appendix F to this Final Report.[36]

In its filing in Xcel Energy's initial tariff-related proceeding, the MDOC raised for the Commission's consideration issues related to the primary jurisdiction doctrine.[37] The Commission may choose to reexamine that analysis in light of the questions posed in the current docket.

In this Final Report, the Workgroup does not seek to provide a legal analysis regarding the raised jurisdictional issues, as such efforts are outside the scope of the Workgroup's assigned tasks. Thus, these important matters remain for the Commission's future study and conclusion.

IV. Public Energy Goals in Relationship to CEUD

A. Energy-Related Public Policy Goals

1. Minnesota's Energy Goals: CIP and Beyond

Although Minnesota has no state law or other mandated standards specifically directing the release of CEUD to non-governmental requestors for the purpose of fulfilling public energy goals,[38] the state has a long-standing commitment to energy conservation and efficiency and a record of innovative efforts designed to achieve these goals. From the creation of the state's Energy Information Program beginning in 1980[39] to the passage of the Next Generation's Energy Act (NGEA) in 2007[40] and legislative amendments that have followed annually,[41] Minnesota has both a rich history and current commitment to energy efficiency initiatives. The state's overall energy savings policy goal is statutorily defined as follows:

> The legislature finds that energy savings are an energy resource, and that cost-effective energy savings are preferred over all other energy resources. The legislature further finds that cost-effective energy savings should be procured systematically and aggressively in order to reduce utility costs for businesses and residents, improve the competitiveness and profitability of businesses, create more energy-related jobs, reduce the economic burden of fuel imports,

[36] MLIG JURISDICTION ANALYSIS AND RISK ASSESSMENT filed by MLIG, Docket 12-1344 (March 14, 2014).
[37] REPLY COMMENTS of Minnesota DEPARTMENT OF COMMERCE, Docket 12-188 (November 5, 2012).
[38] REPLY COMMENTS OF OAG-AUD, Docket 12-1344, at 3 (February 20, 2013), *citing* earlier filed Comments of Otter Tail Power at 3 and Comments of Xcel Energy at 3-4.
[39] *See* 1980 Minn. Laws, Ch. 571, sec. 18.
[40] 2007 Minn. Laws, Ch. 136, Art. 1.
[41] Most recently, in 2013 Minnesota enacted legislation requiring the state's large utilities to meet a 1.5 percent solar electricity standard by 2020, a requirement that is in addition to the 25 percent renewable mandate by 2025. *See* 2013 Minn. Laws Ch.85, Art. 10, Sec. 3.

> and reduce pollution and emissions that cause climate change. Therefore, it is the energy policy of the state of Minnesota to achieve annual energy savings equal to at least 1.5 percent of annual retail energy sales of electricity and natural gas through cost-effective energy conservation improvement programs and rate design, energy efficiency achieved by energy consumers without direct utility involvement, energy codes and appliance standards, programs designed to transform the market or change consumer behavior, energy savings resulting from efficiency improvements to the utility infrastructure and system, and other efforts to promote energy efficiency and energy conservation.[42]

Consistent with this statutory charge, Minnesota has established an energy savings goal for each electric and natural gas utility equal to 1.5 percent of annual retail energy sales, net of energy sales to large energy facilities that are exempt from this requirement.[43] These annual targets support the state's broader goals of reducing per capita fossil fuel use by 15 percent by 2015 and requiring that 25 percent of the total energy used in the state be derived from renewable energy resources by 2025.[44] These goals go hand-in-hand with the state's directive to reduce GHG emissions to a level at least: 15 percent below 2005 levels by 2015; 30 percent below 2005 levels by 2025 and 80 percent below 2005 levels by 2050.[45]

In addition, sixteen utilities[46] are subject to Minnesota's renewable energy standard which sets, for each utility, a required percentage of retail sales comprised of renewable energy.[47] Each year, these utilities submit filings related to their renewable energy mix. The Commission reviews, approves or modifies submitted plans in reference to statutory requirements, the state's GHG reduction goals and the public interest.[48]

The state seeks to achieve all of these energy-related goals through the concurrent use of several tools and strategies, the most primary of which is the Conservation Improvement Program (CIP). CIP is Minnesota's utility-administered, ratepayer-funded energy efficiency resource standard for electric and natural gas utilities. While CIP was originally enacted as a spending

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[42] Minn. Stat. § 216B.2401.
[43] Minn. Stat. § 216B.241, subd. 1c.
[44] Minn. Stat. § 216C.05, subd. 2.
[45] Minn. Stat. § 216H.02, subd. 1.
[46] This total includes four investor-owned utilities (Xcel Energy, Minnesota Power, Otter Tail Power, and Interstate Power & Light) plus ten generation and transmission cooperatives and municipal power agencies.
[47] The term "renewable energy" means "electricity generated through use of: wind; solar; geothermal; hydro; trees or other vegetation; landfill gas; or other predominantly organic components of wastewater effluent, sludge, or related by-products from publicly owned treatment works, not including incineration of wastewater sludge." Minn. Stat. § 216B.2422, subd. 1(c).
[48] Minn. Stat. § 216B.2422, subd. 2.

requirement over 30 years ago, the 2007 passage of the NGEA incorporated into CIP an annual energy savings goal of 1.5 percent of average retail sales; the requirement took effect in 2010.[49] CIP is currently the largest energy efficiency and conservation program in the state.

All investor-owned, municipal, and cooperatives utilities in Minnesota must comply with the CIP statutes.Minnesota currently has four natural gas, two electric, and two combined natural gas and electrics investor-owned utilities (IOUs). In 2010, IOUs provided 65 percent of electricity sales and the majority of gas slaes; 47 distribution cooperatives provided 21 percent of electricity sales, and 125 municipal utilities provided 14 percent of electricity sales in Minnesota..[50] Each electric and natural gas utility develops its own CIP plan, offering a variety of programs to provide residential and business consumers with financial incentives to purchase energy efficient products and other services to educate customers and help reduce energy consumption.[51] Each investor-owned utility files its CIP plan with the MDOC[52] at least every three years and an annual report of actual CIP spending and achieved energy savings; municipal and cooperative utilities file CIP plans and report performance annually. The CIP statute mandates that each utility invest .2 percent (electric) and .4 percent (natural gas) of its residential gross operating revenue on low-income programs. The statute also authorizes MDOC to assess utilities in support of research and development efforts.[53] MDOC currently administers a $3.6 million research and grant fund through which it manages over 65 research grants investigating technologies and strategies to achieve the state's energy savings goals.

In addition to CIP, many statewide energy savings efforts are housed within the MDOC, including:

- Federal Weatherization Assistance Program - assists low-income families improve their homes' energy efficiency;

- Guaranteed Energy Savings Program - provides technical, contractual and financial assistance to state agencies, local government units, school districts, and institutions of higher learning that elect to implement energy efficiency and renewable energy improvements through energy savings performance contracts;[54]

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[49] Legislation passed in 2009 established an interim savings goal of 0.75 percent over 2010-2012 for qualifying natural gas utilities. *See* 2009 Minn. Laws,,Ch. 110, Sec. 32.

[50] 2010 MINNESOTA UTILITY DATA BOOK, published by MDOC and accessible at: http://mn.gov/commerce/energy/images/2010v2_Databook.pdf.

[51] Investor-owned utilities collect CIP funds as a surcharge on utility rates and spend the funds to provide CIP programs. Non-rate regulated utility practices may vary.

[52] CIP is administered by the MDOC's Division of Energy Resources (MDOC-DER).

[53] Minn. Stat. § 216B.241 subd. 1e.

[54] *See* Minn. Stat. §§ 16B.325, subd. 1; 216B.241, subd. 9; Exec. Order 11-13 (2011).

- Sustainability Building 2030 program - develops sustainable building design guidelines that are mandatory for all new buildings receiving funding from the specified bond proceeds;[55]

- Buildings, Benchmarking, and Beyond (B3) - a required energy benchmarking tool for reporting the energy usage in all state buildings receiving state general obligation bond funding as a means to measure progress toward a goal of reducing energy consumption by 20 percent;[56]

- Alternative Conservation Improvement Programs delivered by third party providers of approved services;[57] and

- Energy Conservation Information Center - provides specific energy information to consumers about how to save home energy through affordable conservation and efficiency improvements.[58]

The Commission and the MDOC are not the only state agencies with efforts directed toward achieving the state's energy savings goals. The Minnesota Pollution Control Agency (MPCA) is responsible for regulation of air quality, water quality, waste reduction, and broad sustainability efforts, many of which directly relate to achievement of the statewide energy efficiency policy goals including: Green Star Award Expansion;[59] GreenStep Cities;[60] Regional Indicators Initiative;[61] and the Clean Air Minnesota Initiative.[62] Also, the Minnesota Department of Labor and Industry is currently in the process of revising residential and commercial building code standards as part of its process of adopting the standards set in the 2012 International Energy Conservation Code, an effort identified in Minnesota law as a means to achieve energy efficiency and conservation goals.[63]

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[55] *Id.*
[56] *See* Minn. Stat. §§ 16B.325, subd. 1; 216B.241, subd. 9; 2001 Minn. Laws, Ch. 212, Art. 1, Sec. 3.
[57] *See* Minn. Stat. § 216B.241, subd. 1b(i).
[58] *See* Minn. Stat. § 216C.11.
[59] *See* Minn. Stat § 114C.25.
[60] Under its general authority, MPCA participates in GreenStep Cities, a voluntary program that provides a pathway to help cities achieve their sustainability goals through implementation of best practices focused on cost savings, energy use reduction, and innovation. *See* http://greenstep.pca.state.mn.us/.
[61] 2008 Minn. Laws, Ch. 356, Sec. 13.
[62] *See* MPCA description of current status at http://www.pca.state.mn.us/index.php/view-document.html?gid=21043 and at http://environmental-initiative.org/projects/clean-air-minnesota.
[63] See Minn. Stat. § 216B.2401.

2. Local Energy Goals

In February 2013, the City of Minneapolis became the first Midwestern city[64] to adopt an energy benchmarking[65] and disclosure ordinance.[66] The Minneapolis ordinance was passed as a means of implementing a goal of reducing citywide GHG by 15 percent by 2015 and 30 percent by 2025, as compared to a 2006 baseline. One of the City's strategies to meet these goals focused on increasing energy efficiency in commercial and residential buildings by 20 and 15 percent, respectively, by the year 2025.[67]

The Minneapolis ordinance applies only to buildings that include at least 50,000 square feet of commercial space. Buildings subject to the ordinance are required to annually benchmark both energy and water use using the Energy Star Portfolio Manager tool. The City requires public disclosure of reported results in an effort to provide public transparency and utilize market forces to build energy performance awareness and motivate investment in energy efficient improvements as a means of improving market competitiveness.

The City began benchmarking certain public buildings on June 1, 2013, and recently reported that participating public buildings were responsible for 3 percent of citywide greenhouse gas emissions (149,000 metric tons of CO2e emissions of a total of 4.9 million metric tons citywide in 2012).[68] Commercial buildings of 100,000 square feet or more were required to commence benchmarking on June 1, 2014, while commercial buildings with 50,000 to 100,000 square feet will start benchmarking on June 1, 2015.[69]

While Minneapolis was the first Minnesota city to adopt a benchmarking ordinance, it likely will not be the last. In its *Thrive MSP 2040* long-range plan adopted in May 2014,[70] the Metropolitan Council recognized the importance of its taking a more active role in assisting local governments reduce their contributions to GHG and increase efficient use of energy. Many members of the Workgroup predicted that other local governments may begin to follow Minneapolis on this path, and that such efforts may in turn increase the demand for more readily available CEUD.

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[64] The following cities earlier enacted similar ordinances: New York, NY; Philadelphia, PA; San Francisco, CA; Seattle, WA; Austin, TX; Boulder, CO; and Washington, D.C.

[65] The term "benchmarking" refers to the collection of current energy usage data for the purpose of measuring future reductions.

[66] Minneapolis City Ord. § 47.190 (February 8, 2013).

[67] These buildings accounted for 46 percent of the citywide emissions in 2010. City of Minneapolis *2012 Benchmarking Report: Public Buildings,* (November 2013), p. 1, accessed at http://www.ci.minneapolis.mn.us/www/groups/public/@citycoordinator/documents/webcontent/wcms1p-117371.pdf.

[68] *Id.*

[69] Minneapolis City Ord. § 47.190.

[70] Relevant information is accessible at http://www.metrocouncil.org/Planning/Projects/Thrive-2040.aspx.

In addition to building benchmarking, the City of Minneapolis and at least 21 other Minnesota cities have been tracking community-wide energy and GHG data for many years.[71] This tracking allows local governments to understand and communicate with residents about impacts, set local goals, and track progress in meeting the state's goals to increase energy efficiency and reduce reliance on fossil fuels. Certain Workgroup members repeatedly cited difficulties with local government data collection efforts given utilities' disparate data distribution practices, and discussed the negative programming impacts that could result if the Commission adopts more restrictive approaches to data access.

3. Regional and National Efforts

The U.S. Department of Energy (DOE) has directed significant resources toward issues related to data sharing. Its publication titled *Data Access and Privacy Issues Related to Smart Grid Technologies,* dated October 5, 2010, DOE recommended increasing public education and affording appropriate protections to detailed energy consumption information, noting: "While utilities need access to this energy consumption data for operational purposes, both residential and commercial consumers should be able to access their own energy consumption data and decide whether to grant access to third parties."[72] In addition, since 2012 the DOE has sponsored a multi-stakeholder effort to create a Voluntary Code of Conduct for use in access to CEUD, the final draft of which is expected before the end of 2014.[73]

Working in partnership as part of the Data Accelerator Project sponsored by DOE's Better Buildings Alliance, Xcel Energy and the City of Minneapolis have entered into a voluntary agreement to develop a tool for building owners and managers to gain access to aggregated, whole-building CEUD, at aggregation levels ultimately determined by the Commission. This two-year pilot project is intended to result in the development of a tool for building owners to gain access to whole-building aggregated data. The project partners acknowledge the Commission's lawful authority to review and approve any proposed data sharing practices that implicate changes to existing regulation and welcome the Commission's input and suggestions as the project develops.

The DOE has also commissioned a study on methodologies for aggregating building level energy usage data. The study is being conducted by the Pacific Northwest National Laboratory, managed by the DOE's Energy Office of Science. It is expected to provide valuable information on minimum aggregation thresholds for use with building benchmarking. Although preliminary information

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[71] *See* "MINNEAPOLIS USE CASE COMMENTS, Docket 12-1344 (March 21, 2014); COMMENT submitted electronically by Rick Carter, LHB, Inc., Docket 12-1344 (March 20, 2014).

[72] U.S. Department of Energy, DATA ACCESS AND PRIVACY ISSUES RELATED TO SMART GRID TECHNOLOGIES (October 5, 2010), p. 3.

[73] More information on the DOE's Voluntary Code of Conduct initiative is available at https://smartgrid.gov/news/doe_addresses_privacy_data_enabled_smart_grid_technologies_convenes_multistakeholder_process.

was initially expected in late 2013, current estimates now tag the release date to late 2014.

B. CEUD Sharing as a Tool for Achieving Policy Goals: Pros and Cons

1. Arguments for Increased CEUD Sharing

Many Workgroup participants identified examples of programmatic efforts wherein broader or easier access to CEUD would directly serve the public policy objectives identified above. According to these discussions, CEUD is used by state agencies, utilities, efficiency implementation vendors, researchers working to identify innovative programs or technologies, program developers implementing energy efficiency, environmental advocates, and others to achieve increased energy efficiency and conservation through direct and indirect utility involvement. On behalf of the proponents of this view, the MDOC identified the following purposes served by increased access to CEUD is an important tool for furthering energy efficiency goals and policies.

1. Baseline establishment and goal setting – Management of energy usage requires measurement. Whether accessed by a consumer, third party, government unit, researcher or other stakeholder, CEUD is increasingly valuable for establishing a baseline of electric and natural gas consumption and demand. Without establishing a baseline, it is nearly impossible to set realistic goals for improvement at the customer, local, state, regional or national level.

2. Engagement and awareness – Often, consumers and other energy conservation stakeholders do not have sufficient knowledge of how energy is consumed, billed or conserved. CEUD can be used to effectively engage consumers and stakeholders for the purpose of increasing critical awareness and advancing energy efficiency project implementation.

3. Program planning and implementation – CEUD can be, and currently is, used to inform the development and planning of efficiency programs ensuring that efforts developed meet the needs of state energy policy goals and of the market. In aggregate form, CEUD can help define and establish performance metrics for programs that are not directly related to utility efficiency activity.

4. Measurement and verification of energy savings – CEUD is critical to ensuring energy efficiency projects are actually achieving the goals set for achievement. Measurement and

verification can occur at the individual customer level as well as in the aggregate in order to ensure that projects and programs are achieving claimed energy savings and to justify further expenditures relating to energy efficiency projects.

In summary, the proponents of this view within the Workgroup identified data sharing as a necessary and effective tool for achieving public policy goals linked to increased energy efficiency. Defining energy efficiency as a compelling and overarching public interest, these Workgroup members concluded that the appropriate balance between customer expectations of privacy and broader data sharing should tip in favor of greater access to CEUD.

2. Arguments Against Increased CEUD Sharing

Other Workgroup participants, including the OAG-AUD and the MLIG, noted that Minnesota's statutory goals related to energy conservation and efficiency should not be considered apart from the specific programs authorized by the legislature to meet those goals. These Workgroup members asserted that the legislature's policy of achieving annual energy savings equal to at least 1.5 percent of annual retail energy sales does not require or authorize utilities to disclose customers' energy usage information to unregulated, outside entities simply because those entities purport to promote energy conservation and efficiency. Rather, these participants asserted that the legislature has provided several regulatory tools — including CIP and other conservation improvement programs, the renewable energy standard, and the resource planning process — to effectuate the policy goals of promoting conservation and efficiency. Therefore, these members questioned whether the Commission should authorize utilities to disclose CEUD in an effort to "balance" customer privacy interests with energy savings goals. At a minimum, these participants suggested that without explicit statutory authorization to release CEUD to further the state's energy policy goals, the Commission should seek a balance that is heavily weighted toward customer privacy.

V. Privacy Rights and Expectations: Consumer Protection Considerations

The Workgroup broadly discussed the privacy expectations of energy consumers as the topic relates to data sharing. Members acknowledged the impossibility of listing every possible concern that any individual customer might raise as a basis for opposing sharing of their CEUD. Generally and without quantification, members noted that some customers may not want their CEUD listed publicly, shared for any purpose even in support of efforts to meet the state's energy goals, or made available in a manner that could expose their energy usage.

Currently, Minnesota has no state law or other required standards specifically directed toward protecting consumer privacy with respect to CEUD. The Minnesota Government Data Practices Act (MGDPA)[74] provides protections for some energy-related data but, as the MGDPA only applies to data in the possession of government entities, the statutory protections it defines are likewise limited. Most directly on point to the Workgroup's discussions, the MGDPA contains statutory protections for government-held "information on individual business customers of a public utility pursuant to section ... 216C.17."[75] Minnesota Statutes, Section 216C.17, is the statutory authority upon which the MDOC collects and publishes the *Minnesota Utility Data Book*, a compilation of utility customer data reported to the agency annually since 1965, which is discussed in relevant detail in section VI below.

On the federal level, there again is no specific law or agency directive related to privacy protections for CEUD.[76] As noted in *A Regulator's Privacy Guide to Third-Party Data Access for Energy Efficiency,*[77] a December 2012 publication of the Customer Information and Behavior Working Group of the State & Local Energy Efficiency Action Network (SEE Action) on contract with the DOE, various privacy standard initiatives being implemented on the federal level should be considered as instructive to state efforts, including:

- Fair Information Practice Principles;
- Consumer Privacy Bill of Rights;
- FTC Codes of Conduct;
- Non-Binding Industry Standards such as U.S. Green Building Council's LEED and the DOE's ENERGY STAR certifications; and
- Privacy Seal Initiatives including TRUSTe.[78]

This publication reviews the importance of commercial building-wide benchmarking to achieving energy efficiency goals, and highlights the role that access to CEUD plays in making such benchmarking possible.

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[74] Minn. Stat. Ch. 13.

[75] Minn. Stat. § 13.68, subd. 1.

[76] *See* Schira, A. "Protecting Progress and Privacy: The Challengers of Smart Grid Implementation." *A Journal of Law and Policy for the Information Society* (Summer 2011).

[77] Available at https://www4.eere.energy.gov/seeaction/publication/regulators-privacy-guide-third-party-data-access-energy-efficiency and at http://energy.gov/oe/articles/regulators-privacy-guide-third-party-data-access-energy-efficiency-now-available.

[78] SeeAction, *A Regulator's Privacy Guide to Third-Party Data Access for Energy Efficiency,* (December 2012), pp. 13-16.

Several of these initiatives share a common core of foundational principles, identified in the Consumer Privacy Bill of Rights[79] released by the Administration of President Obama in February 2012 as follows:

Transparency	Easily understood mechanisms that reflect the scale, scope, and sensitivity of the personal data collected
Individual Control	Policy that makes it as easy for an individual to withdraw consent as it was to grant consent in the first instance
Respect for Context	Consumers should expect companies to handle data consistent with the context of the consumer's consent
Focused Collection	Consumers should have a right to set reasonable limits on data use and collection
Access and Accuracy	Consumers should have the ability to both access and correct any incorrect data
Security	Consumers have a right to secure and responsible handling of personal data
Accountability	Companies must take appropriate measure to ensure compliance, even if transferring data to another party.

[79] The Consumer Privacy Bill of Rights provides a baseline of consumer protections aimed at maintaining privacy in today's interactive and highly interconnected world. This effort was not a specific focus of the Workgroup's discussions, though the project's guiding principles were evident throughout the Workgroup's discussions. *See* CONSUMER DATA PRIVACY IN A NETWORKED WORLD: A FRAMEWORK FOR PROTECTING PRIVACY AND PROMOTING INNOVATION IN THE GLOBAL DIGITAL ECONOMY (February 2012).

VI. CEUD Collection, Requests and Responses: Current Practices

A. Current Data Collection Practices in Minnesota

1. Data Collection by Utilities Serving Minnesotans

Minnesota's utilities collect energy usage data as a business practice incidental yet essential to their primary function: the provision of regulated utility services to customers. Their metering and other data collection infrastructures were built to serve this primary purpose,[80] not to perform as seamlessly accessible data centers.

Minnesota's utilities operate a diverse population of meter types. Many are automated and remotely readable, while others require manual reading. None of the utilities represented in the Workgroup have employed smart meters to date.[81]

While some portion of the meter population is capable of capturing energy usage data in as small as five-minute increments, that capacity is infrequently utilized even by large industrial customers. Hourly or 15-minute increments are the most common usage captures for even the most automated meters available to these customers. Most Minnesota utilities' meters used for residential and commercial customers do not capture CEUD in increments even as small as hourly.

As each system was built independently for unique business purposes, utilities' data collection practices are not uniform in many respects. Most utilities reported that the following statements accurately describe their data collection systems:

- Utilities record energy usage data by meter, which is tied to a customer of record and a billing address.
- Customers are billed, on average, on a regular billing cycle which does not necessarily correspond with the beginning of a month. As a result, annualized averages may not

[80] In its March 21, 2014 submission to the Workgroup, Xcel Energy sought to differentiate its position on various proposed Use Cases with respect to whether the use fulfilled a "primary purpose," defined similarly to the term as used above, or a "secondary purpose," defined by Xcel Energy as any non-primary purpose for which prior notice and explicit customer consent should be required absent sufficient aggregation. Other than in this submission and in the Commission's initial charge to the Workgroup, this nomenclature was not actively used though the concepts were organically embedded in the Workgroup's discussions.

[81] Utilities' reports filed in Docket No. E999/CI-08-948 indicate some degree of advanced metering infrastructure (AMI) deployment in Minnesota, and the MDOC reports that many cooperatives have installed AMI.

correspond with a calendar year or other designated time period.

- Data collection systems are not designed to differentiate between buildings that are publicly versus privately owned or necessarily based on the type of use to which the building is dedicated.

- Collected data is retained, on average, for a period of ten years.

2. Data Collection by the State of Minnesota

Since 1965, Minnesota Statutes Section 216C.17 has required the Minnesota Department of Commerce to:

> maintain an effective program of collection, compilation, and analysis of energy statistics. The statistical program shall be developed to insure a central state repository of energy data and so that the state may coordinate and cooperate with other governmental data collection and record-keeping programs.[82]

Under this authority and as specified in the promulgated Energy Information Reporting Rules,[83] the MDOC collects information in its Regional Energy Information System[84] as reported by the electric and natural gas utilities serving Minnesota.

The MDOC uses much of this data internally in its work. As required by statute,[85] the MDOC also makes the collected information available to the public. In an effort to streamline the processing of data requests and to make the existence of the data more visible to the public, the MDOC compiles information representing the most frequent data requests and posts that information on the agency's website as the *Minnesota Utility Data Book* (*Data Book*).[86] The *Data Book* presents annual and summary data related to energy consumption, numbers of customers, sales revenue, and average price.

As noted earlier, he MGDPA classifies "energy ... data" ... and "information on individual business customers of a public utility" ... furnished to the commissioner of commerce" ... pursuant to section 216C.16 or 216C.17" as

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[82] Minn. Stat. § 216C.17, subd. 1.
[83] Minn. Rules Pts. 7610.0100 to 7610.1130.
[84] This term refers to the information collected by the MDOC through Minn. Rules Pts. 7610.0100 to .1500 and the agency's internal tools and processes for managing that information.
[85] Minn. Stat. § 216C.17, subd. 4.
[86] The *Data Book* was most recently published containing 2010 data, and is available at https://mn.gov/commerce/energy/images/2010v2_Databook.pdf.

"nonpublic data."[87] By law, nonpublic data is accessible to the subject of the data but not to the public without the subject's consent.[88] In its efforts to comply with the Minnesota Government Data Practices Act, MDOC redacts and/or combines the data so as not to release information related to any "individual business customers" before publishing it in the *Data Book*. According to MDOC, its redaction practices would "rarely, if ever, ... result in the redaction of the data of only two customers (i.e., redaction of data for two customer classes with only a single customer in each class)."[89] As this explanation makes clear, the MDOC's practices related to the *Data Book* are grounded only in its interpretation of the Minnesota Government Data Practices Act and not in any public discussions related to privacy protections or the identification of an appropriate aggregation level for utilities faced with CEUD requests.

Many Workgroup participants urged the Workgroup to consider the MDOC's redaction practices as evidence that the agency utilizes a threshold of two as an aggregation standard appropriate for CEUD requests, and further suggested that the Workgroup recommend to the Commission the adoption of a similarly low aggregation threshold. Other participants questioned whether the MDOC's *Data Book* redaction practices complied with the MGDPA and resisted any reliance on these practices with regard to the Workgroup's efforts. The MDOC asserted that "describing [its *Data Book*-related] data redaction as an aggregation method is an inaccurate characterization of its procedures and would be misleading to the reader [of this] Report."[90]

The Workgroup participants formed disparate opinions on this issue at least in part due to the fact that neither MDOC's statutory authority to collect the data nor its publication of the *Data Book* was brought to the attention of the Workgroup during its formal deliberations. These facts were identified by a MDOC representative following the Workgroup's final meeting on May 16, 2014, and were the subject of discussion at a later telephone conference in which several but not all Workgroup members participated. Following this conversation, several Workgroup participants submitted written comments identifying the MDOC's "aggregate threshold of two customers..."[91] of the *Data Book* as a feasible and preferred model for the collection and public distribution of cleaned CEUD from a centralized distribution point. Other members questioned the MDOC's legal authority to utilize the identified redaction procedures even with respect to its publication of the *Data Book*, and strongly opposed any consideration of these practices as a foundation for an aggregation standard for CEUD sharing by

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[87] Minn. Stat. § 13.68, subd. 1.
[88] *See* Minn. Stat. § 13.02, subd. 9.
[89] UTILITY DATA BOOK – CONTEXT AND CLARIFICATION: COMMENTS PREPARED BY MINNESOTA DEPARTMENT OF COMMERCE, DIVISION OF ENERGY RESOURCES, Docket 12-1344 (July 29, 2014).
[90] *Id.*
[91] Language referencing an aggregation "threshold of two customers" was submitted by both MEEA and the City of Minneapolis in suggested redlined changes to a first draft of this Final Report dated July 29, 2014, and formed the basis for comments in approval submitted by other participants.

utilities. Because the Workgroups' formal meeting discussions had already been completed when this topic arose, the members had little to no opportunity to discuss their positions in detail or attempt to achieve consensus.

This issue will likely be a focus of further consideration. The Commission is cautioned to evaluate any and all reliance on or objections to the MDOC's *Data Book* redaction procedures in its future discussions relevant to CEUD sharing. By carefully examining all references to the *Data Book*, the Commission will ensure that its consideration of the issue is grounded in fact.

3. Data Collection at the Federal Level

The U.S. Energy Information Administration (EIA), an agency within the DOE, collects, analyzes, and disseminates independent energy data, analyses, and forecasts. EIA conducts a comprehensive data collection program that covers a spectrum of energy sources, end uses, and energy flows. Its energy analyses, monthly short-term forecasts of energy market trends, and long-term national and international energy outlooks are publicly disseminated, primarily through its website at EIA.gov.

Relevant to the Workgroup, the EIA makes available a data set defining retail sales of electricity by state, by sector, by utility, by customer class, and by number of users and their collective energy consumption. The EIA uses disclosure avoidance techniques that assure that nonzero value data cells are based on the information of three or more respondents.[92]

In addition to providing the information relevant to the EIA, the City of Minneapolis cited multiple additional examples of the collection and dissemination of sensitive information by federal agencies that use disclosure avoidance techniques such as aggregation, anonymization, and other techniques. These agencies included the Bureau of the Census, Department of Agriculture, National Center for Health Statistics, Department of Justice, Department of Labor, and the Department of the Treasury. While these federal agencies do not deal with energy information, they are charged with protecting sensitive data on individuals, and use disclosure avoidance techniques very similar to those beginning to be used by energy utilities and regulators, as cited by the Minneapolis representative. Most of the agencies use at least an aggregation approach, with a common threshold being aggregated information on no less than three to five individuals making up a data cell, as further described in May 5, 2014 comments submitted by the City of Minneapolis and attached as Appendix G to this Final Report.[93]

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[92] *See* RESPONSE TO COMMISSION STAFF REQUEST FOR MORE INFORMATION ON CENSUS BUREAU DOCUMENTATION OF DISCLOSURE AVOIDANCE TECHNIQUES submitted by City of Minneapolis, Docket 12-1344 (May 5, 2014).
[93] *Id.*

B. Responding to Data Requests: Current Utility Practices in Minnesota and Beyond

1. Customers' Requests for Their Own Data

According to the information shared with the Workgroup, all of the represented utilities provide their customers with customer-specific CEUD upon request. Most utilities require that customer requests be made in writing, and many provide a specific consent form for their customers' use. Requests are sometimes processed by telephone if the requestor provides sufficient information to allow the utility to verify that the requestor is actually the customer of record. Requests made by building tenants or others who are not identifiable as the customer of record are denied absent proof of customer consent.

Xcel Energy has recently implemented the Green Button initiative, which allows customers to access their CEUD in readable PDFs through an account portal, download their data, and provide it to whomever they choose without requiring the utility to be involved in the data sharing transaction. CenterPoint Energy also allows its customers to download and share individual data in a table or PDF format. These processes were broadly supported by the Workgroup as a means of providing customers the important ability to easily access their own energy usage data and to efficiently share it with or authorize its access by others.

With respect to requests for building-wide CEUD made by owners of commercial buildings or multi-family residential buildings, the process varies by utility and by metering setup. If the building owner is the customer of record in that the owner receives service invoices and provides payment, the utilities generally release building-wide CEUD to the owner upon request. If the building is separately metered by tenant, most utilities require the building owner to obtain written consent from current tenants in order to receive building-wide CEUD. In the case of very large buildings, some utilities allow a building owner to obtain building-wide CEUD without obtaining consent in certain circumstances.

2. Government Requests for Customer-Specific Data

Minnesota's utilities provide individual customer's CEUD to law enforcement and other government entities as required by law upon proof of a subpoena, warrant or other court order. Specific court orders are not required to provide this data to the Commission, the Minnesota Department of Commerce, the MPCA, the Office of the Attorney General, and other state agencies with specific statutory authority to gather the data for regulatory purposes.

The Workgroup heard many examples of government entities seeking CEUD for important public policy objectives. Upon request, utilities generally provide certain data, including customer name, account status and amount owed, to counties and other local governments without requiring service of a subpoena,

court order or other formal legal process. This practice is based primarily on the shared understanding that the consumer has explicitly consented to the release of data as a required condition of applying for and receiving various types of government assistance or programming (i.e, child support collection; fuel assistance; other social service programs) or that the investigative authority of the involved governmental agency authorizes the release.

In addition, Workgroup members reported various examples of state agencies issuing grants to nongovernmental entities in support of important policy-related studies or other efforts, the results of such were often stymied or limited by the grantees' inability to obtain customer consent to collect necessary CEUD. All of the following programs were referenced as examples of efforts that had encountered difficulty in collecting individual consumer consent: Green Building Program; Minnesota Green Step Cities; Minnesota GreenCorps, public housing studies, as well as certain electric vehicle efforts and environmental assistance programs. Each of these examples involved the collection of customer specific data and not aggregated or otherwise anonymized data.

3. Data Sharing with Utility's Contracted Agents or Vendors

Utilities often contract with third-party vendors for services, which requires the vendor to have access to the utilities' customers' CEUD. For example, vendors who process billing statements or perform collections services for a utility are provided access to customer CEUD. Through contract terms relating to use, retention and required security processes, the utilities generally require their vendors to: (1) maintain appropriate data security; (2) notify the utility in the event of actual or suspected data breach; and (3) not use the data for any secondary purpose. These agreements contain confidentiality clauses such that the exact terms of the contracts are not publicly available for review. Although the Commission has the legal authority to access these documents in appropriate circumstances,[94] the Workgroup did not have or request access to them for purposes of its discussions.

The Workgroup had limited participation by entities that serve as utilities' vendors or contracted agents.[95] Therefore, the Workgroup's discussion of the proper scope of these contractual arrangements was limited.

Energy customers also contract with third parties in ways which involve the release and use of CEUD. When customers purchase energy-tracking appliances

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[94] *See* Minn. Stat. § 216B.12, which allows the Commission access to regulated utilities' "accounts, books, papers, and documents . . . for the purpose of exercising any power provided for in Laws 1974, chapter 429."

[95] One Workgroup participant, CEE, contracts with Xcel Energy and CenterPoint Energy to implement energy efficiency programs that help these utilities meet CIP requirements.

and services, they consent to the third party's receipt of their information for specified purposes. The legal landscape will continue to develop to ensure that these third-party vendors do not stray outside the authorized uses of the data, and that consumers are provided sufficient legal safeguards upon which to rely if and when the vendors do.

4. Non-Contracted Third Party Requests and Responses

(A) For Individual Customer Data

With a customer's consent, utilities routinely provide CEUD to whomever the customer authorizes. Utilities do not limit what they provide other than with respect to what data is maintained and available; they do not seek any assurance regarding how the data will be used or whether it will be secondarily provided to any other entity. In post-discussion submissions, Xcel Energy shared with the Workgroup the privacy policy it administers and under which it allows its customers to authorize release of certain non-CEUD[96] account data to third parties, as follows:

> Xcel Energy also makes available a form for customers to authorize a one-time release of their account data to a third party for purposes such as obtaining a credit reference letter, service verification letter, or lock authorization. Such release typically include the customer's name and mailing address, Xcel Energy account number, service address, service type(s), and service dates. **In no case will Xcel Energy allow the one-time release authorization form to be used to release a customer's Social Security Number or any financial account number to a third party.**[97]

Participating utilities reported that they receive CEUD requests from a multitude of other types of requestors, including both existing and startup businesses seeking the information in order to market products or services to consumers. No matter how related the requestor's identified purpose is to the state's energy savings goals, utilities do not provide their customer's CEUD to these requesters without proof of customer consent. As a result, even entities working specifically to increase or promote energy efficiency must seek and obtain customer consent before they can obtain CEUD or Program Participation Data for a specific property, region or sector of the economy in Minnesota.

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[96] Xcel Energy's customer consent process for the release of CEUD involves the use of a different consent form specific to the type of data being released, as noted at http://www.xcelenergy.com/My_Account/Billing_&%20Payment/Understanding%20Your%20Bill/Customer%20Data%20Access.

[97] FEEDBACK ON DRAFT FINAL REPORT submitted by Xcel Energy, Docket 12-1344 (July 29, 2014), emphasis in submission as provided and as emphasized from original.

The only reported caveat to this general practice relates to utilities' historic practices involving realtors. For decades, some utilities have provided information about a specific property's average annual utility usage and costs to realtors upon request, without proof of consent from a current or former owner or building occupant. Participants explained that this practice grew out of the recognition that this information is useful to facilitate sales and lease transactions. Given the level of current public interest in privacy issues, Xcel Energy recently changed its practice and now requires requesting realtors to obtain specific consent from utility customers, thus handling these requests in the same manner as those from all other non-customer-of-record requestors. Both CenterPoint Energy and Dakota Electric Association reported that they continue to provide realtors, upon request, with a property's average energy usage over the past 12-month period without seeking or obtaining customer consent.

(B) For Aggregated CEUD

Currently there is no regulated data sharing or aggregation standard applicable to utilities in Minnesota.[98] As a result, utilities are developing their own best practices regarding what CEUD should be released, to whom, and for what purpose.

Utilities reported using various different aggregation thresholds in responding to requests for CEUD of a customer group, geographic area or specific class or industry type. Noting that responding to a city-wide CEUD request provides their customers with more anonymity than does responding to a whole-building request involving only five customers with five utility accounts, utilities appropriately differentiate between aggregated CEUD requests made at the community-of-interest level (such as by city, zip code or neighborhood) and requests for whole-building aggregated CEUD. As such, utilities have provided CEUD at a city-wide and greater geographic region by rate class, recognizing that the risk of re-identification is relatively low in those instances.

CenterPoint Energy, Minnesota Power, Minnesota Valley Electric Cooperative and Dakota Electric Association all reported that they utilize a case-by-case threshold analysis in an effort to protect privacy and prevent re-identification for aggregated data requests. They require consent from all tenants that are utility customers when responding to a whole-building CEUD request.

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[98] As noted in footnote 92 above, several Workgroup participants suggested the inclusion of the MDOC's "aggregation threshold of two customers" relevant to its publication of the *Data Book* as evidence of an existing aggregation standard being used in Minnesota with regard to the release of CEUD. This information was not included at this point in the Final Report for the reasons set forth in section VI.A.2 at pages 25-26.

In pursuit of the same privacy protection goals, Xcel Energy currently utilizes its "15/15 Rule" threshold in responding to requests for CEUD in all of its assigned territories nationwide. Using the 15/15 Rule, Xcel Energy consistently provides aggregated data for no fewer than 15 customers in a manner that no one customer can make up more than 15 percent of the aggregated total. Xcel Energy has in the past provided aggregated data at the community scale upon request, as part of the Regional Indicators Initiative.

Responding to non-standardized requests requires the utilities to invest significant amounts of time and resources into reviewing and responding to each. Across the board, utilities participating in the Workgroup expressed a strong desire for standardization in this issue area in order to increase customer protections, define the parameters of utility liability, and reduce the necessary investment of time and financial resources associated with the ever-increasing numbers and complexity of requests for energy usage information.

Government, nonprofit and other community-based interests also seek standardization in this arena as a means of ensuring that they are able to cost-effectively pursue the public's interest in energy efficiency, primarily through benchmarking. As individuals and organizations seek to improve their own or their community's use of and investment in energy resources, they require a baseline of data from which to project savings goals into the future. All of these interests reported that the difficulty of obtaining written consent grows exponentially with the scope of the benchmarking project. All agreed that while it is possible to seek and obtain consent when one is seeking to review the energy usage of a few discrete properties, seeking to benchmark an entire community or even a large commercial property with many separately metered tenants is an effort that requires significant investments of time plus human and financial resources. Participants described the required effort on a spectrum spanning the following measures: "extremely difficult" through "impractical and excessively time-consuming" to "virtually impossible."

The Workgroup took notice of the level of difficulty requesters experience in seeking to gather consent from consumers. Even so, the Workgroup did not conclude that the goal of lessening this difficulty should drive the adoption of standards or practices that put consumers' privacy interests at risk. Instead, an appropriate balance must be struck between the right to or expectation of privacy protections and the need for data access.

5. Responses to Requests by Non-Minnesota Utilities

Workgroup members also provided examples of utilities outside of Minnesota responding to requests for CEUD from non-contracted third parties. In some cases, these utilities' policies have been formulated to respond to local demand for whole-building aggregated data needed for energy benchmarking in commercial buildings. In these cases, utilities have developed minimum

aggregation standards designed to protect individual customer's energy usage data from being re-identified from an aggregated data set. As submitted by the City of Minneapolis and amended in relevant detail by other Workgroup participants as noted, the table below provides examples of existing account aggregation thresholds used by a few non-Minnesota utilities. Acknowledging that the regulatory environments in other states can and do vary significantly from that in Minnesota, the Workgroup is unable to advise the Commission with regard to whether the cited jurisdictions have additional regulations in place which provide additional protections designed to anonymize the identify of an individual or business in an aggregated CEUD request.

Utility Company or PUC	Account Aggregation Threshold Number of accounts/ maximum percentage of total energy usage one account can contribute
Avista (WA)	No threshold.[99] Industrial and manufacturing buildings are exempt.[100]
Consolidated Edison (NY)	No threshold. Industrial and manufacturing buildings are exempt.[101]
Seattle City Light (WA)	No threshold. Industrial and manufacturing buildings are exempt.[102]
Commonwealth Edison (IL)	4[103]

[99] "No threshold" signifies that the utility will release non-exempt whole-building energy consumption data to a building owner without tenant consent regardless of the number of accounts in a building.

[100] *See* City of Seattle Ordinance Number 123993, Section 1, D ("This Chapter shall not apply to buildings used primarily for industrial manufacturing purposes.") *See also* Section D of Director's Rule 6-2011, published on December 5, 2011 and effective May 21, 2012 ("The following building types are exempt from all benchmarking, disclosure and reporting requirements: . . .(d) Buildings used primarily for manufacturing or industrial purposes, as demonstrated by submitting one of the following: a) A valid Certificate of Occupancy or construction permit documenting that at least 50 percent of the building is classified under the current Seattle Building Code as Factory Industrial Group F. This includes buildings used for assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair or processing operations. B) DPD's self-certification exemption form, in which the building owner has verified that: neither they nor DPD staff have been able to locate a Certificate of Occupancy for their building; and their building meets the definition of a Factory Industrial Group F building as classified in the Seattle Building Code.")

[101] *Id.*

[102] *Id.*

[103] Commonwealth Edison's continued practice may be impacted by a recent decision by the Illinois Commerce Commission Decision adopting a minimum aggregation threshold of 15/15. *See* Investigation of Applicability of Sections 16-122 and 16-108.6 of the Public Utilities Act, Docket No. 13-0506 (January 28, 2014) available at: http://www.icc.illinois.gov/docket/casedetails.aspx?no=13-0506.

Austin Energy (TX)	4/80. No threshold for residential buildings. Certain manufacturing buildings are exempt.[104]
Puget Sound Energy (WA)	5
Pepco (DC)	5
Colorado PUC	15/15
California PUC	Residential: by zip code with 100 customer threshold; Commercial/industrial: 15/15
Illinois Commerce Commission	15/15[105]

The City of Minneapolis representative also noted for the Workgroup that, in some cases, non-Minnesota utilities provide customer energy usage data for individual customers, as listed below.

Gainesville Green
Gainesville Green presents the monthly energy usage data (electricity, natural gas and water) for individual households in the Gainesville, Florida area served by Gainesville Regional Utilities. This tool helps residents track their energy use and compare themselves to their neighbors. This data is publicly accessible at the website http://gainesville-green.com.

Madison Gas and Electric
Madison Gas and Electric (MG&E) serves 140,000 electric customers and 145,000 gas customers in Dane County, Wisconsin. MG&E allows the public to search by address for high, low and average monthly energy use over the last 12 months and high, low and average monthly bill amounts over the last 12 months for residential addresses in their service territory.[106]

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[104] The stated threshold only applies to commercial buildings; certain manufacturing buildings are exempt if they meet the criteria for a particular sales tax exemption. *See* City of Austin, Ordinance No. 20110421-002, amending Chapter 6-7 of the City Code Relating to Energy Conservation Audit and Disclosure Requirements (effective May 2, 2011). *See* Chapter 6-7 of the City of Austin Municipal Code, available at http://www.austintexas.gov/resident/city-code. See, http://www.austinenergy.com/ wps/portal/ ae/Programs/ECAD-Ordinance/for-commercial-buildings/, cited in MLIG RESPONSE TO LHB, INC. AND CITY OF MINNEAPOLIS COMMENTS, Docket 12-1344, p. 5 (April 4, 2014).

[105] *See* Investigation of Applicability of Sections 16-122 and 16-108.6 of the Public Utilities Act, Docket No. 13-0506 (January 28, 2014) available at: http://www.icc.illinois.gov/docket/casedetails.aspx?no=13-0506.See note 103.

[106] This data is publicly accessible at http://www.mge.com/customer-service/home/average-use-cost/.

VII. Recommended Components of Any Adopted Minnesota Standard

A. Defined Terms

After extensive discussion and consideration of various proposals, the Workgroup reached consensus on the following definitions of "Customer Energy Usage Data" and of "Program Participation Data." In accordance with the other tracts of inquiry undertaken by the Commission, the Workgroup noted that neither of these definitions is intended to include personally identifiable information within their scope.

Customer Energy Usage Data

> "Customer Energy Usage Data" (CEUD) means natural gas and electric usage data, including but not limited to ccf, Mcf, therms, dth, kW, kWh, voltage, var, or power factor, and other information that is collected from the utility meter for utility purposes,[107] and that is necessary to further state energy goals.[108]

Program Participation Data

> "Program Participation Data" (PPD) means customer specific data related to participation in: types of differentiated rates; programs related to generation;[109] programs related to receipt of energy assistance; conservation improvement and demand response/management programs; and programs related to renewables that is necessary to further state energy goals.

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[107] The OAG-AUD expressed concern with the definition's limitation that data be collected "for utility purposes." Noting that certain utilities contract their meter reading function to outside companies, such as the case of Xcel Energy's contract with CellNet, the OAG-AUD questioned whether outside vendors at times collect more metered data than is necessary "for utility purposes" such that they could be considered outside the intent of the CEUD definition. As an example, the OAG-AUD noted that, while a utility may require monthly energy consumption data to perform its functions, CellNet typically collects energy consumption data multiple times per day. The OAG-AUD was concerned that, under the recommended definition, entities may not consider these numerous readings to constitute CEUD. While the OAG-AUD recommended removing the phrase "for utility purposes" from the definition of CEUD, it agreed to use of the definition for the Workgroup's discussion purposes with the understanding that CEUD would specifically include the consumption data currently collected and recorded by CellNet. Xcel Energy clarified that the more frequent meter reads taken by CellNet support the utility's regulated business and that all data collected by CellNet is subject to the vendor's contract limiting the use of the data.

[108] Despite discussions led by the representative of the MEEA, the Workgroup declined to include the term "District Energy information" in the definition of CEUD. While the Workgroup appreciates that District Energy produces and uses significant amounts of steam heat in its operations, the Commission has no authority to require data disclosure from District Energy, a generator and not a utility, and so its exclusion from the definition was deemed appropriate by the Workgroup.

[109] This reference is intended to include renewable program offerings.

The Workgroup acknowledges that the Commission's charge did not include any reference to Program Participation Data. The Workgroup determined that a definition of this term was necessary given the fact of its direct link to efforts designed to achieve the state's energy goals and the recognition that many of the Use Cases identified below include requests for this type of information. Given that each utility operates different types of energy efficiency and conservation programs, the definition was drafted to include broad program categories rather than specific, named programs.

After agreeing upon this definition, the Workgroup's time-limited discussions did not specifically focus on PPD separate from its discussions of CEUD. Members did acknowledge that the two are separate and distinct, and should be further examined in light of this fact. For example, data aggregation thresholds or other risk mitigation measures appropriate for CEUD may prove inappropriate for PPD. In recognition of the fact that issues related to the sharing of CEUD and PPD are not interchangeable, the Workgroup urges the Commission to further examine and differentiate between CEUD and PPD in its ongoing discussions.

B. Monthly Data Intervals

Throughout the Workgroup's deliberations, participants considered and discussed over 30 potential "Use Cases" for which a data sharing standard should be considered. None of these submitted Use Cases[110] revealed a need for the release of CEUD to any non-contracted third party on a more frequent basis than monthly usage numbers. Identifying this as a specific item of consensus during its discussions,[111] the Workgroup recommends that the Commission limit any CEUD sharing standard to data aggregated at the monthly level, absent additional customer consent.

C. Benchmarking as the Driving Purpose for Data Sharing

In most[112] of the Use Cases submitted by participants, the Workgroup identified one current purpose – energy benchmarking at the building, neighborhood or community scale in support of state and locally-enacted energy efficiency goals – as sufficiently grounded in the public interest to justify the Commission's continued efforts to develop a data sharing standard relevant to

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[110] Following the Workgroup's formal discussions, the MDOC suggested that the matrix of submitted Use Cases may not encompass all scenarios in which less-than-monthly data may prove useful, and cautions the Commission to remain open to considering additional types of data requests in the future.

[111] *See* AGENDAS and MINUTES for Workgroup meetings dated March 21, 2014 and April 14, 2014, included in Appendix D.

[112] As noted in Appendix G, some of the Use Cases involved customers' requests for their own CEUD, which is not necessarily tied to the purpose of benchmarking. For example, customers marketing their properties for sale may request their annual CEUD for the purpose of enhancing the marketability of their property.

CEUD and PPD. No member of the Workgroup proposed consideration of data requests motivated by other market-driven purposes, including economic competition, in apparent recognition that such purposes do not justify the Commission's efforts to regulate this developing field. Without tying any submitted Use Case to these goals, several members of the Workgroup noted that other purposes, including those related to the reduction of energy use and related greenhouse gas emissions, market stimulation for solar energy deployment, as well as climate change reduction and environmental goals, are also served by access to CEUD.

D. Cost Recovery

Most regulated utilities in Minnesota do not currently charge customers or other requesters for the provision of CEUD or PPD. Xcel Energy has tariffs that allow it to charge: (1) a third party requestor for fulfilling request for more than 10 individual customer account data requests;[113] and (2) individual customers for specialized, interval CEUD reports or data feeds of their own data. Xcel Energy processed 112,400 submitted consent forms from Minnesota customers in 2013 and additionally responded to a significant number of subpoenas and other court orders; it has noted a significant increase in these numbers in 2014.[114] Whether the request is as simple as a copy of last month's residential invoice for one customer, or annualized energy usage for an entire community accessed by specific zip codes, historically utilities have invested the necessary staff hours into pulling and manipulating responsive data, no matter the cost or time commitment, without an ability to seek specific remuneration for costs associated with necessary technology or staff time. Traditionally these costs have been spread across all consumers through each utility's rate structure.

Subject to the participants' disagreements regarding whether requests for CEUD or PPD sharing fall within the definition of "utility service" for jurisdictional purposes, the Workgroup agreed that any mandated data access standards should be cost neutral to utilities. The Workgroup did not thoroughly discuss whether costs should be paid by the requestor or allocated to all customers. Various members expressed contrary views on the topic: MLIG asserted that ratepayers should not be assessed the costs of requests distinct from utility service (e.g., requests made for academic research purposes);[115] while the Center for Energy and Environment opposed assessing request-related charges to government entities, third parties under contract with utilities, or entities

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[113] These are typically third parties who assist business customers with management of their utility bills.

[114] Comparatively, Xcel Energy has processed approximately 69,000 consent forms as of July 31, 2014. Minnesota Valley Electric Cooperative and Dakota Electric Association estimate that they process 100 requests annually; the other participating utilities do not track these requests, though Minnesota Power reported that it responded to 12 subpoena requests in 2013.

[115] COMMENTS ON MAY 16TH MEETING AND MAY 21ST TELEPHONE DISCUSSION: PUC DOCKET NO. CI-12-1344 submitted by MLIG, Docket 12-1344, at 8-9 (June 6, 2014).

conducting research for a public, not-for-profit purpose.[116] Reasonable costs of both technology improvements and staff hours related to processing data responses could be included in cost recovery plans with the requirement of transparency supporting reimbursement requests.

The utilities were unable to provide any definite cost estimates to inform the decision-making. Anecdotally, the following gross estimates of potential utility-specific costs were shared.

Xcel Energy	Estimated IT-related development cost for Green Button was $1.3 million, which figure assumed no need for new software, with a one-year development timeframe.
Minnesota Valley Electric Cooperative	Estimated $80,000 for IT development plus $20,000-$40,000 annually.

Xcel Energy reported that in the California proceeding utilities estimated their development costs between $1.6 and $19.4 million, plus ongoing operational costs.[117]

E. Differently-Focused Use Cases Treated Differently

The vast majority of the Workgroup's time involved discussions centered on an identification of the specific types of CEUD Use Cases that members proposed as sufficiently linked to attaining the state's energy goals such that these requests should be granted by utilities. The consensus reached by the Workgroup on this list of Use Cases provides a basis of agreement upon which the Commission can continue to build in any ongoing discussions related to the development of a regulated data sharing standard.

By category, the participants debated the identified purpose of the request, the type of requestor, the apparent connection to the state's energy savings goals, and the risks associated with improper disclosure. Though these identified[118] Use

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[116] CEUD WORKGROUP COMMENTS – RESPONSE TO DRAFT REPORT submitted by Center for Energy and Environment, Docket 12-1344, at 2 (July 29, 2014).

[117] *See* DECISION ADOPTING RULES TO PROVIDE ACCESS TO ENERGY USAGE AND USAGE-RELATED DATA WHILE PROTECTING PRIVACY OF PERSONAL DATA, California PUC Decision 14-05-016, at p. 105 (May 5, 2014) (internally citing utilities' filings documenting costs and allowing utilities to "book incremental costs to a memorandum account and seek recovery through an adjustment to revenue requirements in their next general rate case or in an application to recover these costs.")

[118] Every Use Case suggested by any participant was submitted to and considered by the Workgroup. Because suggested Use Cases represented only scenarios for which the proposer urged inclusion as a type of CEUD request that should be granted by utilities, requests that participants did not support were not proposed or included in the Use Case Matrix. As an example, while the Workgroup acknowledged that marketing or advertising interests may seek access to CEUD or PPD for commercial benefit, because this purpose does not assist the state in achieving

Cases are not unique to Minnesota, the Workgroup's consideration of each was specific to the legal and policy environments that exist in the state and required consideration of the following questions:

Who wants the data and for what purpose?

- What type and granularity of data is sought, and at what frequency?
- How will the data be used?
- What state energy or other public purpose drives the need for the data?
- Can the data be accessed from the customer or other non-utility source in a cost-effective and practical manner?
- Is the requested data collected and maintained by utilities in a manner that it is available to be produced?
- Is the utility's cost of producing the data justified by the public purpose motivating the request?

The results of the Workgroup's complete analysis are noted on the final Use Case Matrix attached as Appendix G to this Final Report. In summary terms, the Use Cases can be considered in four unique categories, as illustrated below.

its energy goals no participant urged inclusion of this type of request on the matrix. As such, the Commission should note that the Use Case Matrix is not an exhaustive or exclusive list of all types of Use Cases imaginable; it constitutes instead the Workgroup's consensus on the specific Use Cases for which data access should be allowed with appropriate safeguards for consumer privacy.

1. Use Cases 1 and 2: Requests for Individual Customer Data Require Consent

(A) Use Case 1: Customer's Request for Own Data

The Workgroup agreed that any utility customer should be able to obtain their own CEUD or PPD upon making a verifiable request to the serving utility. As long as the utility can reasonably confirm the identity of the customer, the data should be freely shared upon request.

A non-exhaustive and summarized list of the potential purposes for an individual consumer's CEUD request includes seeking information necessary to:

- Analyze billed energy usage;
- Analyze payment history;
- Verify utility service;
- Verify a payment (EDI/electric billing);
- Provide a credit reference;
- Provide information to a third party; or
- Prepare a regulatory Inquiry or complaint.

(B) Use Case 2: Third Party's Request for Identifiable Customer's Energy Usage Data

The Workgroup also reached consensus that no requester should be allowed access to any specifically-identifiable customer's CEUD without obtaining the customer's consent. For example, customer consent would be required to obtain the identified CEUD or PPD for:

- A specific single-family home located at 123 Main Street in Lake Wobegan, Minnesota;[119]
- John Q. Public's separately-metered office space located anywhere in Minnesota;

[119] Though some members of the Workgroup, specifically including Fresh Energy, continued to support release of this information to realtors without customer consent, the consensus of the Workgroup was to require consent for realtors as well notwithstanding past practice to the contrary.

- The multi-tower office building occupied by the Abraham Lincoln Law Firm in St. Paul, Minnesota; or

- A multi-family apartment complex with only one utility meter, for which the property owner is the customer of record; the property owner's consent would be required for release of the data.

In each of these cases, the CEUD would reveal the energy consumption of one identifiable customer or entity. In such cases, the Workgroup determined that the privacy or confidentiality interests of that entity or individual outweigh the potential public benefits of disclosure such that customer consent should be required.

2. Use Case 3: Request for Whole-Building CEUD Requires Aggregation and Other Risk-Mitigation Measures

This Use Case represents various ongoing and growing efforts to utilize building-wide benchmarking to increase energy efficiency in support of achieving the state's energy savings goals. Proponents consider collection of current CEUD for the purpose of understanding past use as a first step toward reducing future energy use. The components of this Use Case are set forth below.

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Energy Benchmarking Multi-tenant/ Multi-family/ Commercial Building with Separate Tenant Meters

Requester	Real Estate Agents for Sales or Lease Transactions	Building Professional (Architect or Engineer) for new design/ construction or retrofitting	Building Manager or Owner	Research and/or Policy Development
Data Requested	kWh, therms, costs	kWh, therms, costs, monthly/annual energy use in kBtus	kWh, Therms, MMBTU, Ton-Hours - other common energy consumption units	kWh; therms; participants; include pre and post analysis of retrofitted measure
Frequency Interval	Monthly and average annual data	Average annual monthly data	Actual monthly, actual annual	Monthly or annual data, updated at specific intervals for statistical analysis
Granularity	Individual building – may include multiple meters	Building type and size (sq. ft.); compare using individual building type, single/multiple meter	Individual building with multiple meters	By customer type/rate class
Purpose	Calculate annual energy budget and cost-benefit analysis for presale energy improvements	Energy modeling for comparison to other buildings and to minimums in Building Energy Code	Energy benchmarking to assess performance, track progress, plan improvements/ upgrades	Research and analysis linked to efforts to benchmark and measure energy usage

Availability

Utilities maintain CEUD by meter. CEUD is also maintained by billing or service address, but utilities do not group the number of buildings or units at an address, the customers in a building or at an address, or the number of meters located at a specific building or address. As a result, requested data is not readily available due to multiple meters at same address. Utilities do not consistently maintain building characteristics, such as industry type, size or other attribute information including 'public' building identifiers. Participating utilities also do not maintain CEUD in kBtus, and do not calculate or track emissions factors on an individual customer or premise basis.

As noted above, this Use Case includes requests for CEUD that is not readily available from the utilities' data storage systems as currently configured. Therefore, further consideration of this Use Case will require the Commission to examine cost recovery mechanisms related to any required changes in data collection systems. The Workgroup acknowledged that the aggregation threshold applied to whole-building CEUD requests may need to be different than that of geographically-based CEUD requests.

3. Use Case 4: Requests for Geographically-Defined CEUD Require Risk-Mitigation Measures

This Use Case is focused on requests for CEUD used to benchmark a neighborhood, city, or other geographically-defined community-of-interest. As indicated on the summary chart that follows, much of the requested information is not currently available in utilities' current data collection systems. During Workgroup discussions, most if not all of the utility participants noted that they had in the past responded to requests for community-scale CEUD by undertaking resource-dependent efforts designed to address the specific parameters of each request. The Commission should note that further consideration of this and similar Use Cases will require a thorough exploration of the unresolved issues of aggregation and cost recovery, addressed later in this Final Report.

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Energy Benchmarking by Geographic Area within a Utility Service Territory (by City, Neighborhood, or other Defined Community of Interest)

Requester	Research and/or Policy Develop-ment	Third-Party	Non Profit Program Manager (i.e., ULI Regional Indicators Program)	Local gov't (City or County)	Neighborhood Association or Community Group
Data Reques	kWh, therms, participants		All energy converted to kBtus	kWh; therms; emissions factor; PPD	kWh; therms; program participation data
Frequency and Interval	monthly or annual data, updated one time or at specific intervals for statistical analysis		Monthly consumption data	Annual data, each year	Monthly & annual data each year
Granularity	By customer type/ rate class		Ideally separate data for Residential, Public Buildings and Commercial/ Industrial	Citywide data, broken down by census block group and customer type	Multiple buildings within parameters of determined boundaries (i.e., neighborhood-wide, county-wide, etc.); likely broken down by customer type
Purpose	Benchmark a neighborhood's energy usage and CIP participation; determine energy savings potential		Benchmark and track cities' energy use and emissions annually	Measure citywide progress toward state and local energy goals	Measure and meet neighborhood and state energy goal progress
Availability	Utilities maintain CEUD by meter, which can be associated with a customer's rate class. CUED is also maintained by billing or service address, but utilities do not group the number of buildings or units at an address, the customers in a building or at an address, or the number of meters located at a specific building or address. Utilities also do not maintain data categorized by geo-political boundaries (neighborhood) or by 'public' building identifiers. Participating utilities noted that they do not maintain CEUD in kBtus, and do not calculate or track emissions factors on an individual customer or premise basis.				

4. Use Cases 5 and 6: Special Requests Require Commission Approval

(A) Use Case 5: Researchers' Requests

This illustrative Use Case involves a request made for data necessary to compile energy statistics by customer segment. These requests would generally be made by or on behalf of a research facility, policy-maker or its contracted third party entity. The request encompasses data not otherwise available from public sources, and from too large of a customer segment to support individual requests for consent. The Workgroup identified no potential public harm that could result from the standardized release of this CEUD, assuming the granularity of production is by rate class, the aggregation meets minimum threshold levels, and is absent of any personally identifiable information.

Energy Benchmarking by Customer Segment

Requestor	Research and/or Policy Development	Third-Party
Data Requested	kWh, therms, participants	
Data Interval/Frequency	Monthly or annual data, updated one time or at specific intervals for statistical analysis	
Granularity	Rate Class	
Use of Data	Research and analysis	CIP development & implementation
State Energy Goal	Minn. Stat. §§ 216B.241, 216B.2401, 216B.2422 [CIP and IRP]	
Available from Utility?	Yes if at total system/utility level. Usage maintained by individual meter with an associated rate class. Billing cycles may not align with monthly data, so monthly data may be an estimate.	

(B) Use Case 6: Governmental Requests[120]

Throughout the Workgroup's discussions, participants raised for discussion various governmental agencies' identified needs for CEUD. The type, frequency and granularity of the agencies' data requests correspond with those noted above, as does the driving public purpose: achieving the state's energy savings goals. Considered together in summary form as noted below, this Use Case addresses several types of public efforts.

Energy Benchmarking by Government Agencies

Agency	Purpose	Availability
Minnesota Department of Labor & Industry, plus its contracted agents	State Building Energy Code[121] compliance studies	Utilities maintain CEUD by meter and by billing or service address, but do not capture the number of buildings or units at an address, the customers in a building or at an address, or or the number of meters located at a specific building or address. Grouped CEUD is not readily available for properties with multiple meters at same address.
Public Housing Authorities	Benchmarking existing building portfolios by government finance agencies	
County and City Governments leasing space	Benchmarking of buildings used for public purposes	
Minnesota Pollution Control Agency, plus its contracted agents	Efforts in support of implementation of Toxic Pollution Prevention Act[122] plus others efforts to achieve measurable environmental outcomes.	

Although the Workgroup was supportive of the government's need to obtain CEUD for efforts serving an important public purpose, participants noted that government requesters and their contracted agents generally have many more tools at their disposal than do nonpublic entities with respect to obtaining CEUD. State agencies can seek statutory or rulemaking authority to compel data disclosure, and in some instances can require disclosure as a contracted term of any provided grant funding. The Workgroup agreed that local governments do not necessarily have the same access to these tools, and cannot compel data

[120] This Use Case represents data requests from governmental agencies that do not otherwise have the legal ability to compel production of CEUD or PPD as a matter of statutory or subpoena authority.
[121] Minn. Rules Pts. 1322 (Residential) and 1323 (Commercial).
[122] Minn. Stat. § 115D.01 – 115.D12.

disclosure based on their status as utility consumers. Although municipal agencies may in limited instances be able to include reasonable disclosure terms in grants and/or franchise agreements as an accountability measure tied to the use of public funds, in most situations their ability to require data disclosure is very limited, to nonexistent. In recognition of these differentiating factors, the Workgroup did not compile an exhaustive list of either the governmental agencies in need of CEUD or of the other avenues that might be available to satisfy these needs outside a Commission proceeding.

VIII. Reducing Disclosure Risks Through Mitigation Measures

Release of customers' private CEUD carries some level of risk. The risk varies based on the type of CEUD released, the type of customer that is the subject of the CEUD, and the disclosure avoidance mechanisms that have been applied to the data before it is released. Commercial and industrial customers may be at risk of having their trade sensitive operations information being put in the hands of competitors; residential customers may bear the risk of personal security violations or unwanted intrusion into matters related to the operation of their homes, such as in the case of shared real-time data. The CEUD Workgroup was not equipped to assess the types and severity of risk present for all types of CEUD release. Rather, the Workgroup engaged in a general discussion of the range of potential risks and the types of disclosure avoidance mechanisms that could be used to minimize risk.

The Workgroup participants generally agreed that development of any mandated data sharing standard would require the implementation of the risk mitigation measures best designed to protect utility customers from being identified while still making CEUD information available to those who need it to meet state energy goals. Even in pursuit of the laudable public purposes represented in the Use Cases identified above, the Commission should use caution in determining whether, and how, to balance consumers' privacy and confidentiality interests against the public interests at stake. In an effort to assist the Commission in that task, the Workgroup identified the following risk mitigation measures for the Commission's consideration. Consensus was not achieved with respect to any one measure being better than others; the Workgroup concluded that risk mitigation measures should instead vary with the amount of risk represented in any approved Use Case. For this reason, all proposed and discussed risk mitigation measures are summarized below.

A. Aggregation

The most widely practiced risk mitigation measure is aggregation. In this Final Report, the term is used to refer to the practice of manipulating or combining data for the purpose of preventing either the identification of the customer or the re-identification of the customer's information from a larger data set. The

Workgroup discussed multiple aggregation measures,[123] all of which generated both support and opposition for the reasons stated below.

1. 15/15 Rule

In its tariff filing and in the Workgroup discussions, Xcel Energy proposed adoption of the 15/15 Rule, the aggregation standard it has adopted as a corporate-wide policy and practice. Using this measure, Xcel Energy releases CEUD only if the requested data set contains at least 15 customers and no one customer accounts for 15 percent or a greater amount of the aggregated data set for each customer class. Xcel Energy noted that adherence to its customer notice and consent process is fundamental to maintaining its customers' privacy and confidentiality, and that the release of aggregated data reports should reasonably protect against re-identification of individual customers and their energy usage data. It has determined that the 15/15 Rule reasonably meets these parameters in appropriate circumstances.

The state of Colorado adopted the 15/15 Rule as a minimum aggregation level as part of a rulemaking proceeding in 2012.[124] In Colorado, the 15/15 Rule requires that aggregated data contain at least 15 customers or premises and, within any customer class, no single customer's data or premise may comprise 15 percent or more of the data aggregated in that customer class.[125] The rule has also been used by utilities in California,[126] and was recently adopted in Illinois.[127]

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[123] The aggregation standards referred to in this Final Report represent only those standards specifically discussed by the Workgroup and do not represent all of the potential aggregation standards that could be adopted by the Commission or that are used elsewhere. For example, the OAG-AUD noted in comments filed with the Workgroup that the Health Insurance Portability and Accountability Act (HIPPA) requires that, absent an appropriate technical analysis, data must be removed of all unique identifiers and aggregated to the level of a zip code's first three digits, with no fewer than 20,000 people, in order for the data to be considered not individual identifiable health information. *See* 45 CFR § 164.514.

[124] 4 Colo. Regs. 723-3, § 3031. Attempts to revise Colorado's 15/15 Rule were recently considered as part of the Colorado PUC's Docket No. 13M-1052EG, IN THE MATTER OF POSSIBLE REVISIONS TO THE COMMISSION'S ELECTRIC RULES AND POSSIBLE ADDITIONS TO THE COMMISSION'S GAS RULES RELATING TO DATA ACCESS AND PRIVACY. Without adopting any changes, this proceeding was closed by minute entry on April 30, 2014. *See* docket filings accessible at https://www.dora.state.co.us/pls/efi/EFI_Search_UI.search.

[125] 4 Colo. Regs. 723-3, § 3031.

[126] *See* DECISION ADOPTING RULES TO PROVIDE ACCESS TO ENERGY USAGE AND USAGE-RELATED DATA WHILE PROTECTING PRIVACY OF PERSONAL DATA, California PUC Decision 14-05-016, at p. 24 (May 5, 2014).

[127] The 15/15 Rule for the sharing of customer usage information was originally adopted by the California Public Utilities Commission in Decision 97-10-031 during the implementation of direct access. See ORDER INSTITUTING RULEMAKING TO CONSIDER SMART GRID TECHNOLOGIES PURSUANT TO FEDERAL LEGISLATION AND ON THE COMMISSION'S OWN MOTION TO ACTIVELY GUIDE POLICY DEVELOPMENT OF A SMART GRID SYSTEM, California PUC Decision 14-05-016 at 24, n. 48 (May 5, 2014). For the Illinois proceeding, see INVESTIGATION OF APPLICABILITY OF SECTIONS 16-122 AND 16-108.6 OF THE PUBLIC UTILITIES ACT, Docket No. 13-0506 (January 28, 2014), available at http://www.icc.illinois.gov/docket/search.aspx.

The recommended adoption of the 15/15 Rule in Minnesota generated opposition both from Workgroup members who found it too stringent and others who found it too lenient. The first group noted that requiring at least 15 customers' data to be aggregated would frustrate building-scale, city-wide, and neighborhood-specific energy savings efforts currently being undertaken in the City of Minneapolis. For example, a representative working with the City's East Isles Green Team reported to the Workgroup that approximately 60 percent of the neighborhood's residents live in 80 multi-family buildings. Implementation of the 15/15 Rule would prevent that group from non-consensually collecting aggregated consumption data for 55 of these buildings because each has less than 15 tenants; instead, the data collectors would need to obtain customer consent from tenants in all the buildings with 15 or fewer tenants.[128] For similar reasons, most of the participants representing organizations focused solely on energy efficiency efforts opposed generalized adoption of the 15/15 Rule in light of stated preferences for other proposals, as noted below.

The OAG-AUD expressed its concern that the aggregation standard represented by the 15/15 Rule has not been adequately evaluated on a technical level to determine if it sufficiently protects customer privacy. Similarly, MLIG expressed concern that a 15/15 aggregation standard may not prevent reverse engineering into a large industrial customer's specific CEUD, and provided an example of such for the Workgroup's consideration.[129] The MLIG representative noted that, by its very nature, large industrial customers' energy use is conspicuous and often relatively geographically isolated. As such, MLIG shared the view that these particular customers' data may be of greater risk of re-identification through reverse engineering if combined with other publicly available information and used to identify a plant's costs of operation, a data point with obvious anti-competitive value.

In response to these identified concerns, other Workgroup members noted that Minnesota industrial customers' data aggregated at low levels, even below the 15/15 Rule's standard, is already widely available from sources such as EIA and the *Data Book*. The City of Minneapolis, as well as Fresh Energy, USGBC-MN, and MEEA also respectfully highlighted the fact that neither the MLIG nor other Workgroup members identified any proven instance wherein the availability of this data has led to customer re-identification, in Minnesota or elsewhere.

MLIG questioned some Workgroup participants' foundational assumption that the energy efficiency efforts of nonprofits and other organizations would adhere to the benefit of MLIG members.[130] Addressing this issue, participants

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[128] *See* AGGREGATE CONSUMPTION DATA FOR EAST ISLES BUILDINGS submitted electronically by David Bryan, Third Level Design, Docket 12-1344 (March 27, 2014).

[129] MLIG JURISDICTION ANALYSIS AND RISK ASSESSMENT FILED BY MLIG, Docket 12-1344 (March 14, 2014).

[130] The National Federation of Independent Business (NFIB) participant noted during the Workgroup's September 20, 2013 discussions that these expressed concerns are not unique to large industrial customers. Noting that most of the small businesses in Minnesota are organized as

generally explained their understanding that large industrial customers, like other energy users, would benefit from assistance in efforts to improve energy efficiency through CEUD sharing, viewing such as an opportunity to reduce costs and improve efficiencies and profitability. In response, MLIG explained that its members have a strong financial incentive to keep their energy costs as low as possible, which already motivates them to invest in human, technological and other investments in energy efficiency as well as conservation efforts, both with the aid of CIP and otherwise. MLIG concluded that the Workgroup members had produced no evidence indicating that benchmarking efforts by nonprofit organizations or others would add any significant value to these consumers' ongoing efforts. As a result and given the identified risk of economic competition, the entities represented by MLIG oppose being included in any data sharing standardization efforts under consideration by the Commission.

2. Rule of 4/80

In an effort to learn from existing efforts to match risk mitigation strategies to actual risks of data disclosure, the City of Minneapolis provided the Workgroup with materials describing various aggregation and disclosure avoidance techniques, including those used by the U.S. Census Bureau.[131] Two of the main risk mitigation tools utilized by federal agencies include aggregation and a calculation based on the percentage of the total made up by an individual customer. With these tools in mind, and after considering information related to aggregation thresholds adopted by non-Minnesota utilities as set forth above,[132] the City of Minneapolis proposed an aggregation threshold for requests seeking whole-building data. In essence, the proposal provides that any request for CEUD or PPD data on a building-scale must include the aggregation of at least four customers. Requests for energy consumption data for a geographic area (city, county, neighborhood, etc.) within a utility service area would require aggregation of four customers of any one type with no one customer making up more than 80 percent of that customer type's total usage within the geographic area.

Subchapter S corporations and many operate out of home offices, this participant concluded that the delineation between corporate and personal entities can be somewhat obscure such that it may be difficult to differentiate between business and personal CEUD. These boundary issues raise additional concerns when considering standardization practices for release of this data absent customer consent.

[131] *See* RESPONSE TO COMMISSION STAFF REQUEST FOR MORE INFORMATION ON CENSUS BUREAU DOCUMENTATION OF DISCLOSURE AVOIDANCE TECHNIQUES submitted by City of Minneapolis, Docket 12-1344 (May 5, 2014) (citing to *Statistical Policy Working Paper 22 – Report on Statistical Disclosure Limitation Methodology*, published by the U.S. Office of Management and Budget, Federal Committee on Statistical Methodology, attached as Appendix G and accessible at http://fcsm.sites.usa.gov/files/2014/04/spwp22.pdf.

[132] See Table on pages 33-34.

Rule of 4/80 Proposal for Whole-Building & Community-Scale Data

Use Case Type	Requirements for availability	Other risk mitigation measures
Building-scale use cases (monthly or annual whole-building usage data, from multiple tenants, provided to a building owner/manager or other entity)	Minimum of four customers, aggregated	Standardized requestor verification form and other measures to validate ownership/management interests in the building (meter numbers, etc.).
Community-scale use cases (monthly, quarterly or annual usage or PPD at the block group level for each of the following customer types: commercial, residential and industrial)	Minimum of four customers of any one type (residential, commercial, industrial), with no one customer using more than 80 percent of the total usage for that customer type in that geography, which can be combined until thresholds are met.	Standardized requestor information form, and agreement to terms of use, submitted to publishing entity (utility, DOC, etc.).

The OAG-AUD opposed the Rule of 4/80, advising that the purported purpose of developing an aggregation standard was to protect customer privacy in situations where obtaining individual consent from numerous utility customers was too burdensome for a data requestor. The OAG-AUG suggested that obtaining individual consent from as few as four customers should not be considered to be overly burdensome.

3. Large Industrial Exemption

Positing that large industrial CEUD is often anomalous in a particular geographic setting and is sensitive information for energy intensive companies, MLIG repeatedly expressed concerns about the ability to potentially reverse engineer company-specific information from responses to aggregated requests. As an example, MLIG noted that many of the suggested thresholds consider only what is being requested and not what might be intentionally left out of a request. MLIG offered a sample means to reverse engineer even under a 15/15 threshold: intentionally exempting from the request a city or region with a large industrial customer; then making an additional request for the same area without omitting the large industrial customer; upon comparison of the two results, being able to identify the energy usage of the specific large industrial customer. Once again it asserted that its members' CEUD is uniquely susceptible to reverse engineering and particularly sensitive given the harm that could be caused by its misuse.

In consideration of its concerns and rather than dismiss any particular threshold as too lenient, MLIG offered a proposal that it suggested could work in tandem with virtually any other aggregation threshold: exempting data for customers with energy usage over a specified threshold. In its basic form, the proposal would set the threshold in such a way that most data that can be effectively benchmarked is still subject to aggregation, but unique, industrial enterprise energy data would not be disclosed. MLIG suggested the following would be exempt from data disclosure:

- electric customers with a peak demand of 5 MW;
- natural gas customers with demand of 500,000 MCF or greater.[133]

As measured at 2013 calculations and related only to the utilities participating in the Workgroup discussions, the first category would exempt 98 entities; the second would exempt 26 entities.[134] MLIG further requested that customers that impose a peak electric demand of 1 MW or greater be provided the opportunity to opt-out by providing the utility notice of its objection.

Several Workgroup participants expressed opposition to this suggested exemption threshold, and appeared to claim that communities would be unable to gather a complete picture of their energy use and resulting benchmark calculations if large industrial users were always excluded from data sets. In response, MLIG continued to question what value a large industrial customers' CEUD would add to a community's energy efficiency plans given the unique and complex manufacturing processes of large industrial customers. Other participants supported the MLIG's exemption proposal for CEUD requests focused on smaller geographic areas, but perceived the risk of re-identification to be less significant with respect to requests focused on state boundaries.

4. California Decision/ Aggregation by Zip Code

Less than two weeks before the Workgroup's final meeting, the California Public Utilities Commission released its *Decision Adopting Rules to Provide Access to Energy Usage and Usage-Related Data While Protecting Privacy of Personal Data* (California Decision).[135] Because this decision was released shortly before the Workgroup concluded its discussions, the Workgroup was not able to fully analyze or extensively discuss the merits of the California Decision.

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[133] THOUGHTS ON APRIL 18TH MEETING DISCUSSION AND AGGREGATION: PUC DOCKET NO.CI-12-1344 submitted by MLIG, Docket 12-1344, p. 3 (May 5, 2014).

[134] Workgroup participants requested an accounting of how many of these customer types were located in each service territory. MLIG produced a total for the whole state, not identified by territory.

[135] DECISION ADOPTING RULES TO PROVIDE ACCESS TO ENERGY USAGE AND USAGE-RELATED DATA WHILE PROTECTING PRIVACY OF PERSONAL DATA, California PUC Decision 14-05-016 (May 5, 2014).

Regardless, the California Decision adopted a different aggregation standard than those discussed by the Workgroup. For purposes of publishing CEUD on utility websites, the California standard allows for data aggregation at the zip code level, unless a specific zip code fails to meet minimal aggregation thresholds established for each customer class. For data sets that utilities are directed to make public for general use, minimum aggregation standards are as follows: a zip code must have at least 100 residential customers, or utilities must aggregate neighboring zip codes until the aggregation threshold is reached. For commercial, industrial and agricultural customers, a minimum aggregation threshold of 15 customers must be met, with no one customer comprising more than 15 percent of the total consumption in that class.[136] The California Decision adopted a lower minimum aggregation standard for reports released to government agencies, but required that the receiving agency agree to terms and conditions limiting the data's distribution.[137] Though the Workgroup did not discuss in detail these proposed aggregation standards or other data privacy mechanisms adopted in the California Decision including anonymization, it did agree that the California Decision should be studied further by the Commission as it continues to consider the relevant issues within the framework of Minnesota's legal and regulatory systems. In this context, the OAG-AUD identified this zip code-based aggregation threshold for the Commission's consideration.[138]

B. Anonymization[139]

The Workgroup did not substantively explore this option separate from its discussions about aggregation with the removal of all PII. Overall, the participants agreed that, depending on the size of the associated geographic area attached to a request, releasing a specific customer's CEUD, even without a name attached, could be sufficiently subject to the risk of re-identification to justify the requirement of formal consent. For example, a CEUD request for an anonymized big-box retailer located anywhere in the Longfellow neighborhood in Minneapolis would in fact include the data of only one customer, which could then be easily identified. A request for CEUD for one anonymized residential customer located anywhere within the same neighborhood is far more unlikely to result in re-identification. Generally, the addition of specific criteria (one residential customer located on a particular block, or one paper mill in a specific county) or the reduction in the size of an associated geographic boundary increases the risk of re-identification.

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[136] Notwithstanding the identification of this standard, the California Decision, *Id.*, at p. 24, specifically notes as follows: "The Commission has not adopted a '15/15 Rule' for the sharing of customer usage information contemplated in this and related proceedings. The '15/15 Rule' was adopted in D.97-10-031 relating to access to customer information during the implementation of direct access. Under a 15/15 rule, a data set is considered anonymized if it consists of at least 15 members, and no one member accounts for more than 15% of the quantity measured."

[137] *Id.*, at pp. 142-143 and Attachment A. For a census block, the specific aggregation levels are 15/20 for residential customers and 525 for industrial customers.

[138] *See* redlined version of draft report submitted by OAG-AUD (July 29, 2014).

[139] The term "anonymization" refers to the process of removing or encrypting personally identifiable information from data sets.

Although the Workgroup did not discuss this concept in detail, Xcel Energy and other Workgroup members suggested that anonymization could prove to be an appropriate privacy and confidentiality protection strategy for CEUD or PPD requests related to research or other public policy purposes. MEEA advised that anonymization of individual usage data was identified as an appropriate disclosure avoidance tool for some use cases identified in the California Decision. Generally, the Workgroup agreed that further input and record development would be required in order to identify the circumstantial links between anonymization and the risk of re-identification in order to develop methodologies to protect against foreseeably negative consequences.

C. Registration

The Workgroup considered the concept of registration as it pertained to potential data requestors. The state of Colorado currently requires requestors to file a certificate of ability to conduct business in the state before receiving any data upon request from a utility.[140] Some Workgroup participants suggested that a utility-by-utility registration process would be unduly cumbersome and recommended that any registration process be centralized. The Workgroup did not explore this issue in detail or reach any consensus on the topic.

IX. Two Proposals: Choosing the Right Threshold and Standardizing the Data

A. Statistical Study of Risk Mitigation Measures

The Workgroup agreed that different Use Cases present varying degrees of disclosure and re-identification risks depending on the class of consumer (residential, commercial, industrial); the data frequency (monthly data versus annual data or averaged data); the granularity of the data requested (one customer's data versus whole-building data); and other factors. As different risk levels demand different risk mitigation strategies, the Workgroup agreed that different levels of aggregation and anonymization should be crafted to address the specific risk level represented in any particular Use Case.

The Workgroup recognized that all of the Commission's decisions must be based upon demonstrably verifiable analyses of the factors relevant to any specific issue under review. The Workgroup also agreed that, to date, there has

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[140] *In the Matter of the Proposed Rules Relating to Smart Grid Data Privacy for Electric Utilities, 4 Code of Colorado Regulations 723-3*, Colorado Public Utilities Commission Docket No.10R-799E, Decision C11-1144, ORDER ON EXCEPTIONS (Oct. 26, 2011), available at http://www.dora.state.co.us/pls/efi/efi_p2_v2_demo.show_document?p_dms_document_id=134683&p_session_id=. Note: Changes to the "certificate of good standing" language have been proposed in the current data privacy rulemaking that is underway in the Colorado Commission's Docket No. 14R-0394EG.

been no demonstrably verifiable statistical or other analysis to support adoption of the 15/15 Rule, the Rule of 4/80, the Large Industrial Exemption, or any other data aggregation proposal. In the present case, the Commission will need to examine and make decisions regarding what level of effort required to obtain customers' consent presents an undue burden to approved requesters, and what level of risk of identification and/or re-identification is appropriate to require consumers to bear in favor of pursuing the state's energy efficiency goals.

It is the consensus of the Workgroup that a robust analysis of privacy and confidentiality risk mitigation measures is both necessary and beyond the Workgroup's expertise to achieve. In order to provide fact-based recommendations to the Commission, the majority of the Workgroup recommends that the Commission engage a multi-disciplinary team that includes expertise in the areas of statistics, demographic analysis, data privacy, and energy policy and law; additional expertise in computer science, health policy and utility regulation may be useful as well. This team of experts could be tasked with conducting an analysis of practical risk mitigation approaches that can be applied to the Use Cases developed by the Workgroup, by assessing the magnitude and likelihood of re-identification of individual data.

Public Utility Commissions in California, Colorado, Illinois and other states are all currently engaged in conversations about how to balance individual privacy concerns with facilitating greater access to energy data for purposes of advancing public policy objectives. The Workgroup believes that this recommended statistical study has the potential to significantly advance energy policy in Minnesota and across the nation.

A brief summary of the statistical study proposal follows. A more detailed description is found in Appendix I to this Final Report.

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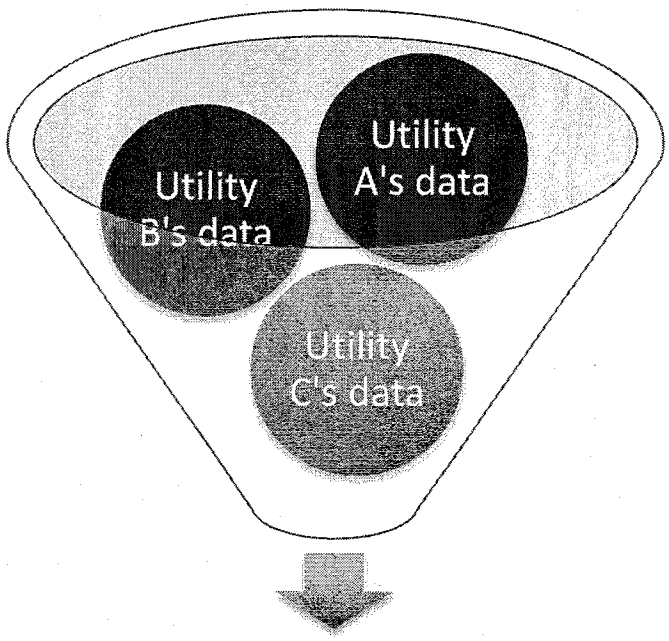
Utility CEUD Accessibility and Risk Mitigation Study Scope

Study Components
1. Identification, summary, and analysis of existing publicly available and third-party access to CEUD/PPD across the U.S., to include a discussion of the legal structure within which the data is made available. 2. Analysis or literature review of potential risks from the re-identification of utility customers from public or utility-provided CEUD/PPD. 3. Review of privacy protection techniques currently within the utility industry. 4. Review of privacy protection techniques currently in use within other industries. 5. Statistical analysis of CEUD/PPD from Minnesota utilities that assesses re-identification risk given different data types, use cases, and differing privacy protection and risk mitigation techniques such as data aggregation and data anonymization.
Study Duration
The duration of the study should not exceed one year.
Study Deliverables
Final report covering items 1 through 5, one scoping meeting with the Workgroup as well as two feedback sessions during the report drafting, and final presentations to the Workgroup and the Commission. The final report will address feedback provided by Workgroup members, and separately identify how the authors responded to the feedback.
Study Cost
The Workgroup was unable to identify a funding source for the study. Possible identified sources include the MDOC-DER research funds and a legislative appropriation specific to this purpose.

B. Energy Data Center

During the Workgroup's extensive discussions about various aggregation thresholds and other privacy protection methodologies, the participants explored the possibility of a centralized data compilation center. The idea of an "Energy Data Center" generated positive interest from most participants in the Workgroup as a means of limiting the types and numbers of requests to which utilities are required to respond, and thus standardizing processes while minimizing costs.

The concept is relatively simple. It would allow regulated utilities to report their customers' CEUD and PPD[141] on an annual basis to a centralized repository. Utilities could either submit data "scrubbed" of all PII and standardized based on the Commission's mandated risk mitigation measures, or submit raw data which the repository would then "scrub." The repository would then electronically publish the data on an annual or other regularized basis; much like the U.S. Census Bureau releases its data for public consumption. Requesters would be required to utilize the posted data and would not be allowed to seek specific requests from either the regulated utilities or the central data repository.



Energy Data Center receives, aggregates and anonymizes the data for publication

[141] Although the proposal included references to PPD, the Workgroup's discussion of the Energy Data Center concept focused exclusively on CEUD. Because Workgroup members did not discuss the advisability of including PPD in the centralized repository, no effort was undertaken to identify specific risk mitigation measures related to its inclusion.

This proposal is intended to apply only to Use Cases that seek data defined by geographic boundaries or with respect to other defined communities of interest. Requests for an individual's CEUD/PPD, and requests for building-wide data, would continue to be directed to the utility rather than the centralized repository.

Because the concept was not introduced into the Workgroup's process until fairly late in the process, the formal discussion was brief and lacked necessary detail. At the Workgroup's request, the representative from the City of Minneapolis prepared and submitted a summary of the concept for the Workgroup's reaction, a copy of which is contained in Appendix J.

Following the Workgroup's final meeting, Xcel Energy organized a conference call to further discuss this proposal. Representatives from Xcel Energy, CenterPoint Energy, Dakota Electric, Minnesota Power, the Minnesota Large Industrial Group, City of Minneapolis, Fresh Energy, and the Center for Energy and Environment participated in the discussion. Following a review of the proposal, Workgroup members expressed cautious interest in having non-building-specific data collected centrally by the state or another entity. Members recognized that the repository may reduce costs at the individual utility level by minimizing technology upgrades that might otherwise be necessary to meet any Commission-issued standards related to CEUD/PPD sharing. The Workgroup also noted that the proposal has the potential to significantly increase compliance with any mandated risk mitigation measures given that these standards would be applied at the repository and not by the staff of individual utilities.

In addition, some utilities suggested the CEUD made public should be limited to zip code-level aggregations, rather than anything smaller. This concern did not seem to be based on any aggregation standard rationale, but rather a concern that utilities would be responsible for producing geographic aggregations (rather than the Energy Data Center), which many suggested is beyond their current capacity. The participants acknowledge that the consideration of a possible Energy Data Center did not resolve any of the outstanding issues about the appropriate aggregation threshold for customer data to be considered safe from re-identification. The utilities also expressed concern that the Workgroup had not adequately discussed PPD as part of the Use Cases and that there was some concern about that being a data set published by the Energy Data Center without further discussion.

Participants cautioned the Commission not to seek to duplicate the centralized energy data repository discussed as part of the California Public Utilities Commission proceeding on data access. Most importantly, the Commission should remain mindful that the California model is envisioned to respond to dynamic requests by constantly publishing CEUD based on requestor interest, while the proposed Minnesota model would publish, once annually, utility-submitted data based on predefined data sets. Given the very different legal and

industry-based framework between the two states, participants urged the Commission not to assume that the California model could be duplicated in Minnesota. Other concerns remain about the organization, costs and other details of the Energy Data Center, critical details which are beyond the scope of the Workgroup to develop given the limited timeframe for its work.

X. Workgroup Recommendations

The Workgroup makes the following procedural recommendations intended to assist the Commission in pursuing this important effort in a manner that is best designed to achieve the energy efficiency goals of the state while protecting the privacy interests of Minnesotans.

A. Review Workgroup Participants' Written Submissions.

Participants in the Workgroup have worked diligently to share their expertise and experience during formal meetings and follow-up conferences, all in an effort to ensure that the Commission is provided the shared wisdom of each individual in the group. They have also contributed additional information, suggestions and valuable information for the Commission's review and consideration, all as found in written submissions attached, collectively, as Appendix K to this Final Report.

B. Examine California Decision for Lessons Learned.

The California Public Utilities Commission commenced a rulemaking proceeding in late 2008 aimed at modernizing the state's electric grid by moving to Smart Grid technology. Nearly two years into this work, the California PUC began focusing on issues related to access to CEUD in light of the privacy expectations of utility customers. Five-and-a-half years after the process originated, on May 5, 2014 the California Commission issued its *Decision Adopting Rules to Provide Access to Energy Usage and Usage-Related Data While Protecting Privacy of Personal Data.*

The Minnesota Workgroup met nine times over a period of nine months. Although the Workgroup participants are experts in their respective fields and worked diligently in pursuit of the Commission's charge, the time constraints within which the work was required did not allow for a sufficient review and consideration of the California work product. A summary review of the recent decision[142] reveals valuable discussions about many of the same topics identified by the Workgroup as critical to the discussions in Minnesota. Even so, the Workgroup is cognizant of the fact that California's legal framework and myriad other components of its regulated energy industry vary significantly from Minnesota's. As such, the Workgroup recommends that the Commission keep

[142] See Appendix L.

these significant differences in mind as it closely studies the California effort as a means of avoiding identified pitfalls and building upon lessons learned.

C. Confirm Jurisdiction.

Several Workgroup participants voiced continuing concerns about the Commission's authority to regulate CEUD release to non-jurisdictional third parties absent legislative or regulatory changes. The Workgroup recommends that this issue be addressed in order to protect the regulated utilities, customers, and data requestors, from liability based on challenges to the lawful authority supporting any mandates the Commission may enact.

D. Examine Ramifications of Authorities and Practices Related to Publication of the *Minnesota Utility Data Book.*

It is possible that the data already published in the *Minnesota Utility Data Book* will meet various data-driven needs represented in some of the identified Use Cases. Further examination of the publication processes, as they relate to the relevant issue of data aggregation, and identification of any use limitations is necessary before the Workgroup can determine how, if at all, this existing data set can inform the questions posed by the Commission.

E. Continue Workgroup to Finish the Work.

The Workgroup freely admits that it did not have time to engage in a sufficiently substantive discussion on several topics within its charge, including: a full discussion of the appropriate parameters for the release of PPD; redress for unauthorized disclosure; data retention expectations; audit/review processes; registration of requesters; and liability protections for utilities upon compliance with Commission directives. In general, the participants remain interested in continuing its work in support of the Commission's efforts related to the identification of appropriate balance between the policy-driven need for access to CEUD/PPD and the privacy expectations of utility consumers.

APPENDIX

A. XCEL ENERGY CUSTOMER PANEL RESULT SUMMARY submitted by Xcel Energy, Docket 12-1344 (February 2014)

B. Minnesota Public Utility Commission's ORDER ESTABLISHING PROCEDURES FOR FURTHER COMMENT AND FOR WORKING GROUP, Docket 12-1344, at pp. 8-10.

C. List of publications provided to and reviewed by the Workgroup

D. MINUTES of all CEUD Workgroup meetings

E. REPLY COMMENTS filed by Xcel Energy, Docket 12-1344 (April 18, 2014)

F. MLIG JURISDICTION ANALYSIS AND RISK ASSESSMENT filed by Minnesota Large Industrial Group, Docket 12-1344 (March 14, 2014).

G. RESPONSE TO COMMISSION STAFF REQUEST FOR MORE INFORMATION ON CENSUS BUREAU DOCUMENTATION OF DISCLOSURE AVOIDANCE TECHNIQUES submitted by City of Minneapolis (May 5, 2014)

H. Use Case Matrix

I. Statistical Study Proposal

J. Energy Data Center Proposal

K. Final Comments submitted by Workgroup participants

APPENDIX A

Submitted by Xcel Energy
Jody Londo
jody.l.londo@xcelenergy.com

Xcel Energy Customer Panel Result Summary

Customer Energy Usage Data

Access, Privacy, and Confidentiality Expectations

February 2014

Background

Xcel Energy utilizes customer panels to reach out to residential and small-medium sized business customers frequently, on a variety of topics, including program design and marketing preferences. We engaged these customer groups to give feedback on the topic of energy usage data access, privacy and confidentiality expectations.

A total of 1,250 residential customers responded, and 155 business customers responded. These numbers are considered statistically significant for our customer population. When comparing results between CO and MN customers, there were minor differences, but not considered significant to the results presented below.

Third Party Access to Individual Usage Data

Do you currently believe Xcel Energy currently shares your energy usage data with 3rd parties without your knowledge and consent?

	Residential	Business
Yes, in some cases	32.32%	26.49%
No, never without my consent	8.80%	12.58%
Don't know	58.88%	60.93%

This question sets out to understand what customers think their utility is doing with their energy data. As responses indicated, the answer is fairly clear: most people do not know. This can be attributed to the proliferation of information in the media about how much data is shared without customer knowledge of transactions.

Do you believe Xcel Energy should share your monthly energy usage data with 3rd parties if they ask for it without your knowledge and consent?

	Residential	Business
Yes, in some cases	23.68%	27.15%
No, never without my consent	66.24%	60.93%
Don't know	10.08%	11.92%

Submitted by Xcel Energy
Jody Londo
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While they may not know what we do with their data, customers certainly have opinions about what we should do with it. Close to 90% in both customer classes expressed opinions. Most believe the utility should always obtain consent. We note that, in light of these results, we are assessing ways to further enhance our customers' awareness of our Privacy Policy and related practices.

What is your level of concern with third parties having access to your monthly energy usage data without your knowledge and consent?

	Residential	Business
Not At All Concerned	9.44%	15.23%
Mildly Unconcerned	15.28%	24.50%
Slightly Concerned	36.48%	32.45%
Extremely Concerned	38.80%	27.81%

Customers are clearly divided on this issue, but in ranked order, customers are more concerned than not with the idea of third parties having access to individual monthly usage data. Business customers in general are more comfortable releasing data than residential customers.

How does this change based on more frequent reading interval (15 minutes, relative to monthly)?

	Residential	Business
Not At All Concerned	23.60%	39.74%
Mildly Unconcerned	17.20%	20.53%
Slightly Concerned	30.24%	21.19%
Extremely Concerned	28.96%	18.54%

Interestingly, customers are overwhelming less concerned when data at finer time intervals is released, which is counter-intuitive and contradictory to their level of concern with less granular data. This may indicate that customers did not understand that a more frequent reading interval would provide third parties greater insights into their usage.

How does this change based on longer energy reading interval (annually, relative to monthly)?

	Residential	Business
Not At All Concerned	26.72%	35.76%
Mildly Unconcerned	29.28%	25.17%
Slightly Concerned	27.28%	26.49%
Extremely Concerned	16.72%	12.58%

Submitted by Xcel Energy
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In this case, both customer groups are more *un*concerned than concerned with annual data intervals. 56% of residential customers, and 62% of business customers are unconcerned. This still leaves a large number of customers concerned, however.

Should Xcel Energy obtain your consent before sharing your monthly energy usage data with the following types of third parties?

	Residential	Business
Local Government administering environmental program	59.92%	52.98%
Landlord or Property Manager	63.52%	50.99%
Marketing Company	84.80%	82.12%
Company that sells products or services	86.32%	83.44%
Data Aggregator	61.04%	58.28%
Other	15.92%	11.92%

While the majority of customers in both classes believe that Xcel Energy should obtain consent in all cases, they are more concerned with Marketing Companies and Companies intending to sell products or services than local governments or property managers. Business customers are significantly less concerned about sharing with property managers than residential customers are with giving access to landlords.

Scenario: You lease space in a multi-tenant building, and your building owner is interested in assessing the energy performance of their building. In order to do this, they need Xcel Energy to provide the monthly energy usage of each tenant. What is your level of concern with the building owner having access to this energy usage data without your knowledge and consent?

	Residential	Business
Not At All Concerned	30.56%	49.67%
Mildly Unconcerned	21.60%	21.85%
Slightly Concerned	27.68%	21.19%
Extremely Concerned	20.16%	7.28%

Digging into the multi-tenant building cases specifically, it is again evident that business customers are less concerned about sharing data with property managers. Almost a majority of customers indicated they were not at all concerned with property managers having access, compared with less than 30% who showed concern at some level. Nearly half of residential customers (48%) are not comfortable with sharing data with landlords.

Submitted by Xcel Energy
Jody Londo
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Third Party Access to Aggregated Usage Data

How does your concern change with aggregation of your 15 minute, daily, or monthly energy reading with other customers' energy readings?

	Residential	Business
Not At All Concerned	25.44%	33.11%
Mildly Unconcerned	25.44%	33.77%
Slightly Concerned	28.56%	19.87%
Extremely Concerned	20.56%	13.25%

Concern from business customer's declines significantly, while residential customers remain fairly evenly split between concerned and unconcerned. This reflects a lack of understanding from the customer perspective around the ability of aggregation to protect against re-identification, which supports the notion that further study should be explored.

Scenario: Your local community is interested in tracking the energy consumption of local businesses from year to year. In order to do this, they request that Xcel Energy adds together the individual annual energy usage for every building and report out one number for the entire community. What is your level of concern with the community having access to this energy usage data without your knowledge and consent?

	Residential	Business
Not At All Concerned	34.96%	41.72%
Mildly Unconcerned	25.92%	23.18%
Slightly Concerned	23.84%	23.18%
Extremely Concerned	15.28%	11.92%

When the question is re-phrased to the community scale, business customers remain unconcerned, and residential customers flip to largely unconcerned (approximately 60% unconcerned).

APPENDIX B

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Beverly Jones Heydinger	Chair
David C. Boyd	Commissioner
Nancy Lange	Commissioner
J. Dennis O'Brien	Commissioner
Betsy Wergin	Commissioner

In the Matter of a Commission Inquiry into Privacy Policies of Rate-Regulated Energy Utilities

ISSUE DATE: June 17, 2013

DOCKET NO. E,G-999/CI-12-1344

ORDER ESTABLISHING PROCEDURES FOR FURTHER COMMENT AND FOR WORKING GROUP

PROCEDURAL HISTORY

At its meeting on December 13, 2012, in Docket E,G-002/M-12-188, the Commission began an investigation on the possibility of a generic proceeding to address the collection, storage, and dissemination of customer data by rate-regulated energy utilities.

On January 8, 2013, the Commission issued a Notice of Comment Period on Customer Data Privacy, soliciting comments on a broad range of issues concerning rate-regulated energy utility customer data privacy. The initial comment period ended on January 30, 2013, and the reply comment period ended on February 20, 2013.

The Commission received initial comments from the following:

- Mr. Richard Carter
- CenterPoint Energy
- CenturyLink, Inc.
- Citizens Telecommunications Company of Minnesota, LLC and Frontier Communications of Minnesota, Inc., (collectively, Frontier)
- Dakota Electric Association
- Fresh Energy, Minnesota Green Communities, and the Institute for Market Transformation
- Future of Privacy Forum
- Great Plains Natural Gas Co.
- Interstate Power and Light Company
- Legal Services Advocacy Project (LSAP)
- Midwest Energy Efficiency Alliance

- Minnesota Energy Resources Corporation
- Minnesota Power
- Northern States Power Company d/b/a Xcel Energy (Xcel)
- Opower, Inc.
- Otter Tail Power Company
- Technology Network
- Windstream Communications, Inc. on behalf of itself and its telecommunications carrier affiliates[1] (collectively, Windstream)

The Commission received reply and supplemental comments from the following:

- CenterPoint Energy
- Fresh Energy, the Institute for Market Transformation, the Minnesota chapter of the US Green Building Council, Minnesota Green Communities, Bright Power, Inc., and EnergyScoreCards, Inc. (collectively, Fresh Energy, *et al.*)
- LSAP
- The Minnesota Department of Commerce, Division of Energy Resources (the Department)
- Minnesota Large Industrial Group
- Office of the Attorney General –Antitrust and Utilities Division (the OAG)
- Xcel

On May 30, 2013, the matter came before the Commission. At the Commission meeting, the Commission received oral comments from those who had written comments and elected to appear, and additionally from Minneapolis City Council Members Elizabeth Glidden and Cam Gordon, and from the Center for Energy and the Environment.

FINDINGS AND CONCLUSIONS

I. Background

This inquiry began when Xcel Energy sought Commission approval of a Customer Data Privacy Tariff in March 2012.[2] According to Xcel, the deployment of advanced metering infrastructure has resulted in increased focus on customer data privacy. Xcel asserted in its petition that although it has company policies and procedures concerning data privacy, a privacy tariff could clarify for customers how Xcel handles customer information.

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[1] McLeodUSA Telecommunications, LLC, PAETEC Communications, Inc., Talk America, Inc., Windstream Direct, LLC, Windstream EN-TEL, LLC, Windstream KDL, Inc., Windstream Lakedale, Inc., Windstream Norlight, Inc., Windstream NorthStar, LLC and Windstream NTI, Inc.

[2] Docket No. E, G-002/M-12-188, *In the Matter of the Petition of Northern States Power Company for Approval of a Customer Data Privacy Tariff as an Amendment to its Electric and Natural Gas Rate Books.*

After exchanging comments with the Department and the OAG, the three parties agreed that a broader inquiry into customer data privacy would be appropriate before the Commission acted on Xcel's proposed privacy tariff.

In light of the record developed in Xcel's privacy tariff docket, the Commission established this docket to explore the possibility of a generic proceeding to address the collection, storage, and dissemination of customer data.

II. The Commission's Inquiry

The Commission solicited public comment on customer data privacy practices among rate-regulated energy utilities, including the following topics:

1. Do current service standards provide adequate customer data privacy protection and redress for customers in the event of a data breach?
2. Should the Commission establish uniform customer data collection and privacy policies for rate-regulated utilities?
3. Should the Commission enact or prohibit certain practices immediately?
4. With the advent of 'smart grid' and increasing awareness of energy usage in general, is there a public interest in allowing greater access to customer energy usage data? If so, what would be a reasonable balance between allowing greater access and protecting customers from the risk of identity theft or privacy intrusion?
5. What issues should be included or excluded as to the scope of this proceeding?
6. Are there whitepapers, federal guidelines or other state proceedings that have addressed the topics identified in Question No.5, which should be incorporated into this docket or possible rulemaking?[3]

III. Public Comments

The Commission received comments from a diverse range of participants, representative of a breadth of interests concerned with the collection, storage, and dissemination of customer data. Commenters include: regulated electric utilities; cooperatives; regulated natural gas utilities; telecommunications providers; legal and privacy advocates, including the OAG; public policy and consumer organizations; infrastructure and market transformation groups including those providing energy or consulting services; and the Department.

Summarized below are some areas of broad agreement, if not consensus among the commenters, followed by additional significant themes that arose in the comments.

[3] This is a summary; for the full text of the questions and their subparts, see Notice of Comment Period on Customer Data Privacy (January 8, 2013).

A. Areas of Broad Agreement

Despite the diversity of perspectives and the breadth of the questions initially posed, there were areas of broad agreement.

Commenters by and large agreed that at this time the Commission did not need to expand the scope of the inquiry to include telecommunications utilities. Several commenters asserted that privacy concerns in the telecommunications industry do not easily overlap the concerns in the energy industry, and are already subject to substantial federal statutory and regulatory oversight.

Most participants did not see a need for immediate Commission privacy-related action. The OAG and the Legal Services Advocacy Project each recommended immediate prohibitions on certain practices, but most commenters recommended against immediate policy changes. Several specifically opposed the changes recommended by the OAG and the Legal Services Advocacy Project claiming that they were likely to have unintended adverse effects on the public interest.

Despite the absence of broad support for immediate Commission action, most commenters welcomed additional Commission attention to the issue of customer data privacy and recommended ways to focus the discussion.

B. Personally Identifiable Data and Customer Energy Usage Data

Comments frequently identified a tension between a customer's interest in privacy and the public's interest in data disclosure to advance state energy goals. Comments also revealed that balancing those interests appropriately may require distinguishing between two different types of customer data: Personally Identifiable Data (such as name, address, and other identity-related information) and Customer Energy Usage Data (data produced incidentally by using a utility's service). Comments also suggest that the distinction between Personally Identifiable Data and Customer Energy Usage Data may not be a bright line, and that perhaps not all Customer Energy Usage Data is alike.

Different customer classes expressed concerns about the availability of Customer Energy Usage Data. The Minnesota Large Industrial Group expressed its concern that Customer Energy Usage Data of a business can represent commercially sensitive information that in its view is worthy of heightened protection from public disclosure. The group asserted that some commercial energy consumers consider their energy usage profile to be valuable, proprietary information. The Legal Services Advocacy Project stated that detailed Customer Energy Usage Data could be used to determine when a home is empty, or how many people live in a residence.

The City of Minneapolis and Fresh Energy, *et al.*, seek aggregated energy usage data to advance energy efficiency goals. But there is no commonly accepted definition of 'aggregated' for this purpose, and how data is aggregated can affect what information about individual customers can be gleaned from it. Aggregation-related concerns included: how granular publicly available aggregated data should be, what thresholds are appropriate for withholding a customer's usage data when its inclusion could tend to identify a single energy user, and whether the same sort of access to aggregated data is appropriate for every user who seeks access.
Several comments used Xcel's 15/15 data aggregation policy as a foundation for discussion. Xcel requires aggregated Customer Energy Usage Data requests to include a minimum of 15 premises,

and that no one premise makes up more than 15 percent of the total aggregated Customer Energy Usage Data report.[4] Critics contended that these restrictions could substantially diminish the usefulness of the data. Xcel stated that it would prefer to apply a consistent, objective standard company-wide, but also stated that it would be open to modifying its policy "in favor of a different standard that achieves the same privacy objectives."[5]

C. Data Privacy and Security Standards

The Legal Services Advocacy Project recommended that the Commission adopt certain data privacy standards and practices imposed by regulators at other levels of government, or recommended by standards bodies. Specifically, it recommended that the Commission require utilities to establish or create (1) Utility Privacy Impact Assessments modeled on federal e-government Privacy Impact Assessments, (2) Information Security Plans modeled on plans required of federal agencies by the Federal Information Security Management Act of 2002, and (3) Fair Information Practices as described by the National Research Council.

Other commenters suggested that there may be other existing standards that the Commission may wish to consider.

The LSAP also recommended that the Commission require utilities to document their compliance with the Federal Trade Commission's "Red Flags" rule.[6] The Red Flags rule requires creditors to establish a program to identify, detect, and respond appropriately to patterns, practices, or specific activity indicative of identity theft.

D. Social Security Numbers

The LSAP recommended that the Commission immediately prohibit utility collection, publication, transmission, or communication of residential customers' social security numbers. It claimed that a connection between social security numbers and identity fraud, and the absence of a need to collect the information, justifies directing Minnesota utilities to seek out alternatives to the use of social security numbers for personal identification.

The energy utilities responded that they do request social security numbers from customers for purposes of identification, but do not require them. Many asserted that requesting social security numbers is useful in detecting identity fraud, but some acknowledged they have alternative means of authenticating a customer's identity. Electric cooperatives may also need member social security numbers for the purposes of paying dividends. Most energy utilities specifically contended that if the Commission were to immediately implement the prohibition LSAP requested, it would disrupt their billing practices and create disarray in carrying out necessary business functions.

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[4] Xcel Energy, Reply Comments (February 20, 2013).

[5] *Id.*, at 5.

[6] 16 C.F.R. § 681.1.

E. Cost, Value, and Liability

Several comments addressed issues related to costs and the potential value of customer data. Topics included sale of customer data, allocation of the cost of making Customer Energy Usage Data available, and allocation of liability for improperly disclosed customer data.

The OAG raised the issue of utilities selling customer data, and recommended that the Commission immediately prohibit "selling customer data or using customer data for unregulated purposes." The utilities generally asserted that they do not sell customer data, but that they do contract for business functions such as billing and account collections. Utilities opposed the OAG's recommendation, preferring the issues to be addressed in greater detail before the Commission acts.

Multiple comments addressed whether costs of making Customer Energy Usage Data available should be borne by ratepayers, or by parties requesting the data. Comments suggested that the diversity of potential uses and users of Customer Energy Usage Data—which could represent many points on a spectrum between public and private interests—could complicate the issue of cost allocation. Further complicating the issue is whether the data may be more valuable than the cost to provide it, and whether ratepayers should be compensated for providing that value.

IV. Commission Action

The Commission's inquiry at this stage is focused on whether to further investigate the issues related to customer data privacy, if so, how, and whether any immediate action is necessary. Having reviewed and considered the comments in the record, the Commission concludes that additional study is warranted. The Commission will proceed in this docket to investigate the collection, storage, and dissemination of customer data, focusing the inquiry as informed by the responses to the Commission's initial questions.

Accordingly, the inquiry will remain limited to rate-regulated energy utilities at this time, and will seek additional record development by separately addressing issues related to Personally Identifiable Data and issues related to Customer Energy Usage Data. The Commission will solicit comments pertaining to the practices concerned with collecting, securing, and using Personally Identifiable Data, and will convene a working group to define, explore, and make recommendations to the Commission concerning appropriate uses of Customer Energy Usage Data.

Because the issues presented in this docket are complex, the Commission will not take any further action at this time. The utilities' stated practices of not selling customer data and requesting but not requiring social security numbers are reasonable interim policies. However the Commission seeks to identify and, to the extent appropriate, enact utility customer data practices that strike an appropriate balance between the interests of customer privacy and pursuit of state energy goals, while ensuring adequate and reliable services at reasonable rates.

To this end, the Commission will seek to further develop the issues listed below, and invites commenters to identify other topics that will lead to a more complete understanding of these matters.

ORDER

1. The Commission hereby delegates authority to the Executive Secretary to issue a Notice in this docket, designating comment periods for the filings outlined in ordering paragraphs 2 – 4 below, addressing the collection, maintenance, and use of customer data by electric and gas regulated utilities.

Personally Identifiable Data

2. Each gas and electric utility shall document its compliance with the FTC's Red Flags Rule.

3. Gas and electric utilities shall, and other interested participants may, comment on the following:

   a. Is it appropriate to require the gas and electric utilities to meet the following requirements?

      i. Adopt a reasonable Privacy Impact Assessment (PIA), or set of PIAs as appropriate, consistent with the federal PIA requirements of the E-Government Act of 2002 and resulting regulations, and to file it with the Commission;

      ii. Adopt a reasonable risk-based Information Security Plan (ISP), or set of ISPs, consistent with the federal ISP requirements of the Federal Information Security Management Act of 2002 and resulting regulations and guidelines, and to file it with the Commission. (As part of this response, comments may also address any equivalent standards that may address personal privacy.)

      iii. Ensure that the PIAs and ISPs address, not by way of limitation, each of the following:

         1. Notice to the customer of the data collected and the reasons for it; whether the customer must provide the data as a condition of service.
         2. Limitations to assure that only the data that is relevant and necessary is collected.
         3. The type and frequency of notice provided to the customer about the utility's privacy policy.
         4. The utility's allowable uses of the data, with and without customer consent.
         5. Customer access to one's own data.
         6. Procedure for withdrawing consent.
         7. Procedure for the customer to correct inaccurate or incomplete information.
         8. Limitations on use by the utility.
         9. How the data will be retained and secured.

10. How long the data will be retained and the steps taken to purge it.
11. Delineation of authorized and unauthorized use.
12. Protections and limitations in place to prevent unauthorized use, access, destruction, loss, modification, etc..
13. Procedures in place for documenting authorized use.
14. Notice to the customer of breach.
15. Redress and penalties for unauthorized (intentional or unintentional) disclosure.
16. Process, including frequency, of review and audit to assure that privacy policies are in place, are followed, and provide adequate protection for the customer, with the utility and its contractors.

This list is not intended to be exclusive, and the Commission invites other topics that will lead to a more complete understanding of these matters.

b. Is it appropriate for the Commission to adopt the Fair Information Practices (FIPs) as the guiding set of privacy principles and as the standard benchmark against which utility privacy actions will be assessed?

c. Is it appropriate to allow utilities to share data with its contractors for energy efficiency programs so long as the utility assures that the contractor agrees to specified privacy protections equivalent to the utility's and accepts liability for breach?

d. Is it appropriate to require such contractors to register and to demonstrate that compliance with specified privacy protections?

e. Are there any circumstances under which it would be appropriate to allow a utility to sell customer information (with the exception of Customer Energy Usage Data, addressed below)?

f. Is it appropriate to collect and maintain customer social security numbers, and if so, the purpose for doing so, and specifying whether the utility could use the information solely to create a unique account identifier and then to purge the number from its records?

g. Should the Commission address the sharing of customer data with non-regulated affiliated companies?

h. Should the Commission develop a "privacy seal" initiative to certify the level of customer privacy provided?

Customer Energy Usage Data

4. The Executive Secretary is directed, in cooperation with the Department of Commerce, to convene a working group of appropriate size and composition, and to select a facilitator, to more fully explore the appropriate use of Customer Energy Usage Data, including scope, terms, and definitions. The working group shall make written recommendations to the Commission on the appropriate use and limitations on use of Customer Energy Usage Data, balancing customer privacy and the state's energy goals. The Executive Secretary shall develop a charge and deadlines for the working group, which shall address, at a minimum, the following:

a. A definition of Customer Energy Usage Data, limiting the use of energy consumption data solely to further the state's energy goals.

b. Whether it is in the public interest to share energy consumption data with each of the following third parties, and whether the same type of data should be shared with each:

   i. Governmental units,
   ii. NGO's,
   iii. Public Interest Advocacy groups,
   iv. Private vendors of service, supplies or equipment,
   v. Building owners, and
   vi. Building designers.

c. Whether data about the following groups of customers (or building types) should be treated differently:

   i. Single-family residences,
   ii. Multi-family residences,
   iii. Mixed use buildings,
   iv. Public buildings,
   v. Commercial buildings, and
   vi. Industrial buildings.

d. The granularity of data available to the third parties (i.e., daily, monthly, annually, etc.? Real-time or with a lag time? If a lag, how long?)

e. The specific data that may be shared

f. Notice to the customer of the data shared and the reasons for it

g. The type and frequency of notice provided to the customer

h. The allowable uses of the data, with and without customer consent

i. Customer access to one's own data

j. Procedure for the customer to correct inaccurate or incomplete information

k. Limitations on the use by the third party

l. How the data will be retained and secured

m. How long the data will be retained and the steps taken to purge it

n. Delineation of authorized and unauthorized use

o. Protections and limitations in place to prevent unauthorized use

p. Notice to the customer of breach

q. Redress for unauthorized (intentional or unintentional) disclosure

r. Process, including frequency, of review and audit to assure that privacy policies are in place, are followed, and provide adequate protection for the customer

s. Who should cover the cost of providing the data.

t. How the customer or ratepayers will be compensated for the use of the data.

u. Under what circumstances customer consent should be required.

v. Differences, if any, between the data that may be shared with companies under contract to the utility to provide energy efficiency programs and other entities.

w. What is aggregated data, under what circumstances aggregated data should be shared, and how that would differ from other data sharing.

x. Whether third parties who receive Customer Energy Usage Data should be subject to a registration requirement, and, if so, what type.

This list is not intended to be exclusive, and the Commission invites other topics that will lead to a more complete understanding of these matters.

5. This Order shall become effective immediately.

BY ORDER OF THE COMMISSION

Burl W. Haar
Executive Secretary

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APPENDIX C

Privacy Policy Regulatory Proceedings, Documents, and Policy Papers

1. *In the Matter of the Proposed Rules Relating to Smart Grid Data Privacy for Electric Utilities, 4 Code of Colorado Regulations 723-3,* Colorado Public Utilities Commission Docket No. 10R-799E, Decision C11-1144, ORDER ON EXCEPTIONS (Oct. 26, 2011), *available at* http://www.dora.state.co.us/pls/efi/efip2v2demo.showdocument?pdmsdocumentid=134683&psessionid=

2. *Order Instituting Rulemaking to Consider Smart Grid Technologies Pursuant to Federal Legislation and on the Commission's own Motion to Actively Guide Policy in California's Development of a Smart Grid System,* California Public Utilities Commission Docket No. 08-12-009 (Dec. 18, 2008), *available at* http://docs.cpuc.ca.gov/wordpdf/FINALDECISION/95608.pdf

3. *Decision Adopting Rules to Protect the Privacy and Security of the Electricity Usage Data of the Customers of Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company,* California Public Utilities Commission Docket No. 08-12-009, Decision 11-07-056 July 28, 2011), available at: http://docs.cpuc.ca.gov/wordpdf/FINALDECISION/140369.pdf

4. *Reply Comments of the Center for Democracy & Technology to Assigned Commissioner's Ruling of September 27, 2010,* California Public Utilities Commission Docket No. 08-12-009 (Nov. 8, 2010), available at http://docs.cpuc.ca.gov/efile/CM/126209.pdf

5. U.S. Department of Energy, *Data Access and Privacy Issues of Smart Grid Technologies* (Oct. 5, 2010), *available at* http://energy.gov/sites/prod/files/gcprod/documents/BroadbandReportDataPrivacy105.pdf

6. Federal Trade Commission, *Protecting Consumer Privacy in an Era of Rapid Change* (Dec. 2010), *available at* http://www.ftc.gov/os/2010/12/101120privacyreport.pdf

7. National Institute of Standards and Technology, *Guidelines for Smart Grid Cyber Security: Vol. 2, Privacy and the Smart Grid* (Aug. 2010), available at http://csrc.nist.gov/publications/nistir/ir7628/nistir-7628vol2.pdf

8. Information and Privacy Commissioner of Ontario, Canada, *Privacy by Design: Achieving the Gold Standard in Data Protection for the Smart Grid* (June 2010), *available at* http://www.ipc.on.ca/images/Resources/achieve-goldstnd.pdf

9. National Association of Regulatory Utility Commissioners, Smart Grid Privacy NARUC Webinar (June 10, 2011), *available at* http://www.naruc.org.FERC/LBNL-Webinar6-Privacy.pdf

10. Vermont Law School Institute for Energy and the Environment, *A Model Privacy Policy for Smart Grid Data* (Nov. 4, 2011), *available at* http://www.vermontlaw.edu/Documents/Model%20Privacy%20Policy%20%20APPA%20Legal%20Seminar%202011%20%5Bfinal%20draft%5D.pdf

11. Department of Energy, Smart Grid Privacy Workshop Summary Report (January 31, 2012) available at http://www.smartgrid.gov/sites/default/files/Privacy%20report%2020120319%20Final.pdf

12. Identity theft is a crime: Resources from the Government

13. Minnesota Public Utilities Commission Study Group Customer Data Collection Practices, Docket No. U999/CI-89-943 – Report to the Commission

14. Xcel Energy Letter to Burl W. Haar – Revised Attachment – Proposed Data Privacy Tariff, Docket No. E002/M-12-188

APPENDIX D

STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

September 20, 2013
Privacy Workgroup
Meeting Minutes

The meeting opened at 10:00am.

***Introductions*:**

Faciliator ALJ Tammy Pust opened the meeting and addressed administrative issues. She also clarified that the Office of Administrative Hearing (OAH) is not taking positions on privacy issues, rather, facilitating the workgroup.

***Future Discussions/Future Agenda*:**

A draft agenda was distributed and commented on. As to establishing terms and definitions, the group agreed that they would bring existing terms and definitions with them to the next meeting, along with a list of commonly used acronyms.

***Xcel/Minneapolis Better Buildings Energy Data Accelerator Program*:**

Xcel also updated the group on its Department of Energy (DOE) Better Buildings Energy Data Accelerator Program. The Company, along with the City of Minneapolis, will be working with DOE to explore aggregate data collection to promote benchmarking of buildings. A commenter stated that only a few cities have done this so far.

Current Practices of Disseminating Customer Usage Data (Presentations by Utilities):

The workgroup then moved on to utilities' current practices of disseminating customer usage data.

Dakota Electric stated that its general rule was that the utility needed member approval to disclose energy usage. A building owner could obtain usage information in case they wanted to show historical usage information when renting out a property. In terms of requests for aggregated data, the only request Dakota received was about four years ago, when the City of Apple Valley wanted total city usage by residential customers and commercial customers. Other than that, no aggregated requests have been received.

Xcel stated that it provides customer-specific data only in limited cases: as required by law, to contracted agents (such as their bill-print vendor), and to non-contracted parties with the customer's explicit consent. They currently release aggregated data using the 15/15 rule adopted by the Colorado Commission. They have aggregated reports at the city or county level, listing total energy consumption by rate class. To date, they have not fulfilled requests below the city or county level (such as neighborhoods), but are looking at the option. Xcel does have some system limitations plus customer identification issues. As to granularity of data, Xcel has many different levels of meters, from manual-read (monthly data) to advanced metering (less than hourly data). Generally Xcel has not filled requests for aggregated data at less than monthly intervals. Xcel has denied requests for "de-identified" data, such as a request for all homes with usage above a particular level, because customers could be "re-identified" using property or other available public records.

In response to questions, the utilities stated that they generally give out annual usage to realtors.

CenterPoint Energy provided a handout on its practices. Commercial and Industrial customers' data is given out only upon customer authorization, for competitive reasons. In response to a question, CenterPoint stated it does not charge a fee for giving out energy usage data. Xcel and Dakota responded that they have the same practice, although they do have tariff charges for special metering equipment.

Minnesota Power and Minnesota Valley Electric Cooperative responded that their practices were similar to Dakota Electric.

Group Discussion Following Presentations:

Discussion after the utilities' comments initially centered around usage data for realtors and the need for a definition of aggregated data. A concern was also expressed that for business customers' data is proprietary and other sensitive information could be gathered about the business if its energy usage data was disclosed. There was also discussion about listing examples of why this usage data is needed and where it has been used. An observation was made that there is not a bright line between residential customers and small business customers.

The meeting ended at approximately 11:45am.

Participants attending in person at Workgroup Meeting #1:

Ryan Hentges, Minnesota Valley Electric Cooperative
Todd Ells, Minnesota Power
Bridget McLaughlin, Center for Energy and the Environment

Michael Hoy, Dakota Electric Association
Aaron Crowell and Nick Mark, CenterPoint Energy
Megan Hertzler and Jody Londo, Xcel Energy
Ian Dobson, OAG
Susan Medhaug and Laura Silver, Department of Commerce
Steve Kismohr, Midwest Energy Efficiency Alliance
Alison Lindburg, Fresh Energy
Drew Moratzka, Minnesota Large Industrial Group
Sheri Brezinka, U.S. Green Building Council
Brendon Slotterback, City of Minneapolis
Bill Gullickson, National Federation of Independent Business

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STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

October 18, 2013
Privacy Workgroup
Meeting Minutes

The meeting opened at 10:00am.

***Introductions*:**

Facilitator ALJ Tammy Pust opened the meeting.

Public Comment:

A commenter from Midtown Community Works Partnership discussed their sustainability initiative and the interest in modeling efforts after the Energy Innovation Corridor and understand energy conservation programs and energy usage.

Future Discussions/Future Agenda:

Workgroup participants presented and discussed more details on the current meeting's agenda as well as the agenda for future meetings. A working (not legal) definition of CEUD was proposed and discussed. Participants also discussed the following tasks: defining the issues and risks with disclosing CEUD, defining the uses of CEUD that support state energy goals, how risks can be mitigated, a matrix to assign pieces of data to specific risk levels, and ratepayer impact.

Presentations from the OAG and Department of Commerce:

The OAG presented information on what insight can be obtained on a residential home from one-minute meter readings, the state statutes protecting the privacy of certain data, and the status of regulated utilities and whether data should only be disclosed for regulated utility purposes.

The Department read a statement observing that customers cannot choose their utility, that CEUD can be valuable for energy efficiency purposes, that sharing must be done very carefully, that a matrix showing the risk of releasing types of data could be useful, and examples of use cases could be helpful.

Presentation by City of Minneapolis:

The City presented excerpts from the ongoing California Public Utilities Commission privacy proceeding, including use cases and the original purpose of the 15/15 rule. The City also included examples of data that may be useful for a variety of Minnesota organizations.

Group Discussion Following Presentations:

The group also discussed how requests for aggregated data can be time consuming and labor intensive from the perspective of a utility, how there are nuances present in compiling and providing the data, how some use cases are governed through contract and others are not, and how each utility has different types and levels of data available (for example, some only have monthly data collected by meter readers). There was also a request for utilities to tell the workgroup their technical limitations.

The meeting ended shortly after noon.

Participants attending in person at Workgroup Meeting #2 (10.18.13):

Ryan Hentges, Minnesota Valley Electric Cooperative
Todd Ells and Jenna Warmuth, Minnesota Power
Bridget McLaughlin, Center for Energy and the Environment
Michael Hoy, Dakota Electric Association
Aaron Crowell and Nick Mark, CenterPoint Energy
Megan Hertzler and Jody Londo, Xcel Energy
Ian Dobson and Vincent Chavez, OAG
Susan Medhaug, Holly Lahd, Jessica Burdette, and Laura Silver, Department of Commerce
Steve Kismohr, Midwest Energy Efficiency Alliance
Will Nissen, Fresh Energy
Drew Moratzka, Minnesota Large Industrial Group
Brendon Slotterback, City of Minneapolis
Bill Gullickson, National Federation of Independent Business

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STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

November 15, 2013
Privacy Workgroup
Meeting Minutes

The meeting opened at 10:00am.

***Introductions*:**

Facilitator ALJ Tammy Pust opened the meeting.

Public Comment:

There were no public comments.

Adoption of CEUD Definition:

Workgroup members discussed observations and impact of various definitions. There appeared to be general consensus that the definition on the Workgroup Process Outline (11/15/13) document was a good starting point but could possibly be edited slightly. There was also discussion about using the definition as a working definition at this time.

***Discussion regarding Program Participation Definition*:**

Members reviewed the handout of examples of "Program Participation." There was discussion about adding programs, observations that the work involved by a utility in gathering program participation could be high, and a comment that perhaps the workgroup not come up with an exhaustive list of programs but use the handout as a guide and rely more heavily on the 4 categories listed in the handout.

Compile List of Uses of CEUD that Support State Energy Goals:

This document was discussed with the data sensitivity matrix listed below.

Discuss Data Sensitivity Matrix Example:

Workgroup members reviewed the handouts. There were discussions regarding whether another matrix could be drafted and a request that the Commission's Order be kept in mind when compiling this information. Xcel Energy offered to create an additional matrix and circulate it among workgroup members within 2 weeks of the November 15th meeting.

The meeting ended shortly at noon.

Participants attending in person at Workgroup Meeting #3 (11.15.13):

Ryan Hentges, Minnesota Valley Electric Cooperative
Todd Ells and Jenna Warmuth, Minnesota Power
Bridget McLaughlin, Center for Energy and the Environment
Michael Hoy, Dakota Electric Association
Nick Mark and Kevin Markquardt, CenterPoint Energy
Megan Hertzler and Jody Londo, Xcel Energy
Ian Dobson and Vincent Chavez, OAG
Susan Medhaug, Jessica Burdette, and Laura Silver, Department of Commerce
Steve Kismohr, Midwest Energy Efficiency Alliance
Alison Lindberg, Fresh Energy
Drew Moratzka, Minnesota Large Industrial Group
Brendon Slotterback, City of Minneapolis
Sheri Brezinka, U.S. Green Building Council

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STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

January 10, 2014
Privacy Workgroup
Meeting Minutes

The meeting opened at 10:00am.

Introductions:

Facilitator ALJ Tammy Pust opened the meeting.

Public Comment:

There were no public comments.

Logistics Regarding Publication of Handouts:

Commission staff reported that work is being done on a webpage to accommodate handouts.

Review/Adoption of Revised Workgroup Process Outline:

Xcel reviewed its suggested changes to the process outline, which built upon the changes suggested by ALJ Pust in a mailing to the workgroup following its November meeting. Some changes also stemmed from the workgroup's conference call on December 11, 2013. There appeared to be general agreement on the changes, with discussion about where aggregation fits into the outline. The group agreed to follow the amended process outline, and to further amend it as necessary as the discussion continue.

Discussion Regarding Step 2D, Define Uses:

The Department provided three (3) handouts on the regulatory framework for the Conservation Improvement Program (CIP) and walked through the handouts. 187 utilities file CIP plans, there are annual status filings, filings to modify programs, and alternative CIP plans. There was discussion about the Data Practices Act and how it applied to the data the Department had for CIP. There was also discussion about the Commission's authority to grant access to data.

Workgroup members reviewed the matrix that was drafted after the last workgroup meeting. Members also handed out a matrix that was filled out based on what an Energy Policy

Supporter/Advocate might request. Some requests for clarification on the filled out version included: 1) what does "difficulty" mean, in the context of the column asking whether the data can be obtained from customers instead? (That is, the reason it may be difficult to obtain is relevant. If a customer objects to offering it, that should be distinguished from other reasons.) 2) related to the column asking what state energy goal is the data supporting, are there state agencies already measuring these goals?

There was general interest in getting the actual requests for data entered into the matrix instead of examples. Members agreed to complete these before the next meeting and to have a conference call to determine who will provide the specific use cases and how best to accomplish this task.

Begin Discussion regarding Step 3 – Define Risks:

This item was discussed with the matrix listed above.

Planning for Next Meeting:

Workgroup members agreed to have a conference call prior to the next meeting in order to refine the matrix further to better reflect the unique requesters that may seek relevant data.

The meeting ended at noon.

Participants attending in person at Workgroup Meeting #4 (01.10.14):
Ryan Hentges, Minnesota Valley Electric Cooperative
Jenna Warmuth, Minnesota Power
Bridget McLaughlin, Center for Energy and the Environment
Michael Hoy, Dakota Electric Association
Audrey Peer and Kevin Marquardt, CenterPoint Energy
Megan Hertzler, Jody Londo, Jessie Peterson, and Drew Quirk, Xcel Energy
Ian Dobson and Vincent Chavez, OAG
Jessica Burdette, and Laura Silver, Department of Commerce
Steve Kismohr, Midwest Energy Efficiency Alliance
Alison Lindberg, Fresh Energy
Drew Moratzka, Minnesota Large Industrial Group
Brendon Slotterback, City of Minneapolis
Sheri Brezinka, U.S. Green Building Council
Bill Gullickson, National Federation of Independent Business
Kevin Lewis, BOMA

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STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

January 31, 2014
Privacy Workgroup
Meeting Minutes

The meeting opened at 10:00am.

Introductions:

Facilitator ALJ Tammy Pust opened the meeting.

Public Comment:

There were no public comments.

Additional Review of State Energy Goals:

Commission staff presented two handouts related to the renewable energy statute and review of greenhouse gas goals.

Discussion regarding Jurisdictional Issue:

Members discussed whether a third party can ask for data outside of a regulatory proceeding and whether the Commission would have jurisdiction once the data leaves a utility. It was agreed that this issue would be discussed at later workgroup meetings.

Discussion of Use Cases:

Members went through use cases #1-5 relating to real estate agents, neighborhood energy use assessments, and single family home assessments. It was agreed that more clarification was needed on: what portion of the Next Generation Energy Act included the state energy goal at issue; what a "neighborhood" is, and what specific data is being requested. Workgroup members discussed the potential risks of disclosing the type of data. Ways to mitigate the risk or alternatives to obtaining the data will also need to be discussed.

For Each Use Case - Identification of Risks and Mitigation:

This was discussed with the above item.

Planning for Next Meeting:

The members agreed to hold the next meeting on February 21 from 9:00am-11:00am. May 23 and June 20 may be additional workgroup meeting dates.

The meeting ended at noon.

Participants attending in person at Workgroup Meeting #5 (1.31.14):

Ryan Hentges, Minnesota Valley Electric Cooperative
Jenna Warmuth, Minnesota Power
Bridget McLaughlin, Center for Energy and the Environment
Michael Hoy, Dakota Electric Association
Nick Mark and Kevin Marquardt, CenterPoint Energy
Megan Hertzler, Jody Londo, Andrew Quirk, and Jessie Peterson, Xcel Energy
Ian Dobson and Vincent Chavez, OAG
Susan Medhaug, Jessica Burdette, and Laura Silver, Department of Commerce
Steve Kismohr, Midwest Energy Efficiency Alliance (by phone)
Alison Lindberg, Fresh Energy
Drew Moratzka, Minnesota Large Industrial Group
Brendon Slotterback, City of Minneapolis
Sheri Brezinka, U.S. Green Building Council
Bill Gullikson, National Federation of Independent Business

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STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

March 7, 2014
Privacy Workgroup
Meeting Minutes

The meeting opened at 10:00am.

Introductions:

Facilitator ALJ Tammy Pust opened the meeting.

Public Comment:

There were no public comments.

Discussion regarding Jurisdictional Issue:

The OAG stated that the Commission's e-mail response already sent to the workgroup members stands and no further information will be provided from the attorneys assigned to the Commission. The OAG has three different roles as it relates to Commission dockets: first, as a ratepayer advocate before the Commission through the OAG's Antitrust and Utilities Division; second, as counsel for the Commission; third; as counsel for the Department, which represents the public interest before the Commission. The OAG stated that this issue could be flagged in the workgroup's report to the Commission. Drew Moratzka agreed to provide a paragraph on what other states have done in this regard.

Connecting Identified Use Cases to Risks and Mitigation Strategies:

Members went through use cases presented by MEEA and USBGC.

CEE reported that there are three categories of information: 1) individual customer data; 2) aggregated data; 3) large industrial data. Members are in agreement that the customer should give customer consent for the first category of information, with the caveat that multi-tenant or multi-family residences have not been worked out.

Discussion on the use cases included the following topics: whether public perception is really a risk that should be added to the matrix, whether reputation is a risk for utilities, the fact that

electric customers do not have a choice of providers and therefore would not be able to control whether a utility releases their data, the fact that utilities do not know the square footage of the buildings they serve and therefore cannot categorize energy usage data by square footage; whether state agencies enforcing building codes could or should gather energy usage from the building owner directly; and the fact that a use case relating to a state agency should list the requestor as a government agency.

Discussion also turned to multiple requests for data and whether "layering" those requests could reveal more than intended about customers; a possible 5 MW threshold for exemption from aggregation, or using the CIP exemption threshold; what is already provided in EIA data; whether, instead of usage, data such as whether customers' usage went up or down could be provided.

Planning for Next Meeting:

Members agreed that utilities would provide the number of customers meeting the 5 MW threshold prior to the next workgroup meeting.

ALJ Pust stated that workgroup members should send their comments on the matrix to the group in advance of the next meeting in order to move the discussion along. At the next meeting, the second matrix provided by Xcel can be discussed as well as the linkage between the use cases and state energy policies can be discussed.

The meeting ended at noon.

Participants attending in person at Workgroup Meeting #6 (3.7.14):

Ryan Hentges, Minnesota Valley Electric Cooperative
Jenna Warmuth, Minnesota Power
Bridget McLaughlin, Center for Energy and the Environment
Michael Hoy, Dakota Electric Association
Nick Mark and Kevin Marquardt, CenterPoint Energy
Jody Londo, Xcel Energy
Ian Dobson and Vincent Chavez, OAG
Susan Medhaug and Laura Silver, Department of Commerce
Steve Kismohr, Midwest Energy Efficiency Alliance
Alison Lindberg, Fresh Energy
Drew Moratzka, Minnesota Large Industrial Group
Brendon Slotterback, City of Minneapolis
Sheri Brezinka, U.S. Green Building Council
Kevin Lewis, BOMA

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STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

Public Utilities Commission Docket 12-1344

CEUD Privacy Workgroup

March 21, 2014

10:00 am – 12:00 (noon)

Meeting Minutes

The working group convened on Friday, March 21, 2014 at 10:00 a.m. and covered the following topics as drawn from the agenda. Facilitator ALJ Tammy Pust opened the meeting and addressed administrative issues, moving on to public comment invitation.

Public Comment

A representative from the Minnesota Pollution Control Agency, Laura Millberg, addressed the working group and provided a copy of the agency's remarks. Additional public comment included distribution of an email received the night before from Rick Carter, Senior Vice President LHB Corporation. Commenters addressed potential usefulness, specific examples of the importance of customer energy usage data (CEUD) from the utilities in order to achieve Minnesota carbon reduction goals and pollution prevention.

Review Consensus Achieved – Facilitator ALJ Tammy Pust introduced the discussion, questioning working group members as to whether or not consensus was reached as to the following statements:

- Individual Privacy Rights require consent for release of Individual Data;
- Data release must support State energy goals; and
- Temporal aggregation at the monthly (rather than daily or less) level is sufficient for all requestors' needs.

Various parties noted some ambiguities and exceptions on the first two items. For example utilities noted that release of individual data occurs with 'implied consent' when needed for billing purposes or to provide regulated services. One party asked for clarification that the temporal aggregation statement, as written, meant that data requests would be at the monthly or greater level - for example, annual CEUD data. There was general consensus on the monthly or annual granularity as being sufficient for requesters needs. The working group then proceeded to address in detail the use case matrix of potential CEUD requests, which has been in development since the group has been meeting.

Connecting Use Cases to State Energy Goals - Discussion ensued regarding whether all identified use cases link to state energy goals. For example, would real estate agents requesting CEUD from the utilities be linked to meeting state energy goals? Particular disagreement on this use case centered on some working group members not wanting to exclude particular requests without first understanding unintended consequences; on the other hand, some were of the opinion that the primary reason for real estate agent CEUD request would be primarily for the purpose of market transaction and not necessarily tied to state energy goals. NOTE: The driver behind this discussion on state energy goals comes from the Commission's Order issued June 17, 2013 charging the working group to define CEUD and "limiting the use of energy consumption data solely to further the state's energy goals." (Ordering Paragraph 4. a).

Discussion regarding which Use Cases Require Individual Consent (Reference: Xcel 3/14/2014 memo sent by email to Workgroup). Facilitator ALJ Tammy Pust provided updated use case matrix handouts for this discussion and pointed out the changes. Proposals and discussion centered on a specific column on CEUD data availability, i.e., is it possible to obtain requested CEUD data directly from customers? Originally, most requestors wanting utility data had answered this question in the negative. Discussion revealed that in almost every case the answer would be 'yes' it is possible to obtain CEUD *with customer consent* 'but' it may be difficult or time consuming.

Review Revised Use Case Matrix – included extensive discussion and debate on the revised use case matrix. No consensus was reached as to the following proposals:

- Delete Use Cases based on discussion regarding consent/state energy goals
- Discuss deletion of Use Cases based on data unavailability

Due to time constraints and results of discussion thus far, the working group members discussed whether the working group could (or should) go further. Some were of the opinion that the outcome of the working group may be to deliver to the Commission no simple answer but rather present issues raised, consensus reached, possible actions going forward. The below topics were discussed in tandem with possibly hiring an expert for a statistical study to determine reasonably appropriate aggregation, anonymization measures.

Risk Analysis for Remaining Use Cases- will be the focus at next month's meeting.
Discussion of Mitigation Alternatives (to prevent identifying or re-identifying customers' data) - 15/15 v. 5MW v. CIP Threshold v. other, (led to the groups' suggestion and discussion of possibly bringing in a consultant with statistical analysis expertise). Some group members brought up issues of cost, timing, process and whether or not it would move the group along.

Planning for Next Meetings – as noted, risk and mitigation alternatives will be the focus due to time constraints. Previously, the April meeting was to focus on redress/compliance/liability considerations and cost recovery and reporting issues. The group is also expected to have a conference call to discuss the possibility of bringing in an expert to address mitigation measures (aggregation and anonymization). Utilities will provide further review as to what data is currently available of that in the use case matrix requests. Specific responses were requested to

the MLIG JURISDICTION ANALYSIS AND RISK ASSESSMENT provided to working group members by 3/14/2014 email from Andrew P. Moratzka.

The meeting ended at noon.

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STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

Public Utilities Commission Docket 12-1344

CEUD Privacy Workgroup

April 18, 2014

10:00 am – 12:00 (noon)

Meeting Minutes

The working group convened on Friday, March 21, 2014 at 10:00 a.m. and covered the following topics as drawn from the agenda. Facilitator ALJ Tammy Pust opened the meeting and addressed administrative issues, moving on to public comment invitation.

Public Comment
None.

Update on Commission Direction
ALJ Pust informed the workgroup of the Commission's interest in the workgroup report being filed with the Commission by July. She provided a handout that answered other questions regarding the report and its timing.

Report on Subgroup Discussion in Light of Direction
Some workgroup members stated they were not part of the Risk Mitigation Study Scope document submitted by e-mail to the workgroup on 4/14/2014 and would not necessarily agree with all points.

Review of Revised Use Case Matrix 4.9.14
ALJ Pust explained the changes to the revised use case matrix; in particular, government agencies were listed together. She asked whether anyone had a concern with separating government and non-government requestors separately. Discussion followed on how different government agencies have different levels of authority; however, there was agreement that government requestors in general shared authority not available to non-government requestors. One member also raised the issue that some non-government requestors are contracted with a government agency; for example, they may receive a grant to perform research. The representative of the Department of Commerce noted that in the case of government grants, each contract varies and has different rules. In general, however, no workgroup member opposed putting government requestors into one category and non-government requestors into a separate

category. ALJ Pust again asked if anyone had any changes to the matrix aside from items 3-8 in column 1 being collapsed. No member had further changes.

Review Utility Information re Data Availability
As to the second matrix which includes data availability from utilities, ALJ Pust asked for input. The City of Minneapolis representative questioned the portions of the matrix saying utilities could not provide city-wide data. Utilities responded that some of them can, depending on service area; however, the compilation is a manual process and continuously needs manual updating due to new construction and other changes. Other utilities noted that their records are maintained by meter; while each meter has an address associated with it, compiling the reverse (meters by address) is manual and takes time. The City representative noted that Xcel is working on a DOE project and supported additional investment in IT and infrastructure to make this data gathering an automated process.

Discussion of Mitigation Alternatives for 7 Non-Governmental Use Cases
The City of Minneapolis representative provided a handout and suggested that the Census Bureau could be a good model for aggregation and other mitigation measures. According to the Minneapolis representative, following a discussion with staff at the Census Bureau's Center for Disclosure Avoidance Research, "...in most cases an aggregation threshold of three individuals, households or businesses provides a reasonable level of protection against re-identification." Therefore, the Minneapolis representative suggested an aggregation level of 4, with no single customer making up more than 80% of the data in that geographic area. The Minneapolis representative also suggested a document or form showing who the data requestor is, and that data would be released once a year, perhaps through a single database maintained by a state agency.

ALJ Pust requested input on the 3 proposals made thus far (Xcel's 15/15, the Large Power Intervenors' 5MW or opt out proposal, and the Minneapolis proposal):

- The Department of Commerce stated that whatever proposal was selected needed to be supportable.
- The OAG stated that a low aggregation level such as 4 then raises the issue of customer consent; it would not be an undue burden on a data requestor to gain consent of 4 customers.
- The two electric cooperatives preferred 15/15 but might be open to an aggregation level of 4 if customers received advance notice and the choice to opt out.
- The four representatives of third party organizations seeking customer data all supported an aggregation level of 4 but did not state whether they supported or opposed an opt out provision or customer consent.
- Xcel supported the 15/15 standard, stating it was the only standard of the 3 that was approved by a state commission. Xcel also stated that advance customer notice and opt out may be a challenge administratively and financially for a large utility.
- Minnesota Power stated it was not prepared to weigh in but cautioned it had questions about an aggregation level of 4.
- The Large Power Intervenors supported their own proposal of a 5 MW exemption or customer opt out for data requests.

(OTP and IPL have not provided input on these issues.)

Following the input by each workgroup member, there was discussion about who had the burden of proof to resolve the issue of risk (workgroup members representing customers, or those requesting data release), and whether kWh usage by itself could measure compliance toward state energy goals, particularly for business customers who might have various ways of increasing energy efficiency aside from simple kWh reductions.

Discussion of Cost Recovery and Reporting Considerations
Deferred to May workgroup meeting.

Planning for Next Meeting
ALJ Pust requested comments on issues raised in this meeting to be provided by May 5. Judge Pust also asked for questions or concerns on the process document provided regarding the timing and process of the workgroup report drafting. No one raised concerns or questions.

Workgroup members appearing in person at 4.18.2014 meeting:
Drew Moratzka
Jessica Burdette
Steve Kismohr
Ian Dobson
Sheri Brezinka
Alison Lindberg
Ryan Hentges
Brendon Slotterback
Jody Londo
Megan Hertlzer
Nick Mark
Kevin Marquardt
Jenna Warmuth
Michael Hoy
Bridget McLaughlin
Vince Chavez
Andrew Quirk
Susan Medhaug
Todd Ells

The meeting ended at noon.

This document can be made available in alternative formats (e.g., large print or audio) by calling 651-296-0406 (voice). Persons with hearing loss or speech disabilities may call us through their preferred Telecommunications Relay Service.

STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

Public Utilities Commission Docket 12-1344

CEUD Privacy Workgroup

May 16, 2014

10:00 am – 12:00 (noon)

Meeting Minutes

The working group convened on Friday, May 16, 2014 at 10:00 a.m. and covered the following topics as drawn from the agenda. Facilitator ALJ Tammy Pust opened the meeting and addressed administrative issues, moving on to public comment invitation.

Public Comment
None.

Review of Revised Use Case Matrix
ALJ Pust informed the workgroup that she changed row 17; for subpoenas, either consent is presumed or it is presumed that a legal requirement exists. ALJ Pust asked whether anything else on the matrix should change. No member asked for additional changes.

Questions/Discussion Regarding Participant May 5th Submissions
Workgroup members discussed the California decision. There was discussion about the fact that the decision makes distinctions about data release for publication versus organizations such as local governments who can obtain data but not for publication. Some workgroup members expressed the opinion that the decision would have been more helpful for Minnesota had it been issued earlier, while others noted that the California decision supports the concept of a study. Pacific Northwest National Labs (PNNL) is still gathering information from utilities in its pending study. Judge Pust read into the record a letter from a Research Fellow at the University of Minnesota's Center for Sustainable Building Research asking for a common set of policies and procedures on data release statewide and expressing concern that the 15/15 rule would diminish data release for research.

Discussion of Cost Recovery and Reporting Considerations
ALJ Pust asked the utilities to discuss the costs they bear now for data release. Xcel stated it has a dedicated team of people that respond to requests for data. In 2013, Xcel processed 117,000 consent forms in Minnesota. Xcel also has a team that responds to subpoenas. Xcel does not have an estimate on the IT costs because it does not have enough detail on what additional work

might be requested of it. In the California proceeding, utilities estimated their costs in the record. PG&E estimated $19.4 Million; San Diego Gas & Electric estimated $1 Million in upgrade costs (SDG&E already has a portal). Southern California Edison estimated $7.6 Million for the platform with $1.5 Million per year for ongoing maintenance. In 2011, Xcel looked at a live feed providing customer real-time data for a very small subset of Colorado customers and estimated it would cost $3.5 Million for Colorado. That type of product would take 9-12 months to complete after the full design was worked out.
CenterPoint stated it has multiple departments responding to data requests. Labor is needed to go through the data to see if it's updated, plus labor is needed to scrub the data.
Minnesota Valley Electric Cooperative stated that from a small utility perspective, it estimated $80,000 start up costs and $25,000 per year on an ongoing basis.
There was discussion about whether having this data provided into a centralized database would save time and money and whether other requests, such as for building-scale data, would be received outside the centralized database. Parties also noted that in the California decision, cost recovery to ratepayers was assumed, but the Order generally only allows standardized data to be released, not customized requests. (See Attachment A, page 12.) There was also discussion about this concept being a policy decision; utilities' systems are designed to serve customers. Modifying them to provide data to third parties and passing that cost to ratepayers is a question for the Commissioners to decide because the general principle of cost recovery in Minnesota is that the cost causer must bear the cost. There was additional discussion on this policy question.

Discussion of Protection and Liability Considerations
Parties debated several aspects of the liability question, including:

- Once CEUD properly leaves the utility for a third party, is the utility no longer liable if the third party uses it in a manner other than intended?
- Is it advisable for the Commission to make no decisions on liability and allow utilities to present their defenses in court?
- Should third parties who have access to data be required to register?
- Utilities' data retention policies;
- Should the Commission be setting minimum standards or one exact standard?
- How a centralized database or repository might affect liability or registration questions.

Parking Lot/Other Issues
N/A

Follow up discussion on a data repository was referred to a conference call.

Workgroup members appearing in person at 4.18.2014 meeting:
Drew Moratzka
Jessica Burdette
Steve Kismohr
Ian Dobson
Sheri Brezinka
Alison Lindberg

Ryan Hentges
Brendon Slotterback
Jody Londo
Megan Hertlzer
Nick Mark
Kevin Marquardt
Jenna Warmuth
Bridget McLaughlin
Vince Chavez
Andrew Quirk
Susan Medhaug
Cary Stephenson

The meeting ended shortly after noon.

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APPENDIX E

414 Nicollet Mall
Minneapolis, MN 55401

April 18, 2014

—Via Electronic Filing—

Burl W. Haar
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101

RE: REPLY COMMENTS
PRIVACY POLICIES OF RATE-REGULATED ENERGY UTILITIES
DOCKET NO. E,G999/CI-12-1344

Dear Dr. Haar:

Northern States Power Company, doing business as Xcel Energy, submits to the Minnesota Public Utilities Commission these Reply Comments in response to a request from Chief Administrative Law Judge Tammy Pust, as Facilitator of the Commission's Customer Energy Usage Data (CEUD) workgroup. At the workgroup's March 21, 2014 meeting, the Facilitator requested that any comments in response to the recent Comments of the Minnesota Large Industrial Group (MLIG) be submitted no later than the date of the CEUD workgroup's next meeting, which is April 18, 2014.

We have electronically filed this document with the Minnesota Public Utilities Commission, and copies have been served on the parties on the attached service list. Please contact Jody Londo at jody.l.londo@xcelenergy.com or (612) 330-5601 or me at christopher.b.clark@xcelenergy.com or (612) 215-4593 if you have any questions regarding this filing.

Sincerely,

/s/

CHRISTOPHER B. CLARK
REGIONAL VICE PRESIDENT
RATES AND REGULATORY AFFAIRS

Enclosures
c: Service List

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

Beverly Jones Heydinger	Chair
David Boyd	Commissioner
Nancy Lange	Commissioner
Dan Lipschultz	Commissioner
Betsy Wergin	Commissioner

IN THE MATTER OF A COMMISSION INQUIRY INTO PRIVACY POLICIES OF RATE-REGULATED ENERGY UTILITIES	DOCKET NO. E,G999/CI-12-1344
	REPLY COMMENTS

INTRODUCTION

Northern States Power Company, doing business as Xcel Energy, submits to the Minnesota Public Utilities Commission these Reply Comments in response to a request from Chief Administrative Law Judge Tammy Pust, as Facilitator of the Commission's Customer Energy Usage Data (CEUD) workgroup. At the workgroup's March 21, 2014 meeting, the Facilitator requested that any comments in response to the recent Comments of the Minnesota Large Industrial Group (MLIG) be submitted no later than the date of the CEUD workgroup's next meeting, which is April 18, 2014.

INTRODUCTION

In Comments, MLIG states its belief that, while the Commission has broad authority to set rules, standards, and practices governing service by public utilities, setting rules and guidelines for the release of CEUD to unregulated third-parties outside of a Commission docket does not fall within the traditional notion of utility "service" for the Commission to regulate.[1] MLIG concludes that either a change in law or formal rulemaking is necessary for utilities to be able to share CEUD with non-government organizations outside of a pending Commission docket or obtaining individual customers' consent.[2] However, MLIG also concludes their comments by identifying potential actions the Commission could consider to protect utility customers from the potential risks of third-party access, should it have authority.[3]

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[1] Comments at 6.
[2] Comments at 2.
[3] Comments at 13.

In this Reply, we first discuss our view of Commission jurisdiction as it relates to utilities, utility contractors, and third-parties not involved in providing regulated utility service, then comment on various possible protections MLIG offered as suggestions to the Commission. In summary, we believe:

- The Commission has broad authority over the reasonableness and standards of utility service that supports the promulgation of either rules or a generally policy regarding CEUD that extends to utility contractors;
- Utility provision of CEUD to third-parties presents a risk to customer privacy and confidentiality that the Commission can mitigate through requiring reasonable and adequate risk mitigation strategies and tactics, such as data anonymization and reasonable aggregation standards;
- In considering expanded availability of CEUD outside of utilities and their contractors, the Commission must balance public policy objectives with customer privacy and confidentiality interests, and the administrative and financial burden such access has the potential to impose on utilities and their customers.

Reply Comments

For a very long time, utilities have collected and maintained customer data in order to provide their customers with regulated natural gas and electric utility service. Over the last several years, we have experienced a significant increase in the number of requests we receive from third-parties wanting more and more energy usage information of our customers.[4] We believe that our customers have reasonable expectations of privacy and confidentiality related to the individually-identifiable information we collect and maintain in order to provide them with natural gas and electric utility service.

Because we believe that issues of privacy and confidentiality are important to our customers, we have established policies and practices that both ensure we meet consumer protection and other legal requirements, but also are designed to continue to meet our customers' privacy and confidentiality expectations. We previously sought guidance from the Commission on these policies by proposing a set of customer data privacy standards in the form of a tariff.[5] However, the Commission decided to table our tariff and open a generic docket to more broadly examine the

[4] Xcel Energy processed over 112,000 Minnesota customer consent forms in 2013 for release of CEUD to third parties.
[5] Docket No. E,G002/M-12-188.

privacy policies of all Minnesota energy utilities. Through this generic proceeding, the Commission established the CEUD Workgroup that is examining numerous issues related to possibly expanding access to CEUD for purposes of furthering state energy goals.

A. Commission Jurisdiction

As we have stated previously in this docket, we believe the Commission has broad authority over the reasonableness and standards of utility service that supports the promulgation of either rules or a general policy regarding CEUD.[6] We, however, have also acknowledged that legislative action may be necessary for the Commission to take actions with respect to concepts such as a registration process or a privacy seal program if the Commission wishes to extend them to non-utility entities such as energy efficiency contractors.[7] Finally, in our tariff proceeding, in response to an Information Request regarding how our proposal compared to California Rules issued in Decision 11-07-056, in terms of "covered entities," we stated that our tariff was designed to control our behavior as it relates to the privacy and security of our customers' information. We continued, saying that a broader definition of covered entities like was used in California would be more appropriate for a rulemaking, noting that "questions relating to the Commission's jurisdiction would need to be addressed as part of any attempt to extend data privacy requirements to third parties through a Rulemaking or Order."[8]

Therefore, our view is that the Commission has broad authority to impose and enforce data protection and release requirements and standards on utilities. The Commission can also extend those requirements to utility contractors that aid in providing regulated utility service by imposing requirements on utilities related to conditions of access. However, utility release of CEUD to third-parties unrelated to the provision of regulated utility service presents a risk to customer privacy and confidentiality, because the Commission's jurisdiction does not extend to these third party entities, and there is not an alternative legal framework in Minnesota that would impose or enforce privacy, confidentiality or security requirements on CEUD.

We believe that if the Commission finds the release of CEUD to these entities in the public interest, it can mitigate potential risk to customers by also requiring utilities to do the following:

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[6] *See* Xcel Energy Comments at 4 (January 30, 2013).
[7] *See* August 30, 2013 Xcel Energy Comments at pages 11.and 20.
[8] *See* Xcel Energy response to MPUC Information Request No. 4, Attachment A, page 13 (Docket No. E,G002/M-12-188).

- Provide clear and accessible statements of privacy practices to customers;
- Obtain informed customer consent prior to the release of customer-specific CEUD; and
- Use data aggregation and/or anonymization strategies and tactics designed to reasonably mask customer identity or identifying features that will preserve the customer's privacy and confidentiality.

B. Possible Privacy and Confidentiality Protection Considerations

In its consideration of expanding the availability of CEUD outside of utilities and their contractors for public policy reasons, we believe it is essential for the Commission to also balance customer privacy and confidentiality interests and the administrative and financial burden such access would likely create for utilities and their customers.

In its Conclusion, MLIG offers several possible protections for Commission consideration, including a certification process for third-party requestors, liability standards for utilities/requestors in providing CEUD, and the right of a customer to opt out of aggregation. We discuss each of these suggestions below:

1. Certification Process

The Commission previously sought and received comments regarding a possible certification process for energy efficiency contractors in this Docket. In our August 30, 2013 Comments, we stated our belief that, unless the registration is solely for utilities within its jurisdiction, legislative action may be necessary for the Commission to impose a registration requirement on non-utility entities such as energy efficiency contractors.[9]

To show alternatives, we outlined in our Comments the mechanism by which the Colorado Public Utilities Commission subjected utility contractors to specific customer data privacy contractual requirements by imposing obligations directly on the utilities. This rule requirement does not involve a registration process with the Colorado PUC, but rather establishes that the utility has an obligation to ensure that the customer's data remains reasonably protected and will not be subject to a use beyond that of regulated utility service. We believe that this approach appropriately balances privacy, confidentiality and security concerns with the need of utilities to

[9] Comments at 11.

obtain contractor services in support of their regulated operations.

We do not support, however, requiring the utility to enter a contract with every third party seeking access to CEUD. We believe that this type of requirement would introduce a considerable burden on utilities. For example, in 2013, we processed over 112,000 Minnesota customer consent forms for the release of customer-specific CEUD. We additionally received numerous requests for aggregated CEUD. Introducing a contractual requirement to this process will introduce significant complexities, delays in the release of the information, and significant utility resources to manage the contracting process and enforce contract performance.

We would additionally have concerns if utilities were expected to administer a registration process for third-party entities seeking access to CEUD. While the potential third-party registration concept is not yet defined, on its surface, we believe it would be administratively and financially burdensome, and likely expose utilities to unreasonable levels of liability for an activity that is unrelated to the provision of regulated utility service. For example, if there were a registration process for building owners or managers desiring whole building data, we believe a reasonable assumption is that registration would require the examination of property records and/or property management agreements. This is not a skill set we currently retain, nor a skill set needed to provide utility service.

Therefore, we do not believe that a general registration process for entities outside of utilities and their contractors is a viable risk mitigation alternative, given the Commission's current jurisdictional framework. We also believe that any obligations imposed on utilities with respect to customer data sharing with non-utility entities should be limited to the data sharing that occurs between the utilities and its contractors.

2. *Liability Standards for Utilities and Requestors*

We are unsure of MLIG's intent with respect to this potential area of Commission action. Therefore, we summarize our beliefs regarding utility liability for release of customer data. We believe non-disclosure of customer-specific information should be the default "rule," with recognized exceptions to facilitate a customer's wishes (expressed through an opt-in process requiring informed consent), to comply with applicable laws, or when necessary to provide regulated utility services or products. We also believe it is possible to provide data aggregated or anonymized to an objective standard that reasonably protects customer privacy and confidentiality. As we have stated previously, if we fail to live up to these restrictions, we acknowledge that

affected customers may seek to hold us accountable for associated damages that may occur.[10]

However, it would not be reasonable or appropriate to hold the Company as responsible for business activities over which we have no control. Therefore, in no event, should a utility be held liable for its disclosure of customer data to a third-party, where the data was provided pursuant to customer consent, where the release has been compelled by law, or where the release of aggregated data is made using an objective standard that reasonably protects customer privacy and confidentiality.

When we properly disclose information to third-parties, we do so to facilitate customers' wishes, comply with applicable law, or in the case of aggregated data, further public policy objectives. The information disclosure neither furthers the Company's own business purposes, nor does the Company have any relationship with the third-party that could be leveraged to guarantee that the customer's data will remain protected. Under these circumstances, we have no control over the third-party's actions or conduct, and we have no control over the information once it is given to the third-party. Therefore, it would be unreasonable and inappropriate to hold a utility liable for third-party lapses or actions with respect to customer data.

3. *Customer Right to Opt-Out of Aggregation*

While the MLIG suggestion is not defined, by nearly any measure, we believe a customer opt-out process would present a significant administrative and financial burden on utilities, and also have the potential to greatly reduce the value and impact of any ultimate aggregated data reports. Numerous questions regarding the structure of the program would need to be answered, such as: whether all or some portion of customers are eligible to opt-out; whether the opt-out would be a one-time action for the customer; does the opt-out expire or require renewal on an annual or some other time interval basis; whether the customer is expected to opt-out per aggregated data request; and, whether the opt-out would follow the customer to a different address if they move within the utility's service area.

If the opt-out option were to all customers, it is reasonable to assume that such a process would require at least one notification to all customers, supporting written communication materials, training and reference materials for call center representatives to respond to customer questions and update customer records, modifications to the customer system of record to track the opt-outs, and records systems and personnel to maintain and administer the opt-out program. From a

[10] *See* Xcel Energy Comments, Docket No. E,G002/12-188 at 10 (August 8, 2012).

utility perspective, we believe administering a broad opt-out process is not a viable alternative. We are, however, open to an opt-out option for a defined group of customers with unique characteristics with respect to CEUD, such as large industrials.

From the customer's perspective, we believe that an opt-out process may also be problematic. For example, if a single notice approach is used, there could be considerable time between when the customer notice is made, and when aggregated data is actually released, resulting in confusion or dissatisfaction with the process. In the alternative, receiving multiple notices, requiring repeated actions may also be frustrating and confusing to customers.

From a data requestor perspective, an opt-out process would introduce a significant level of uncertainty, as the types and volume of customers opting-out of a particular report or for a particular time period would be unknowable. Therefore, it would be impossible for requestors to know whether the data they received is indeed representative of the population they seek.

We believe the Commission should reject a broad customer aggregation opt-out program due to its likely burdensome administration and cost, its impact on customers, and the level of uncertainty likely to result in the aggregated data reports. We further believe that there are other customer privacy and confidentiality risk mitigation strategies and tactics the Commission can and should consider, such as utilizing reasonable aggregation or anonymization techniques that adequately protect customers' privacy and confidentiality interests.

CONCLUSION

Xcel Energy appreciates this opportunity to submit these Reply Comments, and believes:

- The Commission has broad authority over the reasonableness and standards of utility service that supports the promulgation of either rules or a generally policy regarding CEUD that extends to utility contractors;
- Utility provision of CEUD to third-parties presents a risk to customer privacy and confidentiality that the Commission can mitigate through requiring reasonable and adequate risk mitigation strategies and tactics, such as reasonable data anonymization and aggregation standards;
- In considering expanding the availability of CEUD outside of utilities and their contractors, the Commission must balance public policy objectives with customer privacy and confidentiality interests, and the administrative and financial burden such access has the potential to impose on utilities and their customers.

Dated: April 18, 2014

Northern States Power Company

Respectfully submitted by:

/s/

CHRISTOPHER B. CLARK
REGIONAL VICE PRESIDENT
RATES AND REGULATORY AFFAIRS

CERTIFICATE OF SERVICE

I, Theresa Sarafolean, hereby certify that I have this day served copies or summaries of the foregoing document on the attached list of persons.

xx by depositing a true and correct copy thereof, properly enveloped with postage paid in the United States Mail at Minneapolis, Minnesota

xx electronic filing

DOCKET NO. E,G-999/CI-12-1344

Dated this 18th day of April 2014

/s/

Theresa Sarafolean
Administrative Assistant

APPENDIX F

STATE OF MINNESOTA
BEFORE THE
PUBLIC UTILITIES COMMISSION

In the Matter of a Commission Inquiry into Privacy Policies of Rate-Regulated Energy Utilities	PUC Docket No. E, G-999/CI-12-1344 **MLIG JURISDICTION ANALYSIS AND RISK ASSESSMENT**

The Minnesota Large Industrial Group ("MLIG"), a continuing ad hoc consortium of large industrial end-users of electricity in Minnesota spanning multiple utilities and functioning to represent large industrial interests before regulatory and legislative bodies, submits the following analysis and recommendations in the above referenced docket.

I. INTRODUCTION

As part of the customer energy usage data ("CEUD") working group discussions (the "Workgroup"), MLIG was asked by the Administrative Law Judge ("ALJ") to outline its thoughts on the scope of the Minnesota Public Utilities Commission's (the "Commission's") authority to take action allowing or requiring the sharing of CEUD with various parties. MLIG raised this issue a number of times to the Workgroup and believes it must be resolved before any decision can be made regarding the release or sharing of CEUD. This memorandum is responsive to the ALJ's request. In addition, this memorandum attempts to shed light on the practical risks associated with aggregated data sharing. MLIG sincerely hopes its analysis will facilitate additional discussion among the Workgroup and provide a greater understanding of MLIG's concerns. MLIG looks forward to additional dialogue with the Workgroup.

II. GENERAL CONCERNS WITH DATA SHARING

At the outset, MLIG emphasizes that it continues to be concerned over the potential for unintended consequences of broadly applied CEUD rules - particularly if those rules encourage the sharing of data with third parties without customer consent. While some states have allowed the sharing of aggregated data, those states have done so with the intent that the aggregation would protect a single customer's particular information. The Workgroup has not convinced

MLIG that aggregation, other than at the class level, will protect its members from reverse-engineering. To the contrary, MLIG has been able to reverse engineer consumption information of its own members even when applying the 15/15 aggregation rule.[1] This is extremely troublesome. MLIG should remain in complete control of its highly proprietary and confidential CEUD. Any disclosure of its members' trade secret CEUD or other operational data – intentionally or accidentally – would be very detrimental to these businesses' ability to compete locally and in the global marketplace. Such information, for example and particularly if combined with other publicly available information, could provide sufficient information for sophisticated competitors to accurately calculate net rates of return versus selling price and thereby determine how to marginalize a facility in the marketplace. Furthermore, MLIG is not the only party that has voiced these concerns. Other utilities and cooperatives that are members of the Workgroup have noted similar objections from their respective customers. Therefore, MLIG strongly urges the Workgroup (and ultimately the Commission) to adopt a cautious approach that carefully eliminates the potential for reverse engineering.

III. JURISDICTIONAL ANALYSIS

MLIG has been participating in the Workgroup at the direction of the Commission to provide a customers' perspective on CEUD. To be clear, MLIG's participation should not be viewed as either a waiver or a consent to the notion that the Commission has the authority under existing law to require utilities to release CEUD to non-government organizations. This memorandum provides background on the treatment of CEUD in other states as well as the legal framework in Minnesota. MLIG concludes that either a change in law or formal rulemaking is necessary for utilities to be able to share CEUD with non-government organizations outside of a pending Commission docket or each customers' consent.

A. Access to CEUD in Other States

Several states have taken some action in preparation for advanced metering, smart grid, demand response and new energy efficiency technologies and programs. At the end of 2012, the

[1] Generally, where any aggregation must contain: (i) at least 15 customers or premises and (ii) within any customer class, no single customers' CEUD may comprise 15% or more of the total customer data aggregated per customer class.

State and Local Energy Efficiency Action Network, a group facilitated by the U.S. Department of Energy, published a regulator's guide to these issues.[2] That report identified at least eight jurisdictions that had taken some action governing access to customer data including: California, Colorado, Oklahoma, Oregon, Texas, Vermont, Washington, and Wisconsin.[3] The guide also noted that several other states were currently considering action (including Minnesota), but that the other 30 or so states had no "ascertainable authority."[4]

As for the few states that have taken direct action, the reasons for so doing vary and the action taken vary considerably. In some cases, the legal authority for meter data sharing was originally set forth in connection with full or partial electric deregulation whereby direct access providers would need to obtain customer energy data. In Texas, for example, the original statutes setting forth access to energy metering data were part of the 1999 electric restructuring.[5] These original statutes were later amended to make clear that all data generated by meters belongs to the customer, that the customer *elects* to share the data,[6] and that the legislature intended advanced metering information to help customers better manage energy use and to facilitate demand response programs.[7] The regulations governing this data require an electric utility to provide the customer data to the customer's retail electric provider or another entity authorized by the customer but generally do not provide for third-party access without the customer request.[8] The context of electric deregulation is also important because, as the legislature was providing for new access to meter data, it may have been also expanding the jurisdiction of the Commission to the entities potentially receiving that data and providing electric service.[9] While California, Texas and Oregon are at least partially deregulated, the other states (like Minnesota), address data disclosure in a regulated monopoly system whereby the

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[2] *A Regulator's Privacy Guide to Third-Party Data Access for Energy Efficiency Programs*, SEE ACTION (December 2012).

[3] *Id.* at 6.

[4] *Id.* at 6.

[5] *See e.g.* 2 Tex. Util. Code §39.107.

[6] Acts 2005, 79th Leg., Ch. 1095, Sec. 7, (effective Sep. 1, 2005).

[7] Acts 2007, 80th Leg. R.S., CH. 939, Sec. 20 (effective Sep. 1, 2007).

[8] Texas Admin Code, Title 16, Chapter 25 Section 130(j)(1) (aside from that for load research and reliability purposes).

[9] *See e.g.* Oregon Rev. Stat. § 757.649 (requiring electric service providers to be certified by the Commission and requiring the Commission to set standards for certification for these entities). Standards are included in Oregon Admin. R. 860-038-0400.

local public utility enjoys monopoly rights in its service area in exchange for being regulated by the relevant state commission or board.

Other states have addressed the issue separately and as part of a focused legislative effort. In 2011 the Oklahoma legislature, for example, passed the "Electric Usage Data Protection Act." The Act made it state policy that electric utilities could disclose aggregate usage data to third parties for the purposes of "promoting energy assistance, conservation, environmental advocacy, research, or measuring company performance" but only so long as that data contains a "sufficient number of similarly situated customers within a particular geographic area so that the daily usage routines or habits of an individual customer could not reasonably be deduced from the data."[10] The same Act specifically required the Corporation Commission to promulgate rules to implement its provisions.[11]

Other states still have promulgated administrative rules and regulations under existing authority - determining that at least customer access to its own energy use data is related to basic utility service.[12] Colorado has taken this approach. While the Commission's setting of rules related to a customer's use of its own data may be well within traditional Commission authority to regulate electric service, Colorado also included provisions for third party receipt of aggregated data (parties who are not subject to its jurisdiction). It is this later step that this memo takes particular interest in for Minnesota - setting rules regarding data disclosure to parties that are not normally subject to the Commission's jurisdiction.

B. Legal Backdrop in Minnesota

First, we turn to the scope of authority granted to the Minnesota Public Utilities Commission by the legislature. Minnesota Statutes Chapters 216A and 216B govern the jurisdiction of the Commission and state system of regulated public utilities. The Commission's powers as set forth in Chapter 216A fall into four general categories:

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[10] Oklahoma Statutes §17-710.7
[11] Oklahoma Statutes §17-710.8
[12] 4 CCR 723-3 Rules Regulating Electric Utilities § 3026(d).

(1) investigate utilities and issue appropriate orders "relating to the continuation, termination, or modification of all services and facilities";
(2) review the reasonableness of all tariffs and rates;
(3) prescribe a uniform system of accounts; and
(4) issue franchises, permits, and certificates of need.[13]

The Commission's authority is generally set forth in section 216B.09. There, it states

> The commission, on its own motion or upon complaint and after reasonable notice and hearing, may ascertain and fix just and reasonable standards, classifications, rules, or practices to be observed and followed by any or all public utilities with respect to the *service* to be furnished.[14]

The term "service" appears in the definitions section of Chapter 216B, and is defined to mean "natural, manufactured, or mixed gas and electricity; the installation, removal, or repair of equipment or facilities for delivering or measuring such gas and electricity."[15]

In addition, the Commission also has broad authority to:

> ascertain and fix adequate and reasonable standards for the measurement of the quantity, quality, pressure, initial voltage, or other condition pertaining to the supply of the service; prescribe reasonable rules for the examination and testing of the service and for the measurement thereof; establish or approve reasonable rules, specifications, and standards to secure the accuracy of all meters, instruments, and equipment used for the measurement of any service of any public utility.[16]

The Minnesota Supreme Court has interpreted this provision as distinct from that governing strictly service, but rather providing for things like the measurement of voltage and accuracy of meters.[17] This statutory provision vests authority in the Commission to set standards related to

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[13] MINN. STAT. § 216A.05 subd. 2.

[14] MINN. STAT. § 216B.09 subd. 1 (emphasis added)

[15] MINN. STAT. § 216B.02 subd. 6.

[16] MINN. STAT. § 216B.09 subd. 2 (applying, at least in part, to cooperative associations and municipal utilities).

[17] *Siewert v. N. States Power Co.*, 793 N.W.2d 272, 281(Minn. 2011) ("Minnesota Statutes §216B.09, subdivision 2 (2010), provides that the MPUC has authority to 'ascertain and fix adequate and reasonable standards for the measurement of the quantity, quality, pressure, initial voltage, or other condition pertaining to the supply of service.' This section deals with the 'measurement of' voltage and the 'accuracy of all meters' and not with how NSP is to provide electrical service.")

metering and measuring the quantity and quality of electric service. Whether this provision can be seen as providing authority for the Commission to set rules regarding new uses of this metered data, may hinge on how "service" is interpreted.

The Commission has broad authority to set rules, standards and practices governing service by public utilities.[18] But it bears emphasis that the Minnesota Supreme Court has held:

> [i]t is elementary that the Commission, being a creature of statute, has only those powers given to it by the legislature." *Great Northern Railway Co. v. Public Service Comm'n*, 284 Minn. 217, 220, 169 N.W.2d 732, 735 (1969). The legislature states what the agency is to do and how it is to do it. While express statutory authority need not be given a cramped reading, any enlargement of express powers by implication must be fairly drawn and fairly evident from the agency objectives and powers expressly given by the legislature.[19]

Furthermore, "Neither agencies nor courts may under the guise of statutory interpretation enlarge the agency's power beyond that which was contemplated by the legislative body."[20] When there is no ambiguous language to construe, courts will look to the "necessity and logic" of the situation.[21] At the same time, the general rule of a reviewing court is to "resolve any doubt about the existence of an agency's authority *against* the exercise of such authority."[22]

While it seems clear under the above statutes and existing case law that the Commission could set rules and guidelines for the release of CEUD to the customer, the protection of CEUD and other sensitive information (e.g., social security numbers, etc.) from third parties, and terms of engagement for utilities who employ third parties in rendering service, MLIG fails to understand how release of CEUD to an unregulated third party outside of a Commission docket falls within the traditional notions of utility "service" for the Commission to regulate. Complicating this particular scenario, where energy conservation and efficiency are driving the push for the release of CEUD, the Minnesota Court of Appeals decades ago determined that

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[18] *See e.g. Hoffman v. Northern States Power Co.*, 764 N.W.2d 34, 44 (2009) ("The MPUC further enjoys broad power to 'ascertain and fix just and reasonable' policies for all public utilities.")

[19] *Peoples Natural Gas Co. v. Minn. Public Utilities Comm'n*, 369 N.W.2d 530, 534 (Minn. 1985).

[20] *Id. (quoting Waller v. Powers Department Store*, 343 N.W.2d 655, 657 (Minn. 1984)).

[21] *Id.*

[22] *In re Qwest's Wholesale Service*, 702 N.W.2d 246, 258 (Minn. 2005) (emphasis added) (citing *In re Northern States Power Co.*, 414 N.W.2d 383, 387 (Minn. 1987)).

energy conservation improvements are not 'service" as so defined but rather are purchases or installation 'of any device, method or material that increases the efficiency in the use of electricity or natural gas' and includes such materials as insulation and caulking. MINN.STAT. § 216B.241, subd. 1(b) (1984)."[23]

To date, no member of the Workgroup has offered any statutory cite or case law that definitively provides the Commission with authority to issue an order in a miscellaneous docket regarding the release of CEUD to unregulated third parties. It appears some members of the Workgroup believe that sections 216B.2401 and 216B.241 provide a broad blanket of authority to the Commission. MLIG disagrees. Section 216B.241 of the Minnesota Statutes has been amended a number of times since the 1985 Court of Appeals case referenced above and now provides the Commissioner of Commerce with authority to review and approve utilities' conservation improvement plans.[24] The Commission sits as the reviewing body for any party wishing to appeal a Commissioner's decision.[25] But the conclusion that "energy conservation improvements" are not strictly service should remain. Minnesota law has also specifically provided that, except for limited exceptions (e.g., SaverSwitch), energy conservation improvements are the exclusive property of the building owner.[26] The same statutory provision expressly limits the liability of the utility for damages or injuries associated with the conservation improvement.[27] Therefore, section 216B.241 fails to expressly authorize the Commission to set rules regarding the release of CEUD in the name of energy efficiency.

MLIG acknowledges that the relatively recent amendments to section 216B.2401 have further brought energy conservation to the forefront:

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[23] *In Establishment of a Utility Energy Conservation Improv. Programs*, 368 N.W.2d 308, 313 (Minn. Court of Appeals May 28, 1985).

[24] MINN. STAT. § 216B.241 (2013).

[25] MINN. STAT. § 216B.241 subd. 1a(e).

[26] MINN. STAT. § 216B.241 subd. 3.

[27] *Id.* (". . .The utility has no liability for loss, damage or injury caused directly or indirectly by an energy conservation improvement except for negligence by the utility in purchase, installation, or modification of the product.")

> The legislature finds that energy savings are an energy resource, and that cost-effective energy savings are preferred over all other energy resources. The legislature further finds that cost-effective energy savings should be procured systematically and aggressively in order to reduce utility costs for businesses and residents, improve the competitiveness and profitability of businesses, create more energy-related jobs, reduce the economic burden of fuel imports, and reduce pollution and emissions that cause climate change. Therefore, it is the energy policy of the state of Minnesota to achieve annual energy savings equal to at least 1.5 percent of annual retail energy sales of electricity and natural gas through cost-effective energy conservation improvement programs and rate design, energy efficiency achieved by energy consumers without direct utility involvement, energy codes and appliance standards, programs designed to transform the market or change consumer behavior, energy savings resulting from efficiency improvements to the utility infrastructure and system, and other efforts to promote energy efficiency and energy conservation.[28]

Combining this new objective with the Commission's rate setting authority under section 216B.03, resource plan consideration under section 216B.2422, and large energy facility approval process under section 216B.243, it is clear the Commission has a role in encouraging energy conservation. But under all of those statutes, the Commission is reviewing a specific filing - a rate case, a resource plan, a certificate of need. Parties wishing to influence rate cases, resource plans, or CIP proceedings are free to intervene and participate in those dockets. Participation in those dockets provides a forum for parties objecting to production of their CEUD to voice concerns and demand non-disclosure agreements. No similar protection would exist in the absence of an open Commission docket. The recent amendments to section 216B.2401 therefore also fall short of providing express authority to the Commission to set rules regarding the release of CEUD in the name of energy efficiency.

There is no ambiguous language in either section 216B.2401 or section 216B.241 on CEUD. The Commission has broad jurisdiction over electric service and the measurement of CEUD. And the above statutes makes clear that while *service* may not strictly include conservation, the legislature has determined it is an *energy resource* and something the Commission should be encouraging in resource plans and other Commission dockets.

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[28] MINN. STAT. § 216B.2401

Yet there is an interest in CEUD access and use that still falls well outside this framework. Some members of the Workgroup would like to see the Commission set rules directing the utilities to allow third-party access to CEUD absent a particular Commission proceeding and, possibly, absent consent. Perhaps the amendments to 216B.2401, combined with the authority over measurement standards in 216B.09, subd. 2 could be construed as providing authority for the Commission to set standards related to the utility's use of metered data for energy efficiency purposes. It however does not follow that there is ambiguous language to construe regarding the release of CEUD to third parties. And neither need nor logic demand that the Commission direct the release of CEUD to third parties without express customer consent. Furthermore, the Commission cannot set rules governing the conduct of third parties it does not have jurisdiction to regulate. Without jurisdiction, there is no recourse before the Commission for a ratepayer whose proprietary information has been wrongly released or reverse-engineered. MLIG therefore fails to understand why the Commission would want to push the boundaries of its authority to sanction the release of CEUD, especially when doing so would be over at least some ratepayers' objections. Given the Commission's statutory directive to protect ratepayers, the Commission should, at a minimum, defer to customers' wishes on the treatment of their proprietary information. This is especially true in light of the reverse-engineering risks described below.

IV. RISKS ASSOCIATED WITH AGGREGATION METRICS AND POSSIBLE SOLUTIONS

Even setting aside the difficult jurisdictional questions associated with CEUD sharing, the Workgroup and Commission should carefully address the practical risks of so-doing. Pushing the boundaries here could create severe unintended consequences. In light of this, most of the states that have taken action on CEUD data disclosure have done so in very limited ways - often still requiring customer consent or other mechanism for the customer to authorize the disclosure to third parties.[29] The states that have provided for aggregated data disclosure without

[29] *E.g.* Texas Admin Code, Title 16, Chapter 25 Section 130(j) (whereby data disclosure is provided to a customer's selected retail electric provider or third-party expressly authorized by the customer).

consent always include limitations aimed at precluding the discovery of individual information.[30] Even Colorado's often referenced 15/15 data aggregation rule[31] is more of a minimum guideline. Utilities in Colorado must still ensure that the "report is sufficiently anonymous in its aggregated form so that any individual customer data or reasonable approximation thereof cannot be determined from the aggregated amount."[32] As mentioned earlier, Oklahoma requires the aggregated data to contain a "sufficient number of similarly situated customers within a particular geographic area so that the daily usage routines or habits of an individual customer could not reasonably be deduced from the data."[33]

The problems associated with setting a broad guideline such as the "15/15 rule" is that it may be too restrictive in some cases and not restrictive enough in others. While the large industrial consumers are better poised to leave the first to others in the Workgroup to identify, the MLIG can speak to the latter.

A cursory review of a 15/15 rule on a hypothetical system[34] is illustrative of at least one of its failings. Assume that the hypothetical system includes a high proportion of large industrial customers located in sparsely populated areas. Assume further that the industrial customers are often uniquely situated in small towns with little other commercial or industrial activity of any sort, much less on the order of magnitude of a large industrial customer.

One way around a 15/15 rule would be for a requesting party to focus on what is *excluded* rather than what is *included* in his/her data request. A requesting party in this example could simply make a request with regard to a utility's system but exclude a particular town or

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[30] Washington Admin. Code 480-100-153(7)("The utility may collect and release customer information in aggregate form if the aggregated information does not allow any specific customer to be identified"); Wisconsin Admin. Code §PSC 113.0505(2)(". . . In preparing summaries or reports, a utility shall not provide any information from which the identity, usage, or account status of any individual customer can be ascertained.")

[31] 4 CCR 723-3 § 3031 (b) ("At a minimum, a particular aggregation must contain: (1) at least fifteen customers or premises, and (2) within any customer class, no single customer's customer data or premise associated with a single customer's customer data may comprise 15 percent or more of the total customer data aggregated per customer class to generate the aggregated data report (the "15/15 Rule")").

[32] 4 CCR 723-3 §3031(b)

[33] Oklahoma Statutes §17-710.7

[34] MLIG's example is hypothetical and does not reflect an actual utility's customer base or average of a group of utilities' customer bases. Any resemblance to a specific utility's system, whether in Minnesota or elsewhere, is purely accidental.

area of interest. So doing would still comport with a 15/15 rule (or likely with a much more stringent similar rule) because there would be far more than 15 accounts with no single account representing more than 15% of the energy usage of the included data set or within the customer class data set. The excluded data set, however, would be the real object of interest. The requestor could use the data obtained, combined with publicly available information on the whole system and population data for the excluded area and determine (within a very small margin of error) data associated with the particular industrial user of interest.

Table 1 includes a simple illustration of this concern. In this example, Company A resides in a small town with very little other commercial or industrial activity. The party requesting aggregated data in this example is actually focused on Company A's energy usage data, but instead requests information on a utility's system that excludes the data in this town or municipality. By subtracting the other publicly available information on the population of the small town and average residential customer usage, this party could effectively reverse engineer Company A's usage with very close approximation. The request however, would still include enough accounts and diversity within what is being requested such that it should meet the 15/15 guideline. Notably, the 15/15 guideline is not particularly focused on what is left out of the data requests.

Table 1.

	Utility	Sales (MWh)	Customers	Ave. Annual Use/Customer (MWh)
1	Utility - Residential	**7,000,000**	700,000	10
2	Utility - Commercial	**3,000,000**	50,000	60
3	Utility - Industrial	**8,000,000**	10	800,000
4	Utility - Total (1+2+3)	**18,000,000**	750,010	
5	Less Town A, Pop. 3,000 (3,000 Res. Cust. + Company A)	**1,230,000**	3,001	
6	Total (4-5)	**16,770,000**	747,009	
7	Remaining Residential (Remaining Res. Cust. * Ave. Use)	**6,970,000**	697,000	
8	Remaining Commercial (None located in Town A/None Removed)	**3,000,000**	50,000	
9	Remaining Industrial (6-7-8)	**6,800,000**		
10	Industrial Removed (3-9)	**1,200,000**		
11	Company A	**1,200,000**		

Industrial Customers	Sales (MWh)
Company A	1,200,000
Company B	1,000,000
Company C	1,000,000
Company D	1,000,000
Company E	800,000
Company F	700,000
Company G	700,000
Company H	600,000
Company I	500,000
Company J	500,000
Total	8,000,000

While this is just one simple failing or risk associated with this particular guideline, MLIG remains concerned that there may be many ways of reverse engineering into CEUD should it be shared through aggregation. Another consideration, for example, may be whether such a rule would allow multiple requestors or the same requestor making multiple requests to layer data sets in such a way that it could identify more particularized information than what could be obtained by any single request. It is nearly impossible to consider all of the ways to get at underlying CEUD intended to be protected by such a rule and thus requires invoking a precautionary principal particularly at the beginning of such an endeavor. Although MLIG would prefer to see no release of CEUD without express customer consent, it also recognizes the public interest served by advancing energy efficiency measures. To ensure ratepayers are protected, the myriad issues and complexities associated with CEUD and aggregation must be resolved.

V. CONCLUSION

In the absence of a new law or promulgated rule, it appears the Commission lacks authority to issue an order governing third parties' access to CEUD, aggregated or otherwise. But even if there is authority (or the legislature amended Chapter 216B of the Minnesota Statutes to provide authority) the Commission must make sure to take steps to protect utility customers, large and small, from the potential risks of third-party access. Such protections could include appropriate aggregation guidelines to prevent disclosure of an individual customer's CEUD via reverse engineering, limitations on requests to prevent layering data sets, certification process for third party requestors, liability standards for utilities/requestors in providing CEUD, OAG authority for enforcement, no aggregation of CEUD for customers of a certain size, and the right of a customer to opt out of aggregation.

Date: March 14, 2014

Respectfully submitted,

/s/ Andrew P. Moratzka

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CERTIFICATE OF SERVICE

I, Kathy Prestidge, hereby certify that I have this day, served a true and correct copy of the following documents to all persons at the addresses indicated below or on the attached list by electronic filing, electronic mail, courier, interoffice mail or by depositing the same enveloped with postage paid in the United States Mail at Minneapolis, Minnesota.

MINNESOTA LARGE INDUSTRIAL GROUP'S JURISDICTION ANALYSIS AND RISK ASSESSMENT COMMENT

In the Matter of a Commission Inquiry into Privacy Policies of Rate Regulated Energy Utilities
Docket No. E, G-999/CI-12-1344

Dated this 14th day of March, 2014.

/s/ Kathy Prestidge
Kathy Prestidge

APPENDIX G

MEMORANDUM
5/5/14

TO: CEUD Workgroup
FR: Brendon Slotterback, City of Minneapolis
RE: Response to Commission Staff request for more information on Census Bureau documentation of disclosure avoidance techniques

City of Minneapolis staff submits these comments in response to a request from Public Utilities Commission staff, dated April 22nd, requesting documentation of Census Bureau procedures for aggregating survey data to protect re-identification of individuals (or estimation of an individual respondent's contribution to a cell value in a public data table). These comments also support the comments made by Minneapolis for the April 18th meeting of the CEUD workgroup.

In general, we believe that federal agency documentation, including from the Census Bureau, provides a rich literature on disclosure avoidance techniques, including techniques for data types for which the re-identification of an individual or business presents more risk than in the case of energy usage data, such as health care data, business payroll and employee data, and criminal justice data.

Comments in this memo rely on a number of sources, but a primary source is *Statistical Policy Working Paper 22 – Report on Statistical Disclosure Limitation Methodology*, published by the Federal Committee on Statistical Methodology, part of the Office of Management and Budget. During telephone and email conversations, Census Bureau staff identified this as a good source for a summary of federal agency disclosure avoidance practices. This paper can be found at: http://www.fcsm.gov/working-papers/spwp22.html.

Federal agency disclosure avoidance techniques vary across agency and across data type, but all strive to balance the protection of individual privacy with the desire to provide fine-grained data needed to make good public policy decisions. Special attention is often focused on protecting the data of users that constitute a large percentage of the total data, as it may be easier to re-identify an individual in these cases, or estimate their contribution to a data cell. **Given the similarity of techniques across these many agencies, and the relative success of these approaches in providing fine-grained data while limiting risks, we believe the Commission should consider adopting similar techniques for the protection of CEUD in Minnesota.**

Disclosure avoidance techniques relevant for CEUD

Techniques adopted by federal agencies are frequently applied to "magnitude data", or data aggregated from multiple customers or survey respondents. A table that includes a count of establishments in a certain industry in the same row as an aggregation of revenue from those establishments is an example of magnitude data. The corollary for CEUD would be a table including a count of residential or commercial customers in a given geography and the aggregated energy used by those customers over a time period.

Most federal agencies employ at least two disclosure avoidance techniques, the first of which is almost always an aggregation threshold. The most common minimum threshold used by Federal agencies for aggregation found in the materials cited in this memo was three individuals or businesses. This did vary, and in some cases agencies do not disclose their minimum threshold. Appendix A summarizes the cases from Working Paper 22 for which a minimum threshold number was provided by an agency.

Beyond a minimum aggregation threshold, most agencies apply at least one additional disclosure avoidance technique, typically with the intention of protecting individuals or businesses that may make up a large portion of a table cell total. This is important in the case of CEUD because the workgroup has had many conversations to date about the concerns of the largest industrial customers and the ability of a requestor to re-identify an individual customer based on aggregated usage.

Techniques most frequently used in addition to an aggregation threshold are the "n-k rule" and the "p-percent" rule. These are sometimes also called dominance rules. Both of these techniques seek to protect anyone accessing the data from being able to estimate the contribution of an individual customer or respondent to a cell total.

The "n-k rule" is probably most familiar to CEUD workgroup members, as it matches part of the existing 15/15 policy proposed by Xcel Energy (the second "15"). The n-k rule states that a cell in a table of data must be suppressed if the largest n respondents in the cell make up at least k% of the total cell value. In Xcel's proposal for example, n=1 and k=15%. So if any one customer makes up more than 15% of the total usage in that cell, their data would be suppressed. Most agencies do not disclose the value of k, assuming that knowledge of this value could be used to estimate individual respondent's information. The Department of Agriculture's Economic Research Service did identify the value of k for their work as 60. Telephone conversations with Census Bureau staff confirm that their value of k, while not public, is above 50.

The p-percent rule is similar to the n-k rule, although the calculation is more complicated. It is intended to protect the largest, and therefore all, company values in a given cell from estimation to within p%. The Census Bureau document *An Overview of Disclosure Principles* illustrates the p-percent rule as follows:

To illustrate the p% primary suppression rule,

Let T = the total value of a given cell,

L = the value of the largest contributor to the cell,

S = the value of the second largest contributor to the cell, and

p = the percentage of protection required.

Then R = T - L - S is the total value of the remaining contributors to the cell. The p% rule states that a cell must be suppressed if $R < (p/100)*L$. [1]

Either the n-k rule or the p-percent rule could be used in addition to an aggregation threshold for the publication of CEUD in Minnesota. For the previous CEUD workgroup meeting on April 18th, City of Minneapolis staff proposed a combination of an aggregation threshold and the n-k rule for CEUD use cases beyond the individual building scale. The proposed threshold was at least four customers contributing to any cell total (for example, a minimum of four industrial customers contributing to the aggregated industrial energy usage for a census block group or city) and a value of n or 1 and a value of k of 80 (in other words, no one customer can make up 80 percent or more of a cell total).

The importance of central data processing to disclosure avoidance

It is important to note that the successful use of disclosure avoidance techniques by federal agencies depend on the controlled processing and release of data by those agencies, rather than releases based

[1] *An Overview of Disclosure Principles*. 1992. Bureau of the Census, Statistical Research Division. Research Report Series No. RR-92/09. Accessed 5/5/14 at http://www.census.gov/srd/papers/pdf/rr92-09.pdf

on individual requests. To apply the rules effectively, the agency needs to understand all the data that will be released before applying any technique or rule. For example, in the aggregation threshold or n-k rules discussed above, either the total number of respondents per row or the magnitude total must be known before the rule can be applied. Agencies cannot anticipate what requests may be made in the future, therefore, they choose sets of data to release and apply disclosure rules consistently across those sets.

In the case of CEUD, if a utility were processing individual data requests that included varying geographies, intervals or customer classes, repeated or overlapping data requests could make disclosure avoidance techniques applied during one request insufficient for the next request. Workgroup members have identified potential instances of repeated or overlapping requests as a potential means that a third party could use to estimate a customer's individual energy usage.

This situation supports the idea, proposed by Minneapolis at the April 18th meeting, of having all utilities send customer data to a central entity as private data, and having that entity apply disclosure avoidance rules before publishing any data. Publishing need only be done once annually. In addition to addressing disclosure risk, this approach to CEUD would also theoretically reduce the time and effort expended by regulated utilities, who would otherwise be replying to all data requests individually.

How disclosure avoidance techniques could be applied to CEUD in Minnesota

Tables of magnitude data published by various agencies are similar to what might be published in the case of CEUD uses cases beyond the building scale. For example, the Bureau of Labor Statistics published tables which show counts of industry by type, and aggregated monthly employment, quarterly wages and weekly wages. One example of a CEUD request that the workgroup has considered as a use case is Census block group-level data within a city with a table which shows a count of customers by class (residential, commercial, industrial), and aggregated annual energy usage for each class.

The minimum aggregation threshold and n-k rules described above could be applied to any CEUD data before it was made available to third parties. As was described in Minneapolis' comments from the April 18th meeting, two sets of data that would meet many of the non-building use cases considered by the workgroup are Census block group level and Census place (city) level data. A centralized entity (such as a state agency) that had received all regulated utility data on an annual basis could process all private customer data using these rules, and publish data sets each year.

The table below is a sample of what a table of published CEUD might look like at the Census block group level. This table is for illustrative purposes only, values are fictional.

Block Group	Census Place	Count of Residential Customers	Count of Commercial Customers	Count of Industrial Customers	Total residential kWh	Total commercial kWh	Total industrial kWh	Total kWh
2892	Minneapolis	1,000	7	0	4,200,000	58,800	0	4,258,800
564	Minneapolis	1,010	10	6	4,242,000	60,400	100,800	4,403,200
3911	Minneapolis	900	0	3	3,780,000	0	N	N

In Census block group 3911, the "Total industrial kWh" cell is marked "N" because data has been suppressed. Data was suppressed because in that geography, the minimum aggregation threshold for industrial customers was not reached. In addition, "Total kWh" for block group 3911 was suppressed because knowing that total would allow a third party to determine the aggregate total for industrial kWh.

Summary

Disclosure avoidance techniques are used by many federal agencies charged with protecting sensitive individual data. In many cases, this data may be more sensitive than energy usage data (such as employee wages of a group of firms, or health care information). These agencies utilize similar techniques, including the use of minimum aggregation thresholds and rules designed to protect individuals which contribute large percentages of individual cell data.

In general, the minimum aggregation thresholds adopted by federal agencies are much lower than the aggregation threshold proposed by Xcel Energy, or by the California PUC in their proposed decision of May 1, 2014.[2] While the disclosure avoidance techniques adopted by many federal agencies have been subjected to intense analysis for many years[3], no proposed CEUD rule has been, as many workgroup members have pointed out. In addition, most federal agencies apply additional disclosure avoidance rules or techniques, such as the n-k or p-percent rule, to protect those individuals who may be at special risk of having their individual information estimated or being re-identified.

We urge the Commission to look to the rich literature on disclosure avoidance, and the standards in use by federal agencies, and to apply reasonable standards for releasing data that protect individual customers in the case of CEUD. Just as demographic, economic, and criminal justice data is crucial to making effective policy, a richer understanding of energy usage data is crucial to continuing to advance state energy goals.

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[2] http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M090/K597/90597208.PDF

[3] Workgroup members and the Commission are invited to review the statistical literature produced by entities like the Census Bureau's Center for Disclosure Avoidance at http://www.census.gov/srd/www/byyear.html, search "disclosure".

Appendix A - Summary of Federal Agency minimum aggregation thresholds

These quotes are all drawn from *Statistical Policy Working Paper 22 – Report on Statistical Disclosure Limitation Methodology*, published by the Federal Committee on Statistical Methodology, part of the Office of Management and Budget. The paper is available at: http://www.fcsm.gov/working-papers/spwp22.html.

Department of Agriculture, Economic Research Service (ERS)

"Estimates will not be published from sample surveys unless: (1) sufficient nonzero reports are received for the items in a given class or data cell to provide statistically valid results which are clearly free of disclosure of information about individual respondents. **In all cases at least three observations must be available, although more restrictive rules may be applied to sensitive data,** (2) the second condition is an application of the (n, k) concentration rule or dominance rule to insure that the unexpanded data for any one respondent does not equal a specified threshold, For each published cell value, **the respondent must represent less than 60 percent of the total** that is being published, except when written permission is obtained from that respondent." – pg. 34

Department of Agriculture, National Agricultural Statistics Service (NASS)

"The Agricultural Estimates program includes crop, livestock, environmental, and economic reports that NASS regularly produces through the Agricultural Statistics Board. The Agricultural Estimates program determines primary suppressions **using a threshold rule of three and the (n, k) dominance rule**. The values of n and k are administratively determined and, with a few exceptions, are consistent across all publications." – pg. 35

Bureau of the Census (BOC)

"The cell threshold minimum most frequently used is **3 unweighted individuals from 3 distinct households**." – pg. 40

(The BOC has very complex disclosure avoidance techniques which vary considerably by data product)

Energy Information Administration (EIA)

"EIA's primary method for ensuring confidentiality protection is the application of the pq rule or a combination rule. Regardless of the parameters chosen, **the rule assures that nonzero value data cells must be based on three or more respondents**. The combination rule is the pq rule in conjunction with some other subadditive linear suppression rule." – pg. 42

National Center for Health Statistics (NCHS)

"NCHS is the principal federal agency that releases health statistics...**No magnitude data figures should be based on fewer than five cases and an (n, k) rule is used**." – pg. 45

Department of Justice, Bureau of Justice Statistics (BJS)

"For tabular data, **cells with fewer than 10 observations are not displayed** in published tables." – pg. 46

Department of Labor, Bureau of Labor Statistics (BLS)

"The statistical methods used to limit disclosure vary by program. For tables, the most commonly used procedure has two steps--**the threshold rule, followed by a concentration rule**. BLS programs use the p percent rule or the (n, k) rule to assess concentration depending upon program. The value of the parameters used for thresholds and various concentration rules used by BLS is not released to the public. Current practice at BLS is to replace use of the (n, k) concentration rule by the p percent rule.

For example, the Quarterly Census of Employment and Wages (QCEW), a census of monthly employment and quarterly wage information from Unemployment Insurance filings, uses a threshold rule and the p percent rule for calendar year (CY) 2002 data and beyond." – pg. 47

Department of the Treasury: Internal Revenue Service, Statistics of Income Division (IRS, SOI)

"The administrative rules are found in Chapter VI of the SOI Division Operating Manual (January, 1985), and require **that at or above the state level each cell in a publicly released tabulation be based on at least three observations. Below the state level the requirement is at least ten observations.**" – pg. 49

CHAPTER III – Current Federal Statistical Agency Practices

This chapter provides an overview of 14 Federal agency policies, practices, and procedures for statistical disclosure limitation. Agencies are authorized or required to protect individually identifiable data by a variety of statutes, regulations or policies. Statistical disclosure limitation methods are applied by the agencies to limit the risk of disclosure of individual information when statistics are disseminated in tabular or microdata formats.

This review of agency practices is based on three sources. The first source is Jabine (1993b), a paper based in part on information provided by the statistical agencies in response to a request in 1990 by the Panel on Confidentiality and Data Access, Committee on National Statistics. Another source of agency practices was from 1991 when each statistical agency was asked to provide a description of its current disclosure practices, standards, and research plans for tabular and microdata. 12 statistical agencies responded to this request.

The third source was from 2004, when each agency was requested by the Confidentiality and Data Access Committee, a subcommittee of the Federal Committee on Statistical Methodology, to review and supplement their responses concerning current disclosure practices and standards, and to comment on any provisions for researcher access. Thus, the material in this chapter is current as of the publication date.

The first section of this chapter summarizes the disclosure limitation practices for 14 Federal statistical agencies as shown in Statistical Programs of the United States Government: Fiscal Year 2004 (Office of Management and Budget). The agency summaries are followed by an overview of the current status of statistical disclosure limitation policies, practices, and procedures based on the available information. Specific methodologies and the state of software being used are discussed to the extent they were included in the individual agencies' responses.

A. Agency Summaries

A.1. Department of Agriculture

A.1.a. Economic Research Service (ERS)

ERS disclosure limitation practices are documented in the statement of "ERS Policy on Dissemination of Statistical Information," dated September 28, 1989. This statement provides that: Estimates will not be published from sample surveys unless: (1) sufficient nonzero reports are received for the items in a given class or data cell to provide statistically valid results which are clearly free of disclosure of information about individual respondents. In all cases at least three observations must be available, although more restrictive rules may be applied to sensitive data, (2) the second condition is an application of the (n, k) concentration rule or dominance rule to insure that the unexpanded data for any one respondent does not equal a specified threshold, For each published cell value, the respondent must represent less than 60 percent of the total that is being published, except when written permission is obtained from that respondent. In this instance (n, k) = (1, 0.6). Both conditions are applied to magnitude data while the first condition also applies to counts.

Within ERS, access to unpublished, confidential data is controlled by the appropriate branch chief. Authorized users must sign confidentiality certification forms. Restrictions require that data be summarized so individual reports are not revealed.

ERS does not release public-use microdata files. ERS provides access to microdata via its "remote data center" software to authorized users. ERS will share data for statistical purposes with government agencies, universities, and other entities under cooperative agreements as described below for the National Agricultural Statistics Service (NASS). Requests of entities under cooperative agreements with ERS for tabulations of data that were originally collected by NASS are subject to NASS review.

A.1.b. National Agricultural Statistics Service (NASS)

NASS maintains a series of Policy and Standards Memoranda (PSM) which document the policies and standards established for all of the Agency's programs. PSM 12 governs the rules of attribute and inferential disclosure along with provisions for handling special cases. PSM 7 documents NASS policy on the release of unpublished summary data and estimates and access to microdata files. PSM 6 covers the use of the list sampling frame including identity disclosure. PSM 4 presents NASS's legal obligation to protect confidential information and specifies the procedures for confidentiality certification of employees and special agents.

The Agricultural Estimates program includes crop, livestock, environmental, and economic reports that NASS regularly produces through the Agricultural Statistics Board. The Agricultural Estimates program determines primary suppressions using a threshold rule of three and the (n, k) dominance rule. The values of n and k are administratively determined and, with a few exceptions, are consistent across all publications. NASS statisticians are responsible for identifying primary suppressions and their complements, and ensuring that the suppression patterns are consistent over time. Suppressions may be presented individually or as aggregates. PSM 12 allows for the use of informed consent (waivers) for the Agricultural Estimates program if it is determined to be in the interest of the industry. All parties at risk must agree to allow the estimates to be published and have the right to revoke their consent. Agreements are renewed every five years.

For the Census of Agriculture, the Puerto Rico Census of Agriculture, the census follow-on programs including the Farm and Ranch Irrigation Survey, and the Census of Aquaculture, NASS uses the p-percent rule to identify sensitive data cells at risk of disclosure. The threshold rule is also applied to all magnitude data to ensure that a minimum number of farms are represented in each published cell. All magnitude data associated with cells with less than three farms are also suppressed. Complementary suppressions are chosen using network flow methodology. Frequency count data are not considered sensitive and not subject to suppression. Also, NASS does not allow the use of informed consent from respondents for the Census of Agriculture and its follow-on programs.

While it is NASS policy not to release microdata files, NASS operates a Data Lab within its Washington headquarters. Individual researchers may submit a research proposal and request

permission to run specialized models or tabulations on certain microdata files within the lab. Requests are addressed and approved or disapproved on a case-by-case basis by the Associate Administrator. NASS staff monitors the lab and all materials leaving the lab are subject to disclosure review. Individuals using the data lab sign confidentiality forms as NASS agents and are bound by the statutes restricting unlawful use and disclosure of data. NASS will arrange for a data lab in any of its 46 field offices, when needed. Data users may also request special tabulations through the Data Lab. These tabulations are performed by NASS staff and eliminate the need for access to microdata files. The results of each tabulation are considered public domain and are available to any data user.

NASS and the Economic Research Service cooperatively provide an interactive web tool with built-in disclosure review and filtering, that allows individual researchers to run tabulations and special analysis against microdata from the Agricultural Resource Management Survey. Access procedures mirror those of the Data Lab. Individual researchers may submit a research proposal and request an authenticated access ID. Data confidentiality is protected by applying a noise-based approach to the underlying microdata before the tabular data are generated. The parameters used for the noise creation are kept confidential. The p-percent rule is also applied to the aggregates to test a table cell for dominance from a single establishment.

NASS conducts a number of reimbursable surveys for government or academic organizations, and has developed special confidentiality procedures for these surveys. In these situations, NASS will clearly identify the sponsoring organization and purpose of the survey to respondents prior to collecting their voluntary responses. In these situations NASS may provide a microdata file, stripped of identifiers, to the sponsoring organization for their analyses. The microdata file must reside in a physically secure site under security measures approved by NASS. All individuals who will have access to the file must sign confidentiality forms as NASS agents and are bound by the statutes restricting unlawful use and disclosure of data.

In February 1993, USDA's Office of the General Counsel (OGC) reviewed the laws and regulations pertaining to the disclosure of confidential NASS data. In summary, OGC's interpretation of the statutes allows data sharing to other agencies, universities, and private entities as long as it enhances the mission of USDA and is through a cooperative agreement, cost-reimbursement agreement, contract, or memorandum of understanding. Such entities or individuals receiving the data are also bound by the statutes restricting unlawful use and disclosure of the data. NASS's current policy is that data sharing for statistical purposes will occur on a case-by-case basis, as needed, to address an approved specified USDA or public need, and under the specialized situations described above.

To the extent future uses of data are known at the time of data collection, they are explained to the respondent and permission is requested to permit the data to be shared among various users. This permission is requested in writing with a release form signed by each respondent

A.2. Department of Commerce
A.2.a. Bureau of Economic Analysis (BEA)

BEA's disclosure limitation activities pertain mainly to data that it collects on international direct investment and trade in services. These data are collected from U.S. business enterprises—both U.S.-owned and foreign-owned—in mandatory surveys conducted under authority of the International Investment and Trade in Services Survey Act (P.L. 94-472, as amended). Surveys of trade in financial services also are authorized by the Omnibus Trade and Competitiveness Act of 1988. As required by the Survey Act, the data collected are held confidential and are published in a manner that precludes the identification of individual responses. Disclosure limitation activities also are conducted for certain data on regional economic activity that are obtained from the Bureau of Labor Statistics. BLS conducts the disclosure limitation activities for its own purposes and provides a copy of the results to BEA.

With regard to the data on direct investment and trade in services, the general rule for primary suppression involves looking at the data for the top reporter, the second reporter, and all other reporters in a given cell. If the data for all but the top two reporters add up to no more than a certain percent of the top reporter's data, the cell is a primary suppression. This is an application of the p-percent rule.

This rule protects the top reporter from the second reporter, protects the second reporter from the top reporter, and automatically suppresses information in any cell with only one or two reporters. On very rare occasions, respondents may, upon request by BEA, grant a waiver of confidentiality.

When applying the general rule, absolute values are used if the data item can be negative (for example, net income). If a reporter has more than one data record in the same cell, these records are aggregated and suppression is done at the reporter level.

In addition to applying the general rule, several special rules may be applied covering rounded estimates, country and industry aggregates, and "key item" suppression (looking at a set of related items as a group and suppressing all items if the key item is suppressed).

Complementary suppression is done partly by computer and partly by human intervention. The computer programs used include routines that examine different combinations of cells to ensure that suppressions cannot be uncovered through the computation of linear combinations of rows and columns.

Some tables are published on numbers of companies, such as the number of foreign affiliates of U.S. companies in different countries or industries. These number counts are not considered sensitive and are not analyzed for disclosure or suppressed.

Under the International Investment and Trade in Services Survey Act, limited sharing of data with other Federal agencies, and with consultants and contractors of BEA, is permitted, but only for statistical purposes and only to perform specific functions under the Act. Included among these are "Special Sworn Employees", who are allowed on-site access to company-level

microdata for research purposes and who are sworn to uphold the confidentiality of the data on the same basis as regular BEA employees. Certain types of data sharing with other Federal agencies also are authorized by the Foreign Direct Investment and International Financial Data Improvements Act of 1990 and by the Confidential Information Protection and Statistical Efficiency Act of 2002. This data sharing is for statistical purposes only, and any staff of these agencies who must view BEA's unsuppressed data in connection with these activities are required to obtain BEA Special Sworn Employee status.

In another program area, BEA's Regional Economic Measurement Division publishes estimates of local area personal income by major source, based on county-level data on wages and salaries that it obtains from the Federal/state ES-202 Program of the Bureau of Labor Statistics (BLS). BEA is required to follow statistical disclosure limitation rules that satisfy BLS requirements. To prevent either the direct or the indirect disclosure of the confidential information, BEA uses the BLS state and county nondisclosure file to protect the confidential information in the ES-202 data that has been supplied to BEA. The nondisclosure file identifies the sensitive cells that must be protected to avoid release of confidential information.

BEA uses as many BLS nondisclosure cells as possible, but cannot use some of them for various reasons. The most important reasons are that the industry or geographic structure published by BEA does not exactly match the industry or geographic detail provided by BLS and that BEA does not use ES–202 data for the farm sector. For these cases, BEA must select additional cells to prevent the disclosure of confidential information. In order to determine which estimates should be suppressed, the total wages and salaries file and the wages–and–salaries–nondisclosure file are used to prepare a multidimensional matrix. This matrix is tested, and the estimates that should be suppressed are selected. Complementary suppressions, if necessary, are generated by computer and checked to ensure that they are adequate.

A.2.b. Bureau of the Census (BOC)

The Census Bureau conducts its statistical programs under government-wide legislation such as the Privacy Act, the Freedom of Information Act (FOIA), and the Confidential Information Protection and Statistical Efficiency Act (CIPSEA) of 2002; and agency-specific legislation such as Title 13, United States Code, of 1954.

Title 13, U.S.C, defines the basis for the Census Bureau standards for confidentiality. Data that identify individuals, businesses, and other organizations must not be shared with anyone unless that person has taken an oath to maintain Census confidentiality and has a business need to know. The Census Bureau protects confidential data through the use of technological safeguards, statistical data protection, and through restricted access. Methods used include encryption software, special dedicated lines, as well as password and firewall techniques.

The Census Bureau has legislative authority to conduct surveys for other agencies under either Title 13 or Title 15 U.S.C. A sponsoring agency with a reimbursable agreement under Title 13 can use samples and sampling frames developed for the various Title 13 surveys and censuses. This would save the sponsor the extra expense that might be incurred if it had to develop its own

sampling frame. However, the data released to an agency that sponsors a reimbursable survey under Title 13 are subject to the confidentiality provisions of any Census Bureau public-use microdata file or tables; for example, the Census Bureau will not release either identifiable microdata or small area data. The situation under Title 15 is quite different. In conducting surveys under Title 15, the Census Bureau may release identifiable information, as well as small area data, to sponsors. However, sources other than surveys and censuses covered by Title 13 must be used to draw the samples. When the sponsoring agency furnishes the frame, the data are collected under Title 15, and the sponsoring agency's confidentiality rules apply.

A Disclosure Review Board (DRB) reviews specifications and proposals relating to each Title 13 data release intended for public use. The DRB ensures adherence to guidelines of the "Census Bureau DRB checklist" and any other criteria previously established by the DRB. It communicates disclosure limitation policy to program managers, Census Bureau officials, data users, prospective sponsors and the general public. The DRB initiates and coordinates research on the disclosure potential in microdata, tabular data, and other statistical outputs; and on the effectiveness of disclosure avoidance techniques as applied to such outputs. Members of the Disclosure Avoidance Research Group in the Statistical Research Division conduct research into the most suitable data protection methods for the materials published.

Some mechanisms exist to provide access to more detailed information on a restricted basis. These include Research Data Centers for approved researchers with Special Sworn Status, as well as remote on-line access in State Data Centers and Census Information Centers via the Advanced Query System for user-defined tables from Census 2000. The latter system allows users to request certain types of tables and then automatically reviews the tables to avoid disclosing confidential information. Users receive only the tables that have passed disclosure review.

Some microdata are accessible to approved researchers at the Census Bureau's Research Data Centers (RDCs). The objective of the Center for Economic Studies (CES) and the RDCs is to increase the utility and quality of Census Bureau data products. Use of microdata can address important policy questions without the need for additional data collections. In addition, it is the best means by which the Census Bureau can check on the quality of the data it collects, edits, and tabulates. These secure research facilities are located at various sites across the country. Access is strictly limited to researchers and staff authorized by the Bureau of the Census. All analysis must be performed within the secure RDC research facility. Ensuring security at RDCs has several aspects: project oversight, a physically secure facility, personnel security, a secure computing environment, an on-site Census employee, and application of disclosure avoidance rules to the analytical results presented to the public.

For the every-fifth-year economic census and associated surveys, the Census Bureau uses the p% rule to identify sensitive cells in tables but does not publish the value of p. Sensitive cells are suppressed and complementary suppressions are identified using the technique of network flow (which may be viewed as a special case of linear programming) which is computationally very fast, or linear programming which is slower. Network flow is ideal for 2-dimensional tables. It has also been applied to 3D tables although for such tables, linear programming is the preferred

method from a theoretical point of view; i.e. full protection of sensitive cells is guaranteed, obviating the need to run a disclosure audit program to check the extent of protection achieved.

For the 2002 Economic Census, network flow was used for all 2-dimensional tables and the larger 3-dimensional tables. Suppression programs based on linear programming were used for smaller 3-dimensional tables. Certain surveys have 4-dimensional or 5-dimensional data, and linear programming based programs may be used for these tables if runtimes are not excessive. Auditing programs are used when necessary.

For non-census demographic data, the Census Bureau primarily uses a combination of geographic thresholds, population thresholds and coarsening. Microdata cannot show geography below a population of 100,000. For the most detailed microdata, that threshold is raised to 250,000 or higher. Some surveys tabulate only at state, region or Census division. For data products that fall outside the main publications, a threshold may be applied at the cell level or to the population. Multi-dimensional tabular data on specific populations must met a minimum of unweighted cases, usually 50. The cell threshold minimum most frequently used is 3 unweighted individuals from 3 distinct households. Coarsening is used to avoid the application of thresholds. For small populations or rare characteristics noise may be added to identifying variables, data may be swapped, or an imputation applied to the characteristic. Census data, which lacks the component of protection provided by sampling, employs targeted swapping in addition to the combination of table design and thresholds described above.

Most of the Census Bureau's current statistical disclosure limitation practices and research are summarized in three papers Zayatz (2002), Zayatz, Massell, and Steel (1999) Hawala, Zayatz, and Rowland (2004). Other references are found in these three papers.

A.3. Department of Education: National Center for Education Statistics (NCES)

The National Center for Education Statistics (NCES) has strong legislation that requires the agency to protect the confidentiality of its data collections. First under the 1988 Hawkins-Stafford Elementary and Secondary School Improvement Amendments, and then under the 1994 National Education Statistics Act, NCES was required to maintain confidentiality of all individually identifiable data about individuals (e.g., principal, teacher or student data). Although the law did not explicitly protect institutional data, protecting data about individuals within institutions frequently resulted in the protection of data about educational institutions as well. The Education Sciences Reform Act of 2002 explicitly requires NCES to protect the confidentiality of all individually identifiable data about students, their families and their schools. Related to these laws, NCES has a statistical standard on maintaining confidentiality (NCES Statistical Standard 4-2 http://nces.ed.gov/statprog/2002/std4_2.asp). That standard summarizes the relevant laws, identifies employee and contractor responsibilities when handling confidential data, describes alternative methods that may be used to protect NCES data from disclosure, and includes the consent notice to be placed on NCES public use data files. In addition, the NCES Disclosure Review Board (DRB) reviews disclosure analysis plans and proposed public-use data releases to protect the confidentiality of the individual reported values.

Most NCES data collections include some institution data, but additionally include data from any combination of institution heads, teachers, librarians, students or student's parents. It's the individual's data that must be protected. These datasets can be made publicly available through either a public-use file or a data analysis system (DAS) after applying a DRB approved disclosure analysis and resolving any observed disclosure risks. This process is described below.

A public-use file is a file or series of linked files that: 1) contain individuals' responses about themselves, and 2) have gone through a DRB approved disclosure analysis. All direct individually identifiable information (e.g., school name, individual name, addresses) is stripped from the public-use file. Continuous variables are top and bottom coded to protect against identification of outliers. After this has be done, the only way a casual data intruder can identify an individual respondent is by first identifying the sampled institution for the individual.

To prevent identification of the sampled institution, all known publicly available lists of education institutions that contain institutions' names and addresses are gathered. Each list is matched with the sample file using all common variables between the two files. If an institution can be identified to within 2 other institutions, using an appropriate distance measure, then that is a disclosure risk and must be resolved before releasing the data.

If too many disclosure risks are obtained then a common variable(s) may be dropped from the public-use file, or the variable(s) may be coarsened. If there are only a few identified disclosure risks found then the appropriate action is to selectively perturb a set of the common variables until all disclosure risks are resolved. This analysis is repeated sequentially for each list file until it can be repeated for each list file without identifying any disclosure risks.

The matching analysis described above is designed to prevent the casual data snooper from determining survey respondents. It is assumed that if the institution cannot be identified then individuals within that institution also cannot be identified. However, data intruders with detailed knowledge about a sampled institution may be able to identify an institution; thereby, increasing the likelihood of identifying an individual. To reduce the likelihood of correctly doing this, additional disclosure edits are required.

Whenever institution head, teacher, student, or parent data are clustered, a subsampling of respondents is required. Data from respondents selected in this sub-sample, are reviewed using an additional disclosure edit. The edit is either: 1) a blanking and imputing, or data swapping of a sampling of sensitive items collected; or 2) a data swapping of the key identification variable of the respondent or institution. The amount of editing is set at a level high enough to protect the confidentiality of the respondent, while not compromising the analytic usefulness of the data file.

The important aspect of this edit is that all respondents have a chance of selection. Usually respondents at greater risk are given a larger selection probability. Should someone think that they have identified a respondent, they cannot be sure that the data is really for that respondent.

Another way NCES distributes data is through a Disclosure Avoidance System (DAS). A DAS is a table generator program that can generate proportions, means, or correlation coefficients with the corresponding standard errors that have been calculated taking into account the complex

sampling procedures used in the NCES surveys. The DAS is linked to a data file, but all data elements are masked so that the file itself is unreadable to anything or anyone other than the table generator program. The data are also protected through the survey sampling process (i.e., any unit selected is likely to have many other similar units in the universe). However, since there is little control on the type and number of tables generated, further disclosure protections are applied through data perturbation (e.g., data swapping) and data coarsening.

In order for a DAS to be released, the underlying data file must include a series of DRB confidentiality edits: either a blanking and imputing, or data swapping of a sampling of sensitive items collected; or a data swapping of the key identification variable of the respondent or institution.

All NCES tables use either a perturbation technique (i.e. a confidentiality edit approach), or a process of collapsing cells until all cells contain values associated with at least three respondents. The confidentiality edit approach is applied to the restricted-use microdata file. The table can then be prepared with no additional disclosure limitation method applied.

A.4. Department of Energy: Energy Information Administration (EIA)

EIA has established statistical standards (http://www.eia.doe.gov/smg/Standard.pdf) including standards for data protection, accessibility, and nondisclosure. Standard 2002-22, "Nondisclosure of Company Identifiable Data in Aggregate Cells," contains the procedures and policies to ensure that sensitive data cell values are suppressed (i.e., withheld from public release) for the protection of confidential survey data. EIA also requires additional confidentiality training for those who have access to data protected under CIPSEA.

EIA's primary method for ensuring confidentiality protection is the application of the pq rule or a combination rule. Regardless of the parameters chosen, the rule assures that nonzero value data cells must be based on three or more respondents. The combination rule is the pq rule in conjunction with some other subadditive linear suppression rule. The value of the pq sensitivity parameter represents the maximum permissible gain in information when one company uses the published cell total and its own value to create better estimates of its competitors' values. The values of the pq parameter that are selected for specific surveys are not published and are considered confidential. Complementary suppression is applied to other cells to assure that the sensitive value cannot be reconstructed from published data. For information collected under a pledge of confidentiality, EIA does not publicly release names or other identifiers of survey respondents linked to their submitted data.

For many EIA surveys that use the pq rule, complementary suppressions are selected manually. One survey system that publishes complex price and volume tables for crude oil and refined petroleum products uses software to select complementary suppressions. It assures that there are at least two suppressed cells in each dimension, zero value cells are excluded as candidates for suppression, and that the cells selected are those of lesser importance to data users.

Standard 2002-22 also includes separate supplementary materials with guidelines for understanding and implementing the pq rule. Guidelines are included for situations where all

values are negative; some data are imputed; published values are net values (the difference between positive numbers); and the published values are weighted averages (such as volume weighted prices). Much of the same information is provided in Appendix A of this report.

In selected program areas, EIA does not use disclosure limitation methods on statistical data. For certain energy supply data, the number of companies providing information is relatively small and/or the distribution of energy supply companies is highly skewed with a relatively small number of large companies. Statistical data for sub-United States geographical areas (e.g., States, Petroleum Administration for Defense Districts, Refining Districts) typically include some values that are sensitive and would not be published if disclosure limitation methods were applied. If disclosure limitation methods using primary and complementary suppression were applied, the result would be a significant amount of information loss. This loss of information to data users would seriously erode the value of the information for public and private understanding and analysis of energy supply.

In these program areas, EIA uses a Federal Register notice to announce a proposed policy of not using disclosure limitation methods and requests public comments. After considering public comments, EIA decides whether to formalize its policy. If the policy is to not use such methods, EIA explains the policy at the time an information collection undergoes the Office of Management and Budget approval process and when the survey materials are provided to potential respondents at the time information is requested. The explanation states that disclosure limitation procedures are not applied to the statistical data published from that survey's information. The explanation goes on to state that there may be some resulting statistics that are based on data from fewer than three respondents, or that are dominated by data from one or two large respondents. In these cases, it may be possible for a knowledgeable person to estimate the information reported by a specific respondent.

EIA does not have a standard to address tables of frequency data. However, there are only two primary publications of frequency data in EIA tables. Those publications are the Household Characteristics publication of the Residential Energy Consumption Survey (RECS) and the Building Characteristics publication of the Commercial Building Energy Consumption Survey (CBECS). In both publications, cells are suppressed for accuracy reasons, not for disclosure reasons. For the first publication, cell values are suppressed if there are fewer than 10 respondents or the Relative Standard Errors (RSE's) are 50 percent or greater. For the second publication, cell values are suppressed if there are fewer than 20 respondents or the RSE's are 50 percent or greater. No complementary suppression is used.

EIA does not have a standard for statistical disclosure limitation techniques for microdata files. The only microdata files for confidential data released by EIA are for RECS and CBECS. In these files, various standard statistical disclosure limitation procedures are used to protect the confidentiality of data for individual households and buildings. These procedures include: eliminating identifiers, limiting geographic detail, omitting or collapsing data items, top-coding, bottom-coding, interval-coding, rounding, substituting weighted average numbers (blurring), and introducing noise through a data adjustment method which randomly adjusts respondent level data within a controlled maximum percentage level around the actual published estimate. After applying the randomized adjustment method to the data, the mean values for broad population

groups based on the adjusted data are the same as the mean values generated from the unadjusted data.

A.5. Department of Health and Human Services

A.5.a. Agency for Healthcare Research & Quality (AHRQ)

The disclosure limitation procedures used by AHRQ are similar to those of NCHS. The Medical Expenditure Panel Survey (MEPS) conducted by AHRQ utilizes the National Health Interview Survey as its sampling frame. Therefore, the disclosure limitation procedures used by AHRQ for MEPS public use data files follow the procedures used by NCHS for the MEPS. All public use data file releases are required to be reviewed and approved by the NCHS Disclosure Review Board before they are released. AHRQ also reviews and cross clears release of public use files from the NHIS.

AHRQ has established an on-site data center within the Center for Financing, Access, and Cost Trends (CFACT) to facilitate researcher access to selected non-public use MEPS data.

The CFACT Data Center is a physical space at AHRQ located in Rockville, Maryland where researchers, with approved projects are allowed access to data files not available for public dissemination. These data are classified as "restricted" and contain information that are not released to the public. These data sets may contain geographic variables at a lower level than released for public use, more detailed condition information, or may consist of unedited data base segments not yet prepared for public release. These restricted data sets do not contain information that directly identifies a respondent (name, social security number, street address).

Researchers are allowed access only to the information required to complete their project. No researcher can remove any materials from Data Center until the materials have been reviewed by specific CFACT staff for disclosure avoidance. Only summary output (tables, equations) may be removed from the Data Center. No microdata files are permitted to be removed from the Data Center.

All materials to be removed from the data center are subject to disclosure review. CFACT staff is responsible for insuring the confidentiality of data being used in the data center. In the case of onsite users, CFACT staff reviews output or tables prior to the material leaving the Data Center. In the case of researchers using the Data Center remotely, CFACT staff will conduct a disclosure review of material before forwarding output to the researcher. The development of formal criteria for review of tabular materials is an ongoing process.

For users, the Manager of the CFACT Data Center is the point of contact for arbitration of confidentiality review. Every attempt will be made to work with the researcher to develop specifications for tabulations that will "pass" a confidentiality review. Projects with continuing confidentiality issues will be discussed with CFACT senior staff before a final decision is rendered.

Any output that could potentially identify respondents or small geographic areas, either directly or inferentially cannot be removed from the data center. Tables with geographic areas as one of the tabs (except for those identified on public use files) cannot be removed, nor can tables containing cells with less than 100 observations. Data Center Users are never given access to files with direct identifiers such as name or address. Users may be given access to files with dummy codes for places. However, since data center users have no need to discern the identity of the places, they will not be given the key that would allow the association of a place name with the code. Upon request the entire file can be pre-coded into categories (i.e. residing in a state with high/middle/low Medicaid generosity). Models using geographic area as the dependent variable cannot be removed from the Data Center. The identity of sampling units, which could assist in the identity of the data subject, cannot be removed. In general, any direct or inferential identities not revealed on public use data files cannot be removed from the Data Center.

A.5.b. National Center for Health Statistics (NCHS)

NCHS is the principal federal agency that releases health statistics. It is part of the Department of Health and Human Services Centers for Disease Control and Prevention (CDC). CDC's NCHS statistical disclosure limitation techniques are presented in the NCHS Staff Manual on Confidentiality (September, 2004), Section 9 "Avoiding Inadvertent Disclosures Through Release of Microdata " and Section 10 "Avoiding Inadvertent Disclosures in Tabular Data". No magnitude data figures should be based on fewer than five cases and an (n, k) rule is used. Commenting on an earlier edition of the NCHS Manual, Jabine (1993b) states that "the guidelines allow analysts to take into account the sensitivity and the external availability of the data to be published, as well as the effects of nonresponse and response errors and small sampling fractions in making it more difficult to identify individuals." In almost all survey reports, no low level geographic data are shown, substantially reducing the chance of inadvertent disclosure. The NCHS staff manual states that for tables of frequency data a) "in no table should all cases of any line or column be found in a single cell"; and b) "in no case should the total figure for a line or column of a cross-tabulation be less than 5". One acceptable way to solve the problem (for either tables of frequency data or tables of magnitude data) is to combine rows or columns, or to use cell suppression (plus complementary suppression). Other approaches are in development.

It is NCHS policy to make microdata files available to the scientific community so that additional analyses can be made for the country's benefit. Such files are reviewed for approval by the NCHS Disclosure Review Board following guidance and principles contained in the Staff Manual and the NCHS Checklist for the Release of Micro Data Files. These guidelines require that detailed information that could be used to identify individuals (for example, date of birth) should not be included in microdata files. The identities of geographic places and characteristics of areas with less than 100,000 people are never to be identified and it may be necessary to set this minimum at a higher number if research or other considerations so indicate. Information on the drawing of the sample that could identify data subjects should not be included.

All new microdata sets must be reviewed for confidentiality issues and approved for release by the NCHS Confidentiality Officer who consults with the NCHS Disclosure Review Board in making agency decisions.

Upon successful application to the NCHS Research Data Center, researchers may be provided access to special files that do not permit the identification of individual respondents. This may take place on site at NCHS offices or remotely over secure electronic lines. While information concerning named geographic entities cannot be accessed, data ordered by such units can be analyzed at a level not possible with public use data.

Prospective researchers must submit a research proposal that is reviewed and approved by a committee whose judgment is based upon the availability of RDC resources, consistent with the mission of NCHS, general scientific soundness, and the feasibility of the project. Although researchers sign confidentiality agreements, strict confidentiality protocols require that researchers with approved projects complete their work using the facilities located within the RDC. Researchers can supply their own data to be merged with NCHS data sets. Completed by the RDC staff, the merged files are only available to the originating researcher unless written permission is given to allow access to others. Further details on NCHS' Research Data Center are available at http://www.cdc.gov/nchs/r&d/rdc.htm.

Areas under current investigation include software for balancing data quality and statistical disclosure limitation (SDL) in tabular data and enhanced procedures for SDL and disclosure risk assessment in microdata.

A.6. Department of Justice: Bureau of Justice Statistics (BJS)

The same requirements under Title 13 of the U.S.C. that cover the Census Bureau are followed by BJS for those data collected for BJS by the Census Bureau. For tabular data, cells with fewer than 10 observations are not displayed in published tables. Published tables may further limit identifiability by presenting quantifiable classification variables (such as age and years of education) in aggregated ranges. Cell and marginal entries may also be restricted to rates, percentages, and weighted counts. Standards for microdata protection are incorporated in BJS enabling legislation. Individual identifiers are routinely stripped from all microdata files before they are released for public use.

A.7. Department of Labor: Bureau of Labor Statistics (BLS)

Commissioner's Order 3-04, "The Confidential Nature of BLS Records," dated October 4, 2004, contains the BLS' policy on the confidential data it collects. One of the requirements is that:

> "Publications shall be prepared in such a way that they will not reveal the identity of any specific respondent and, to the knowledge of the preparer, will not allow information concerning the respondent to be reasonably inferred by either direct or indirect means."

A subsequent provision allows for exceptions under conditions of informed consent and requires prior authorization of the Commissioner before such an informed consent provision is used.

The statistical methods used to limit disclosure vary by program. For tables, the most commonly used procedure has two steps--the threshold rule, followed by a concentration rule. BLS programs use the p percent rule or the (n, k) rule to assess concentration depending upon program. The value of the parameters used for thresholds and various concentration rules used by BLS is not released to the public. Current practice at BLS is to replace use of the (n, k) concentration rule by the p percent rule.

For example, the Quarterly Census of Employment and Wages (QCEW), a census of monthly employment and quarterly wage information from Unemployment Insurance filings, uses a threshold rule and the p percent rule for calendar year (CY) 2002 data and beyond. Prior to CY 2002, QCEW used a threshold rule and a concentration rule of (n, k). In a few cases, a two-step rule is used--an (n, k) rule for a single establishment is followed by an (n, k) rule for two establishments. The Survey of Occupational Injuries and Illnesses is using a threshold rule and the p percent rule for the CY 2003 data replacing the threshold rule used in conjunction with a concentration rule of (n, k).

The National Compensation Survey uses an approach that combines two threshold rules and an (n, k) rule. The threshold rules require that each estimate be comprised of establishments from at least m companies (unweighted) and that there are at least t distinct occupational selections (unweighted). It also uses an (n, k) concentration rule, which requires that the weighted employment among all establishments contributing to the estimate that are part of n companies cannot exceed k percent of the weighted employment of all establishments contributing to the estimate.

The Consumer Price Index Program uses a combination of a threshold rule and a minimum number of quotes from distinct sample units. The Producer Price Index uses a threshold rule on units and quotes in conjunction with the (n, k) rule.

BLS releases very few public-use microdata files. Most of these microdata files contain data collected by the Bureau of the Census under an interagency agreement and Census' Title 13 authority. For these surveys (Current Population Survey, Consumer Expenditure Survey, and four of the five surveys in the family of National Longitudinal Surveys) the Bureau of the Census determines the statistical disclosure limitation procedures that are used. Disclosure limitation methods used for the public-use microdata files containing data from the National Longitudinal Survey of Youth, collected under contract by Ohio State University and the National Opinion Research Center at the University of Chicago, are similar to those used by the Bureau of the Census.

The Bureau of Labor Statistics (BLS) has opportunities available on a limited basis for researchers from colleges and universities, government, and eligible nonprofit organizations to obtain access to confidential BLS data files for exclusively statistical purposes. These data files are derived from BLS surveys and administrative databases for which no public-use version is available. These confidential BLS data are available for research that is exclusively statistical,

with appropriate controls to protect the data from unauthorized disclosure. BLS confidential data files are available for use only at the BLS National Office in Washington, D.C., on statistical research projects approved by the BLS. Researchers granted access to the confidential data sign agreements stating that they are responsible for adhering to the confidentiality policies of the BLS.

The BLS considers applications for research proposals four times a year. Research proposals should be between 5 and 10 pages and should contain detailed information about the research project, including a literature review and an indication of how the proposed research contributes to the literature, the hypotheses to be tested, the data set and variables to be used in the analysis, the empirical methods to be used, and the specific data outputs that will result from the project.

A.8. Department of the Transportation: Bureau of Transportation Statistics (BTS)

The Bureau of Transportation Statistics (BTS) collects transportation-related data. BTS' confidentiality statutes and a set of comprehensive confidentiality procedures protect these data. The BTS *Confidentiality Procedures Manual* documents the confidentiality procedures for the agency.

BTS' confidentiality officer (CO) is responsible for the day-to-day operations of the confidentiality program. The CO also chairs the BTS' disclosure review board (DRB), which is responsible for reviewing microdata, tabular data and other information products for disclosure risks prior to public release. BTS staff and contractors are required to have annual confidentiality training, and to sign non-disclosure agreements when they enter or leave service with BTS.

BTS confidentiality program objectives guide the data review process for whether disclosure limitation methods should be applied. These objectives seek to:

- Protect confidential data while increasing access to data,
- Apply statistical disclosure limitation (SDL) methods on a case-by-case basis, and
- Take into account data user opinions on applications of SDL methods.

For most microdata and tabular data products, BTS program managers are required to complete a checklist identifying potential disclosure risks and outline any steps taken to mitigate such risk. The BTS' DRB reviews the data product and checklist and makes a final determination on disclosure risk. The DRB can recommend application of SDL methods prior to public dissemination.

BTS uses various microdata SDL methods based on the disclosure review findings and the unique characteristics of the data files. Some SDL procedures used include data suppression and modification. Data modification includes recoding continuous variables into categorical variables, collapsing categories, top and bottom coding, introduction of noise, and data swapping. BTS program managers must also identify any external data that could be matched to BTS datasets and take steps to minimize the ability to match.

The DRB conducts disclosure review of tabular data products when they are developed from microdata files that are not released to the public. BTS also uses tabular data SDL methods based on the disclosure review findings and on the characteristics of the tables.

A.9. Department of the Treasury: Internal Revenue Service, Statistics of Income Division (IRS, SOI)

The Statistics of Income (SOI) function within the larger organization Research, Analysis, and Statistics (RAS) is to establish and implement IRS guidance rules for the public release of tax data in tables and public-use microdata files. This role is primarily necessitated by sections 6108(c) and 6103j(4) of the Internal Revenue Code (IRC), which require that the data in statistical publications produced by IRS and authorized recipient agencies be anonymous.

The administrative rules are found in Chapter VI of the SOI Division Operating Manual (January, 1985), and require that at or above the state level each cell in a publicly released tabulation be based on at least three observations. Below the state level the requirement is at least ten observations. Data cells not meeting these thresholds are suppressed or combined with other cells. Combined or deleted data are included in the corresponding column totals. These rules also apply for secondary disclosure in which taxpayer identities might be revealed by subtraction of associated cells within a table or between tables, and even indirectly through similar data in other publications.

SOI documents disclosure procedures in its own publications. For example, disclosure limitations are discussed in "SOI Sampling Methodology and Data Limitations" in the Appendix to the quarterly SOI Bulletins and online at http://www.irs.gov/taxstats.

SOI produces one annual public-use microdata file, known as the SOI "tax model", containing a sample of data based on the Form 1040 series of individual tax returns. The disclosure protection procedures applied to this file include: (1) subsampling certainty records at a 33% rate; (2) removing certain records having extreme values; (3) suppressing certain fields from all records and geographical fields from high income records; (4) top coding and modifying some fields; (5) blurring some fields of high income records by locally averaging across records; and (6) rounding amount fields to four significant digits. To help ensure that taxpayer privacy is protected in the SOI tax model file, SOI has periodically contracted with experts who employ so-called "professional intruder" techniques to both verify that confidentiality is protected and to inform techniques to be applied to future releases of the SOI tax model file. For additional details on the disclosure avoidance techniques used to produce SOI public-use files see: Sailer, P., Weber, M. and Wong, W., (2001);

In addition to its own role in producing tax statistics, SOI is also responsible for coordinating the provision of tax data for statistical purposes to authorized recipients under section 6103j of the IRC. This function includes ensuring that authorized recipients of tax data also follow the rules of 3/10 described above or an equivalent methodology approved by SOI, as stipulated in the IRS Publication 1075, *Tax Information Security Guidelines for Federal, State, and Local Agencies (June 2000)*. Because of the considerable onus this requirement can entail for both SOI and agencies using alternative disclosure protection methodologies, recent efforts have begun to

establish inter-agency agreements with experienced users, such as the US Census Bureau, in which responsibility for alternative tabular protection methodologies is accepted by the recipient agency. The IRS-Census agreement for this purpose was effective June 2, 2003. Because the challenges of protecting public-use microdata files are considered unique and such data are deemed more sensitive to disclosure risk, public-use microdata files are excluded. That is, under these agreements, IRS approval would still be needed before an outside agency could release a public-use microdata file based on tax data.

Currently, the IRS Office of Research within RAS is working with Census to ensure that all data in a proposed Census public-use file based on tax data [earnings] linked to Census' Survey of Income and Program Participation (SIPP) will be anonymous. The proposed SIPP/earnings public-use file methodology is exploring using "synthetic data" to produce public-use files tailored for particular users, as opposed to a "one size fits all" approach.

A.10. National Science Foundation (NSF)

The National Science Foundation (NSF), Division of Science Resources Statistics (SRS), balances the requirement to guard the confidentiality of its respondents against the desire of the research community to access data collected using taxpayer dollars. NSF applies either the (n, k) dominance rule or p-percent rule, or sometimes both rules in conjunction with each other depending upon the survey. When it is possible to create a microdata file that is useful to a broad group of researchers while protecting respondent confidentiality, SRS releases public use data files consistent with these dual objectives. When releasing public-use microdata files, individual identifiers are removed from all records and other high risk variables that contain distinguishing characteristics are modified to prevent identification of survey respondents and their responses. Top-codes and bottom-codes are employed for numeric fields to avoid showing extreme field values on a data record. Values beyond the top-code or bottom-code are replaced either by the average of the values in excess of the respective top-code or bottom-code or through the application of various imputation methodologies.

When the researcher demonstrates that available SRS public use data files do not meet research needs and in keeping with SRS's mission to help provide the statistical information about the US science and engineering enterprise, it is sometimes possible to accommodate the request by providing access to restricted data files. One method for access is a recently created on-site secure analysis area for visiting researchers. Another method of access is off-site licensing.

Under the Office of the Director, SRS, the Chief Statistician coordinates a restricted-use data-licensing program. To acquire restricted-use files, the researcher and the researcher's institution indicates their knowledge of confidentiality issues and willingness to ensure protection of the data by completing a formal legal contract, the license agreement, that details the use of the data, promises to prevent disclosure of confidential data, agrees to a prepublication review by SRS, and stipulates the return of the data to SRS upon expiration of the license. Research conducted by licensees often is found in scientific journals as well as highly cited in policy forums.

A.11. Social Security Administration (SSA)

The Office of Research, Evaluation, and Statistics (ORES), the statistical office of the Social Security Administration, reviews and establishes methodology and procedures for protecting the confidentiality of data. For the release of statistical tables, ORES uses a strategy combining both suppression and rounding to prevent the release of identifiable information.

Statistical tables for Social Security beneficiaries and benefits consist of frequency counts for beneficiaries and summary benefit amounts. Detailed beneficiary information is suppressed when the marginal total is less than a cut-off value and only the marginal value is shown. For the rows in which only the marginal counts are shown, dollar amounts are suppressed when the number of cases contributing to the total is less than a cutoff. Detailed frequency counts are suppressed when all details for a marginal total are in a single category. When suppressions are introduced to prevent disclosure in an individual cell, complementary suppressions are employed to prevent the inference of a suppressed value. Controlled rounding is also used as a disclosure avoidance method in statistical tables for frequency counts.

Publications that include earnings and employment information conform to IRS rules when presenting tables (See section A.9 of this chapter). In particular, table cells with fewer than 3 persons at the state level and 10 persons at the county level are suppressed and the corresponding summary income is also not shown. Whenever data cells are suppressed, complementary suppressions are introduced to prevent inferring a suppressed value. All dollar amounts are shown in thousands of dollars. Earnings and employment statistics are derived from a sample of IRS records rather than a 100-percent file of earnings and employment information.

When releasing public-use microdata files, individual identifiers are removed from all records and other distinguishing characteristics are modified to prevent identification of persons to whom a record pertains. Records are sequenced in random order to avoid revealing information due to the ordering of records on the file. Top-codes and bottom-codes are employed for numeric fields to avoid showing extreme field values on a data record. Values beyond the top-code or bottom-code are replaced by the average of the values in excess of the respective top-code or bottom-code. Top-code and bottom-code values are derived at the national level and the replacement values are derived and applied at the state level when appropriate. Values shown for some categorical fields are combined into broader groupings than those present on the internal file and dollar amounts are rounded. Top-code and bottom-code values, replacement values, and related information are provided to users as part of file documentation.

A Disclosure Review Board (DRB) reviews proposed public-use microdata files prior to their release. The DRB consists of staff from ORES who are familiar with the underlying data files, their uses, and confidentiality requirements. In addition, confidentiality specialists from other federal agencies may serve on the DRB to provide further perspective and additional confidentiality expertise. Staff who are responsible for file creation complete the *Checklist on Disclosure Potential of Proposed Data Releases,* prepared by the Interagency Confidentiality and Data Access Committee, and the Checklist is included in the DRB review.

B. Summary

Most of the 14 agencies covered in this chapter have standards, guidelines, or formal review mechanisms that are designed to ensure that adequate disclosure analyses are performed and appropriate statistical disclosure limitation techniques are applied prior to release of tabulations and microdata. The agency standards and guidelines exhibit a wide range of specificity: Some contain only one or two simple rules while others are much more detailed. Some agencies publish the parameter values they use, while others feel withholding the values provides additional protection to the data. Obviously, there is great diversity in policies, procedures, and practices among Federal agencies to appropriately protect the wide variations in the content and format of information released.

B.1. Magnitude and Frequency Data

Most standards or guidelines provide for minimum cell sizes and some type of concentration rule. Some agencies (for example, ERS, NASS, and NCHS) publish the values of the parameters they use in (n, k) concentration rules, whereas others, such as Census and BLS, do not. Minimum cell sizes of 3 are routinely used, because each member of a cell of size 2 could derive a specific value for the other member. Some agencies cited accuracy standards as guidelines for releasing certain tabular data. **Accuracy standards** refer to specific rules that an agency applies to the data that relate to some measure of data quality such as a threshold level for relative standard error or coefficient of variation estimates.

Most of the agencies that published their parameter values for concentration rules used a single set, with n = 1. Values of k ranged from 0.5 to 0.8. The most elaborate rule included in standards or guidelines were EIA's pq rule and BEA's and Census Bureau's related p-percent rules. All these rules have the property of subadditivity. The p percent and pq rule give the disclosure analyst flexibility to specify how much gain in information about its competitors by an individual company is acceptable.

One possible method for dealing with data cells that are dominated by one or two large respondents is to ask those respondents for permission to publish the cells, even though the cell would be suppressed or masked under the agency's normal statistical disclosure limitation procedures. Agencies including NASS, EIA, the Census Bureau, and some of the state agencies that cooperate with BLS in its Federal-state statistical programs, use this type of procedure for some surveys to allow publication of those sensitive cell values. Another disclosure limitation method used by two agencies is to apply noise to the underlying micro data before aggregating the reported values.

B.2. Microdata

The agencies that release public use microdata files have established statistical disclosure limitation procedures for releasing microdata. Some agencies noted that the disclosure limitation procedures for surveys they sponsored were set by the Census Bureau's Disclosure Review Board, because the surveys had been conducted for them under the Census Bureau's authority (Title 13). Major releasers of public-use microdata--Census, NCHS and NCES--have all

established formal procedures through Disclosure Review Boards for review and approval of new microdata sets. As Jabine (1993b) wrote, "In general these procedures do not rely on parameter-driven rules like those used for tabulations. Instead, they require judgments by reviewers that take into account factors such as: the availability of external files with comparable data, the resources that might be needed by an `attacker' to identify individual units, the sensitivity of individual data items, the expected number of unique records in the file, the proportion of the study population included in the sample, the expected amount of error in the data, and the age of the data."

Geography is an important factor. Census and NCHS specify that no geographic codes for areas with a sampling frame of less than 100,000 persons can be included in public-use data sets. If a file contains large numbers of variables, a higher cutoff may be used. The inclusion of local area characteristics, such as the mean income, population density and percent minority population of a census tract, is also limited by this requirement because if enough variables of this type are included, the local area can be uniquely identified. An interesting example of this latter problem was provided by EIA's Residential Energy Consumption Surveys, where the local weather information included in the microdata sets had to be masked to prevent disclosure of the geographic location of households included in the survey.

Top-coding is commonly used to prevent disclosure of individuals or other units with extreme values in a distribution. Dollar cutoffs are established for items like income and assets and exact values are not given for units exceeding these cutoffs. Blurring, swapping, blank and impute, noise introduction, recoding, threshold rules, and rounding are other methods commonly used to prevent disclosure.

Summary of Agency Practices

Agency	Magnitude Data	Frequency Data	Microdata	Waivers	Restricted Access Allowed for Researchers
ERS	(n, k), (1,.6) 3+	Threshold Rule 3+	No	Yes	Yes
NASS	(n, k), p-percent Parameters Confidential	1+ Not Sensitive for Est. Surveys	No	Yes	Yes
BEA	p-percent c=1	1+ Not Sensitive for Est. Surveys	No	No	Yes
CENSUS	p-percent Parameters Confidential Noise addition	Data Swapping, Access Query System rules, Threshold Rule	Yes -- Disclosure Review Board	Yes	Yes
NCES	Data Swapping Data Coarsening Accuracy	Data Swapping Data Coarsening Accuracy	Yes – Disclosure Review	No	Yes

Agency	Magnitude Data	Frequency Data	Microdata	Waivers	Restricted Access Allowed for Researchers
	Standards/Threshold Rule 3+	Standards/Threshold Rule 3+	Board		
EIA	(n, k), pq, Parameters Confidential	Threshold Rule Accuracy Standards	Yes – Office Review	Yes	No
NCHS	(n, k), (1,.6)	Threshold Rule 4+	Yes – Disclosure Review Board	No	Yes
AHRQ	N/A	Threshold Rule 4+	Yes – Disclosure Review Board	Yes – Disclosure Review Board	Yes
SSA	Threshold Rule 3+	Threshold Rule, 5+ Marginals, 3+ cells	Yes - Agency Review	No	No
BJS	N/A	Threshold Rule 10+, Accuracy Standards	Yes - Legislatively Controlled Agency Review	No	No
BLS	(n, k), p% rule, Parameters vary by survey and data element	Minimum Number varies by survey	BOC Collects Title 13	Yes	Yes
IRS	Threshold Rule 3+	Threshold Rule 3+	Yes - Legislatively Controlled	No	No
BTS	Varies by data	Threshold Rule 3+	Yes – Disclosure Review Board	No	No
NSF	(n, k) and/or p as appropriate	Varies by risk	Yes – Meet or exceed Census public use products which are merged	Yes	Yes

Notes: Details of specific methodologies being used are shown in this table and discussed in the text to the extent they were included in the individual agencies' responses. Rules shown in the various table cells (p-percent, (n, k), for example) are explained in the text.

The following page contains a brief explanation of the key terms used in the table.

The Threshold Rule: With the threshold rule, a cell in a table of frequencies is defined to be **sensitive** if the number of respondents is less than some specified number. Some agencies require at least 5 respondents in a cell, others require 3. Sometimes, the threshold rule is applied to the universe of a table. For example, a minimum size may be needed to publish values in all cells of a table. An agency may restructure tables and combine categories or use cell suppression, random rounding, or controlled rounding. The "+" notation (3+ for example) means at least that many non-zero observations must be present for the cell to be published. (See Section II.C.3)

Data Swapping is the procedure that was used by the U.S. Census Bureau to provide protection in data tables prepared from the 2000 Census. The technique applies statistical disclosure avoidance to the microdata records before they are used to prepare tables. The adjusted microdata files are not released, they are used only to prepare tables. For both the 100 percent data file and the sample, a small sample of households were selected and matched with households in other geographic regions that had identical characteristics on a set of selected key variables. Most variables in the matched records were interchanged. This technique is called swapping. The key variables used for matching were selected to assure that Census aggregates mandated by law would be unchanged by applying this procedure. NCES recommends using data swapping and coarsening for all internal and external microdata records. If these techniques are not used, NCES prohibits the publication of any cells with fewer than three cases and prohibits the use of cell suppression. Tabulations must be reconfigured until there are no remaining cells with fewer than 3 cases

The p-Percent Rule: Approximate disclosure of magnitude data occurs if the user can estimate the reported value of some respondent too accurately. Such disclosure occurs, and the table cell is declared sensitive, if upper or lower estimates for the respondent's value are closer to the reported value than a pre-specified percentage, p. This method assumes that before data are published a user can estimate the true value to within plus or minus 100%. This rule is referred to as the "p-percent estimation equivocation level" in Statistical Policy Working Paper 2, but it is more generally referred to as the **p-percent rule**. (See Section IV.B.1.a)

The pq Rule: The pq rule is similar to the p% rule, but assumes that before data are published the general public can estimate a company's data to within q% (where q<100). Hence, an agency can specify how much prior knowledge there is by assigning a value q which represents how accurately respondents can estimate another respondent's value before any data are published ($p < q < 100$). (See Section IV.B.1.b)

The (n, k) Rule: The **(n, k) rule**, or dominance rule was described as follows in Statistical Policy Working Paper 2. "Regardless of the number of respondents in a cell, if a small number (n or fewer) of these respondents contribute a large percentage (k percent or more) of the total cell value, then the so-called **n respondent, k percent rule** of cell dominance defines this cell as

sensitive." Many people consider this to be an intuitively appealing rule, because, for example, if a cell is dominated by one respondent then the published total alone is a natural upper estimate for the largest respondent's value. (See Section IV.B.1.c)

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AN OVERVIEW OF DISCLOSURE PRINCIPLES

by

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This series contains research reports, written by or in cooperation with staff members of the Statistical Research Division, whose content may be of interest to the general statistical research community. The views reflected in these reports are not necessarily those of the Census Bureau nor do they necessarily represent Census Bureau statistical policy or practice. Inquiries may be addressed to the author(s) or the SRD Research Report Series Coordinator, Statistical Research Division, Bureau of the Census, Washington, D.C. 20233.

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An Overview of Disclosure Principles

Colleen M. Sullivan

1. INTRODUCTION

The Bureau of the Census operates under Title 13 of the U.S. Code, which prohibits the Bureau from making "any publication whereby the data furnished by any particular establishment or individual under this title can be identified." This rule prohibits the Bureau from publishing a summary table that enables a data user to derive detailed information about an individual respondent. To ensure our tables do not violate disclosure rules implied by Title 13, they must first be subjected to an analytical procedure referred to as disclosure analysis. Disclosure analysis begins with the simple principle that we must not directly publish data received from individuals who respond to our Economic surveys and censuses.

This paper is organized as follows: A description of sensitive data and of the cell suppression method that is used to protect the sensitive data in publications appears in Section 2. Section 3 presents a description and discussion of the use of complementary suppressions. Section 4 explains how to estimate a range of feasible values for all suppressed cells. The two types of primary suppression rules used at the Census Bureau are examined in Section 5. Section 6 addresses the cost of suppressions schemes and a summary appears in Section 7.

2. SENSITIVE DATA

The Economic Divisions have the responsibility to collect a wide range of data and to publish these data without violating confidentiality laws. Normally, economic data is published by geography and standard industrial classification (SIC) codes. For example, Table 1 shows state level data for various types of food stores.

SIC	Number of Establishments	Value of Sales
54 All Food Stores . . .	347	$200 900
541 Grocery	333	196 000
542 Meat and Fish .	11	1 500
543 Fruit Stores . . .	2	2 400
544 Candy	1	1 000

Table 1. Typical Data Table

This table shows that only one establishment reported candy store sales for this state. If this table were published, any data user would know the establishment's precise sales value. Also, this table shows only two establishments reporting fruit store sales. Either of these two establishments, knowing their own sales figure, would be able to calculate the other establishment's precise sales figure. Thus, publishing this table would result in a disclosure, violating Title 13. Values such as these are considered sensitive, and must not be published (i.e, disclosed). Values which would disclose an individual's or establishment's data are termed <u>sensitive</u>.

Sensitive Data Values:

A data item which a data user could utilize to calculate another individual's or establishment's data. Sensitive data values must not be disclosed.

One way to prevent the identification of sensitive values is to simply not publish the values. When we publish this table, we would replace the sensitive data values with a "(D)". Table 2 shows a publishable table where the sensitive data values have been suppressed.

SIC	Number of Establishments	Value of Sales
54 All Food Stores	347	$200 900
541 Grocery	333	196 000
542 Meat and Fish .	11	1 500
543 Fruit Stores . . .	2	(D)
544 Candy	1	(D)

Table 2. Protected Respondent Data

This disclosure avoidance technique is referred to as cell suppression. (Note that although a data value may be sensitive, the corresponding number of establishments is not, and therefore is never suppressed.)

Cell Suppression:

A disclosure avoidance technique in which the sensitive data in this publication is replaced with a "(D)".

3. COMPLEMENTARY SUPPRESSIONS

If we only suppress sensitive data, users could frequently derive the values from non-sensitive data because most data items are published in additive tables. Notice that the suppressed value in Table 3 can be derived by subtracting the non-suppressed interior cell values (5,413 and 61,252) from the row total (84,842). By performing this calculation, we determine that the suppressed data value must be 18,177.

	State	MSA 1	MSA 2	NON-MSA
SIC Total	173 536	14 566	45 105	113 865
SIC 1	84 842	5 413	(D)	61 252
SIC 2	43 588	1 377	20 146	22 065
SIC 3	45 106	7 776	6 782	30 548

Table 3. Additive Table

Therefore, to fully protect the suppressed sensitive data value, additional data values must be suppressed. These new suppressed cells are referred to as complementary suppressions.

Complementary Suppressions:

Suppressions which prevent a user from deriving a sensitive data value from additive table relationships.

Table 4 presents a set of complementary suppressions that protects the sensitive data value. Note the "(C)" notation is used only in this documentation; a "(D)" would appear in the actual publication.

	State	MSA 1	MSA 2	NON-MSA
SIC Total	173 536	14 566	45 105	113 865
SIC 1	84 842	5 413	(D)	(C)
SIC 2	43 588	1 377	(C)	(C)
SIC 3	45 106	7 776	6 782	30 548

Table 4. A Suppression Scheme

We must be certain that no suppressed values can be derived exactly. It is rarely sufficient to merely look at a table and determine that the complementary suppression scheme fully protects all suppressed values. Often a two dimensional table seems to have an adequate number of complementary suppressions, but mathematical manipulations reveal a suppressed data value.

Consider the following table where each cell with a letter is being suppressed. We ask: Can we determine the value in row 3, column 3 (cell k)?

	Total	Column 1	Column 2	Column 3	Column 4
Total	510	100	100	160	150
Row 1	155	25	**a**	40	**b**
Row 2	125	**e**	20	**f**	30
Row 3	150	30	**c**	**k**	**d**
Row 4	80	**g**	10	**h**	20

At first, it certainly seems that there is a sufficient number of suppressions to protect the value of k. However, we can determine the value of k by using some basic algebraic techniques.

Observe the following:

Column 2 =>	$100 = a + 20 + c + 10$	=> $a + c = 70$	(1)
Column 4 =>	$150 = b + 30 + d + 20$	=> $b + d = 100$	(2)
Row 1 =>	$155 = 25 + a + 40 + b$	=> $a + b = 90$	(3)

Adding (1) and (2) yields $a + b + c + d = 170$
and subtracting (3) $-(a + b = 90)$

---

yields $c + d = 80$

Now observe :

Row 3 => $150 = 30 + c + k + d$ => $k = 120 - (c + d)$.

Substituting in c+d=80 from the above calculation yields k = 120 - 80 = 40. Thus, we have determined that k = 40. To fully protect all suppressed values, more values must be suppressed. We must then recheck the table to ensure no values can be derived through algebraic techniques.

4. FEASIBLE RANGES

Although we ensure that data users cannot estimate a suppressed data value exactly, a range of feasible values for any suppressed cell can be estimated. For a simple example, consider Table 5 where all the values have been suppressed.

18	10	8
7	D1	D2
11	D3	D4

Table 5.

Knowing that the table is additive and that all values are non-negative, we ask: "What is the smallest value we can assign to D1 and still have the table be additive?"

> If we let D1=0, then D2 must be seven since D1+D2 = 7.
> Then D3 must be ten since D1+D3=10.
> Therefore, D4 must be one.
> Thus we can say a lower bound for D1 is zero.

Now we ask: "What is the largest value we can assign to D1 and still have an additive table?"

> If we let D2 =0, then D1 must be seven since D1+D2=7.
> Examine the other equation with D1: D1 + D3 = 10.
> In this equation D1 cannot equal 10 because D1+D2=7 tells us the most D1 can be is seven.
> Thus, we can say that an upper bound for D1 is seven.

The feasible values for D1, in this example, fall in the range $0 \leq D1 \leq 7$. We could also calculate ranges in this manner for all other suppressions in this table. However, not all suppressed tables are as simple as presented here. Therefore, data users rely on linear programming techniques to determine the feasible ranges for suppressed cells.

5. PRIMARY SUPPRESSION RULES

Table 1 showed two obvious disclosures -- only one or two firms contributed to a cell. A not so obvious disclosure occurs when more than two firms contribute to a data cell, but one firm is able to estimate the data for another firm very closely. This type of disclosure is detected through application of a primary suppression rule. A cell that cannot be published because it fails the primary suppression rule is called a primary suppression. There are two types of primary suppression rules used at the Census Bureau, the n-k rule and the p% rule. The n-k rule is aimed at protecting the value of each company from a coalition of (n-1) other companies in the cell. This rule states that a cell must be suppressed if the largest n respondents in the cell make up at least k% of the total cell value. The p% rule is aimed at protecting the largest, and therefore all, company values in a given cell from upper estimation to within p%. In the following discussion, the p% rule will be used.

Primary Suppression:

A cell that cannot be published because it fails either the n-k rule or the p% rule.

To illustrate the p% primary suppression rule,

Let T = the total value of a given cell,
L = the value of the largest contributor to the cell,
S = the value of the second largest contributor to the cell, and
p = the percentage of protection required.

Then $R = T - L - S$ is the total value of the remaining contributors to the cell.

The p% rule states that a cell must be suppressed if $R < (p/100)*L$. The value of p, itself, is considered sensitive and is not revealed to anyone outside the Census Bureau. For example, consider the cell (18,177) in Table 6. Suppose it is composed of L=$17000, S=$1000, and R=$177. Also suppose the value of p is 15.

	State	MSA 1	MSA 2	NON-MSA
SIC Total	173 536	14 566	45 105	113 865
SIC 1	84 842	5 413	D (18 177)	61 252
SIC 2	43 588	1 377	20 146	22 065
SIC 3	45 106	7 776	6 782	30 548

Table 6. Additive Table

The p% rule indicates this cell is a primary disclosure since 177<(15/100)*17000=2550. If we were to publish this cell, most people could not determine much about the data for the largest contributor. However, the owner of the second largest contributor knows his

sales are $1000, and he could subtract that number from the published total to derive that the sales for the largest contributor were less than $17,177, which is within 15% (actually within 2%) of the true value. Under the p% rule with p=15, this would be disclosing too much information about the largest contributor, and we would suppress this cell. Therefore, a "(D)" would appear in the published table instead of the value 18,177.

Recall, from Section 4, data users are able to calculate a range of feasible values for any suppressed cell. However, when choosing complementary suppressions for some primary suppression with true value X, we ensure that it cannot be estimated within a smaller interval than $X \pm B$ where B is the amount of lower and upper protection required by X. The p% suppression rule implies that $B=(p/100)L-R$. That is, we need to choose complementary suppressions having a minimum value of $(p/100)L-R$. This is the minimum value needed to protect the sensitive data value by p%. (Note the n-k rule implies a different value for B.)

Using the previous example in this section, the sensitive data value (18,177) must be protected by a value of at least $(15/100)*17000-177=2373$. In other words, the data values chosen to be in the suppression scheme must be at least 2373 in value. If it is not possible to accomplish the protection by selecting only one cell in a row or column, then a set of cells totalling 2373 must be chosen in the row or column to serve as complementary suppressions.

6. SUPPRESSION SCHEME COST

Table 4 in Section 3 showed one complementary suppression scheme that protected the sensitive data value. However, this is not the only scheme that would have protected the sensitive data value. We could have chosen to suppress the values shown with a "(C)" in Table 7.

	State	MSA 1	MSA 2	NON-MSA
SIC Total	173 536	14 566	45 105	113 865
SIC 1	84 842	(C)	(D)	61 252
SIC 2	43 588	1 377	20 146	22 065
SIC 3	45 106	(C)	(C)	30 548

Table 7. An Alternative Suppression Scheme

The sum of the complementary suppressions in Table 4 is 103,463, while the sum of the complementary suppressions in Table 5 is 19,971. (Both suppression schemes ensure that the sensitive data value is protected by the required 2373 units as mentioned in Section 5.) Less total data value is suppressed by the complementary suppression scheme of Table 5, and thus it is the preferred scheme.

The objective in applying complementary suppressions is to ensure the protection of the sensitive data value at minimum cost. Note that this requires assigning a cost of suppression to each data cell. Usually, the original data value that would have appeared in the publication is assigned as the cost. By minimizing the cost incurred through complementary suppressions, the greatest amount of usable data is provided.

Suppression Scheme Cost:

Typically, the sum of the data values suppressed as complementary suppressions is the cost of the suppression scheme.

7. SUMMARY

We have seen that disclosure analysis begins with the simple principle that we must not directly publish data received from individuals who respond to our Economic surveys and censuses. The simplest and most obvious of all sensitive data is that in which only one or two firms contribute to a particular cell. Obviously, these values must be suppressed in any publication. Next, we saw that through application of the primary suppression rule, whether it be the n-k rule or the p% rule, other sensitive cells may exist and must also be suppressed. Because most data appear in additive tables, relations exist which require the use of complementary suppressions to protect the already suppressed sensitive data. Still, we do not want any respondent's value estimated exactly or "too closely." Therefore, we must ensure that these complementary suppressions provide the required amount of protection for the sensitive cells. Finally, there is the matter of using

mathematical manipulation on tables to derive suppressed values. If a value is derived, whether it was a primary or complementary suppression, we have violated our confidentiality law. Thus, we must ensure that no suppressed values are derivable. This paper has merely reviewed the disclosure principles that must be enforced when publishing our tables.

FURTHER READINGS

There are a number of methods available which prevent compromising primary suppressions. These disclosure avoidance techniques include rounding, perturbation, and cell suppression, and are discussed in the following papers:

Cox, L.H. (1975), "Disclosure Analysis and Cell Suppression ," *Proceedings of the American Statistical Association, Social Statistics Section.*

Cox, L.H., and Ernst, L.R. (1982), "Controlled Rounding," *INFOR*, 20, 4, 423-432.

Cox, L.H., Fagan, J.T., Greenberg, B.V., and Hemmig, R.J. (1986), "Research at the Census Bureau into Disclosure Avoidance Techniques for Tabular Data," *Proceedings of the American Statistical Association, Survey Research Methods Section.*

Cox, L.H., and George, J.A. (1989), "Controlled Rounding for Tables with Subtotals," *Annals of Operations Research*, 20, 141-157.

Cox, L.H., McDonald, S., and Nelson, D. (1986), "Confidentiality Issues at the United States Bureau of the Census," *Journal of Official Statistics*, 2,135-160.

The Bureau currently utilizes network flow methodology as a means of choosing complementary suppressions for economic surveys and censuses. This methodology is discussed in the following papers:

Cox, L.H. (1980), "Suppression Methodology and Statistical Disclosure Control," *Journal of the American Statistical Association*, 75, 377-385.

Cox, L.H., Fagan, J.T., Greenberg, B.V., and Hemmig, R.J. (1986), "Research at the Census Bureau into Disclosure Avoidance Techniques for Tabular Data," *Proceedings of the American Statistical Association, Survey Research Methods Section.*

Gusfield, D. (1984), "A Graph Theoretic Approach to Statistical Data Security," Department of Computer Science, Yale University, New Haven.

Kelly, J.P., Golden, B.L., and Assad, A.A. (1992), "Cell Suppression: Disclosure Protection for Sensitive Tabular Data," *Networks*, 22, 397-417.

Sullivan, C.M. and Rowe, E.G. (1992), "A Data Structure and Integer Programming Technique to Facilitate Cell Suppression Strategies," *American Statistical Association, 1992 Proceedings of the Section on Survey Research Methods*, to appear.

Sullivan, C.M. and Zayatz, L. (1991), "A Network Flow Disclosure Avoidance System Applied to the Census of Agriculture," *American Statistical Association, 1991 Proceedings of the Section on Survey Research Methods.*

Sullivan, C.M., and Zayatz, L. (1992), "A Disclosure Avoidance System Using Network Methodology for the Census of Agriculture," SRD Census Confidential Research Report Series, No. CCRR-92/02, Bureau of the Census, Statistical Research Division, Washington, D.C. 20233.

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APPENDIX H

No.	Use Case Description		What Data Is Desired/Needed			Data Purpose and Use				Data Availability			Is Data Available From Utilities In the Format Currently Maintained?			
	Use Case Type/Category	Requestor (Who wants the data):	Describe the Data (kWh, Therms, Participants, etc.)	Data Interval and Frequency (interval, monthly, annual, etc.)	Granularity (describe the categories/subtotals/ data breakdowns)	Purpose (Why Is The Data Wanted/Needed?)	How will the Data Be Used?	What State Energy Goal Will the Requestor's Use of this Data Support? (Statute site and common name, and description of support afforded)	Other Legal Requirement(s) Driving Need for Data? (Statute or other legal premise not already cited)	Possible to Obtain Data Directly from Customer(s)?	Is the Data Available/the subject of a regulatory proceeding? (Cite Statute, Rule, Order, Tariff, or Docket)	Is this Data Otherwise Publically Available?	XE	MVEC	DEA	CNP
1	Energy Benchmarking by Customer Segment	Research and/or Policy Development	kWh, therms, participants	monthly or annual data, updated one time or at specific intervals for statistical analysis	rate class	Ex: To benchmark a neighborhoods energy usage and participation in CIP. Also to determine energy savings potential of a customer segment.	research and analysis	Minn. Stat. § 216B.241, 216B.2401, 216B.2422 [CIP and IRP]	None	no - there is no established list by customer segment within a given utility service territory	No	No	Yes, if at total system/utility level. XE maintains usage by individual meter with an associated rate class.	Yes.	YES	YES if at total system/utility level. CNP maintains usage by individual meter with an associated rate class. Billing cycles may not align with monthly data, so monthly data may be an estimate.
2		Third-Party	kWh, therms, participants	monthly or annual data, updated one time or at specific intervals for statistical analysis	rate class	determine potential participants	CIP program development & CIP program implementation	Minn. Stat. § 216B.241, 216B.2401, 216B.2422 [CIP and IRP]	none	no - there is no established list by customer segment within a given utility service territory	It is possible but as a standard practice, no. [or - which is correct?] It is possible but as a standard practice, no.	No	Yes, if at total system/utility level. XE maintains usage by individual meter with an associated rate class.	Yes.	YES	YES. If at total system/utility level. CNP maintains usage by individual meter with an associated rate class.
3		Research and/or Policy Development	kWh, therms, participants	monthly or annual data, updated one time or at specific intervals for statistical analysis	By customer type/ rate class	Ex: To benchmark a neighborhoods energy usage and participation in CIP. Also to determine energy savings potential of a geographic area.	research and analysis	Minn. Stat. § 216B.241, 216B.2401, 216B.2422 [CIP and IRP]	None	Yes - with difficulty, by getting addresses and seeking consent from customer	It is possible but as a standard practice, no.	No	No. XE maintains usage data by meter with an associated rate class. Address data is not maintained to capture buildings or geo-political boundaries (neighborhood).	No. Utility has address data, but not maintained to capture geo-political boundaries/neighborhood.	No. Utility has address data, but not maintained to capture geo-political boundaries/neighborhood.	NO. Data is maintained by meter with an associated rate class. Data is also maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. Geo-political boundaries (neighborhood) is not maintained.
4		Third-Party	kWh, therms, participants	monthly or annual data, updated one time or at specific intervals for statistical analysis	By customer type/ rate class	determine potential participants	CIP program development & CIP program implementation	Minn. Stat. § 216B.241, 216B.2401, 216B.2422 [CIP and IRP]	none	Yes - with difficulty, by getting addresses and seeking consent from customer	It is possible but as a standard practice, no.	No	No. XE maintains usage data by meter with an associated rate class. Address data is not maintained to capture buildings or geo-political boundaries (neighborhood).	No. Utility has address data, but not maintained to capture geo-political boundaries/neighborhood.	No. Utility has address data, but not maintained to capture geo-political boundaries/neighborhood.	NO. Data is maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. Geo-political boundaries (neighborhood) is not maintained.
5	Energy Benchmarking by Geographic Area within a Utility Service Territory (by City, Neighborhood, or other definable area)	Non Profit Program Manager (example ULI Regional Indicators Program)	All energy converted to kBtus	Monthly consumption data	Ideally separate data for Residential, Public Buildings and Commercial/Industrial	To benchmark and track cities energy use and emissions annually	Published on Regional Indicators website. May be published in city newsletters and other communications. Presentation of findings at city meetings, some of which are public meetings.	Next Generation Energy Act of 2007	Data is being used in the Met Council's Regional Framework, which will define the requirements for Comprehensive Plans being vacated in 2017-18.	Yes - with difficulty, by getting consent from building owner.	No	No	Yes/No. XE maintains usage data by meter. Address data is not maintained to capture building-specific locations or attributes. So, yes, if citywide data by rate-class; no, if by building within the city. Also do not maintain 'public' building identifier, nor kBtus.	No. Utility has address data, but no building-specific specs.	No. Utility has address data, but not maintained to capture public buildings only.	YES/NO. CNP maintains usage data by meter. Data is also maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. So, yes, if citywide data by rate class; no, if by building within the city. Also do not maintain 'public' building identifier, nor kBtus. Billing cycles may not align with monthly data, so monthly data may be an estimate.
6		Local government (City or County)	kWh; therms; emissions factor; program participation information	Annual data, each year	Citywide data; broken down by census block group and customer type	To measure citywide progress towards local and state energy goals. To understand local trends in energy use and participation in programs (EE and renewable energy) overlayed with demographics and building stock information	To develop citywide and geographic specific programs to meet local and state climate and energy goals. To inform residents.	Next Generation Energy Act of 2007	Local climate action and energy goals	No.	No	No	Yes/No. XE maintains usage data by individual meter with an associated rate class. Address data is not maintained to capture buildings or geo-political boundaries (census block). So, yes, if citywide by rate class; no, if by census block or other customer type.	No. Utility has address data, but not maintained to capture geo-political boundaries/neighborhood.	No. Utility has address data, but not maintained to capture geo-political boundaries/neighborhood.	YES/NO. CNP maintains usage data by individual meter with an associated rate class. Data is also maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. Geo-political boundaries (census block) are not tracked. So, yes, if citywide by rate class; no, if by census block or other customer type. We do not calculate or track the emissions factor.
7		Neighborhood Assoc/ Community Group	kWh; therms; program participation data	Monthly & Average annual data each year	Multiple buildings within parameters of determined boundaries (i.e., neighborhood-wide, county-wide, etc.); likely broken down by customer type	To measure and meet neighborhood and state energy goals progress	To measure neighborhood energy goals progress; potentially to determine best areas to focus energy reduction efforts	Next Generation Energy Act of 2007	Regional Indicators Initiative; MetCouncil drive MBP 2040 plan	Yes - with difficulty, by getting addresses and seeking consent from customer)	Yes. DOE Buildings Performance Database and Sustainable Buildings 2030 B3 Benchmarking tool designed for this purpose.	No	No. XE maintains usage data by meter. Address data is not maintained to capture buildings or geo-political boundaries (neighborhood).	No. Utility has address data, but not maintained to capture geo-political boundaries/neighborhood.	No. Utility has address data, but not maintained to capture geo-political boundaries/neighborhood.	NO. CNP maintains its data by meter without capturing geo-political boundaries (neighborhood).
8		Building Manager/Owner	kWh, Therms, MMBTU, Ton-Hours - other common utility energy consumption units	Monthly consumption data updated monthly	No subcategories	For both public and private whole-building, whole-property, and/or whole-portfolio energy benchmarking in programs such as ENERGY STAR Portfolio Manager.	Internally to for performance metrics, create operations plans to reduce energy usage, to assist with capital budget preparation. Externally reported in a reputable 3rd party benchmarking program such as Energy Star, could be published to tenants and reported publically per local benchmarking policy requirements.	Next Generation Energy Act of 2007	City of Minneapolis Commercial Building Energy and Rating Disclosure Ordinance	Yes. May be difficult to get permission from all tenants, time consuming and costly to obtain. Data received varies from utility to utility and may not be in a format that is easy to use. May be difficult to identify all meters in a building if multiple addresses	No	No	Yes/No. XE maintains usage data by meter. Address data is not maintained to capture building-specific location. So, yes, if the building has one meter; no, if more than one meter. No MMBTU; no Ton-hours. Not clear what 'other common utility units' are, as MMBTU and ton-hours are not common to utility usage/billing data.	No - utility has address data, but not maintained to capture multi-building ownership/management	No - utility has address data, but not maintained to capture multi-building ownership/management	YES/NO CNP maintains usage data by meter. Data is also maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. So, yes, if the building has one meter; no, if more than one meter. No MMBTU; no Ton-hours. Unclear on what other common utility energy consumption units refers to.
9		Third-Party	kWh, therms, participants	Monthly & average annual data each year	per customer account; total building (possibility multiple meters)	determine potential participants	CIP program development & CIP program implementation	Minn. Stat. § 216B.241, 216B.2401, 216B.2422 [CIP and IRP]	none	yes, can get releases per tenant, but it is very labor intensive and no guarantees you will get all of the tenants to sign the waiver	no, specific customer data would need to be made public in a regulatory proceeding	No	Yes/No. XE maintains usage data by meter. Address data is not maintained to capture buildings. So, yes, if the building has one meter; no, if more than one meter.	No. Utility has address data, but not maintained to capture building-specific location unless within address.	No. Utility has address data, but not maintained to capture building-specific location unless within address.	YES/NO. CNP maintains usage data by meter. Data is also maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. So, yes, if the building has one meter; no, if more than one meter. Billing cycles may not align with monthly data, so monthly data may be an estimate.

	Use Case Type/Category	Requestor (Who wants the data))	Describe the Data (kWh, Therms, Participants, etc.)	Data Interval and Frequency (interval, monthly, annual, etc.)	Granularity (describe the categories/subtotals/ data breakdowns)	Purpose (Why is the Data Wanted/Needed?)	How will the Data Be Used?	What State Energy Goal Will the Requestor's Use of this Data Support? (Statute site and common name, and description of support afforded)	Other Legal Requirement(s) Driving Need for Data? (Statute or other legal premise not already cited)	Possible to Obtain Data Directly from Customer(s)?	Is the Data Available/the subject of a regulatory proceeding? (Cite Statute, Rule, Order, Tariff, or Docket)	Is the Data Otherwise Publically Available?	XE	MVEC	DEA	CNP
10	Energy Benchmarking Multi-tenant/ Multi-family/ Commercial Building with Separate Tenant Meters	Real Estate Agents to facilitate sale or rental transaction	kWh; therms; cost;	Monthly & average annual data each year	Individual building; may include multiple meters	By real estate agents/buyers to calculate annual energy budget	For potential owners to calculate annual operations budgets; to calculate cost-benefit analysis for energy improvements pre-sale; to measure energy efficiency improvements from previous owner	Next Generation Energy Act of 2007	City of Minneapolis Commercial Building Energy and Rating Disclosure Ordinance	Yes - with difficulty, by getting consent from tenants.		Some; 16/18 aggregation restricts some disclosure; multi-family not included in Mpls Benchmarking/Disclosure ordinance	Yes/No. XE maintains usage data by meter. Address data is not maintained to capture building-specific location. So yes, if the building has one meter; no, if more than one meter.	No. Utility has address data, but not maintained to capture building-specific location unless within address.	No. Utility has address data, but not maintained to capture building-specific location unless within address.	YES/NO. CNP maintains meter data. Data is also maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. Billing cycles may not align with monthly data, so monthly data may be an estimate.
11		Building Professional (Architect or Engineer) for use in New Building Design or Construction	kWh; Therms; Cost; Monthly / Annual Energy use in kBtus	Average annual monthly data	By Building type and size (sqft); Compare using individual building type, single/multiple meter	For use in energy modeling to determine monthly energy use of comparible or equivalent building types; To compare energy use in proposed new building design versus Building Energy Code minimum	For new building owner to: Set energy goals of project; Create building energy modeling baseline; Calculate energy improvements cost-benefit analysis; Compare predicted consumption to baseline building energy code	State Building Energy Code - MN Administrative Rules Chapter 1322 (Res) and Chapter 1323 (Comm) Energy Code	City of Minneapolis Commercial Building Energy and Rating Disclosure Ordinance	Yes - with difficulty, by getting consent from building owner.	Yes. DOE Buildings Performance Database and Sustainable Buildings 2030 B3 Benchmarking tool designed for this purpose	No	*Usage data:* XE maintains usage data by meter. Address data is not maintained to capture building-specific location. So, yes, if the building has one meter; no, if more than one meter. *Other data:* XE does not maintain building type, size or other attribute info, nor kBtus.	No. Utility has address data, but not building-specific spec's.	No. Utility has address data, but not building-specific spec's.	YES/NO. CNP maintains usage data by meter. Data is also maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. So, yes, if the building has one meter; no, if more than one meter. *Other data:* CNP does not maintain building type, size or other attribute info.
12		Building Professional - (Architect or Engineer) for use in Retrofitting Existing Building	kWh; Therms; Cost; Monthly / Annual Energy use in kBtus	Average annual monthly data	By Building type and size (sqft); Compare using individual building type, single/multiple meter	For use in energy modeling to determine monthly energy use of comparible or equivalent building types; To compare energy use in proposed new building design versus Building Energy Code minimum	For new building owner to: Set energy goals of project; Create building energy modeling baseline; Calculate energy improvements cost-benefit analysis; Compare predicted consumption to baseline building energy code	State Building Energy Code - MN Administrative Rules Chapter 1322 (Res) and Chapter 1323 (Comm) Energy Code	City of Minneapolis Commercial Building Energy and Rating Disclosure Ordinance	Yes - with difficulty, by getting consent from building owner.	No	No	*Usage data:* XE maintains usage data by meter. Address data is not maintained to capture building-specific location. So, yes, if the building has one meter; no, if more than one meter. *Other data:* XE does not maintain building type, size or other attribute info, nor kBtus.	No. Utility has address data, but no building-specific spec's.	No. Utility has address data, but no building-specific spec's.	YES/NO. CNP maintains usage data by meter. Address data is not maintained to capture building-specific location. So, yes, if the building has one meter; no, if more than one meter. *Other data:* CNP does not maintain building type, size or other attribute info.
13		Research and/or Policy Development	kWh, therms, participants; includes pre and post analysis of the retrofitted measure	monthly or annual data, updated one time or at specific intervals for statistical analysis	By customer type/ rate class	Ex: To benchmark and measure energy usage	research and analysis	Minn. Stat. § 216B.241, 216B.2401, 216B.2422 [CIP and IRP]	Ex: None	yes - can get release per tenant in a building	No	No	Yes/No. XE maintains usage data by meter with an associated rate class. Address data is not maintained to capture building-specific location. So, yes, if the building has one meter; no, if more than one meter.	No. Utility has address data, but not maintained to capture building-specific program savings	No. Utility has address data, but not maintained to capture building-specific program savings YES - by rate class (DEA - which is correct??)	YES/NO. CNP maintains usage data by meter with an associated rate class. Data is also maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. So, yes, if the building has one meter; no, if more than one meter. Billing cycles may not align with monthly data, so monthly data may be an estimate.
14	[redacted]	Owner and/or Individual Customer	kWh, Therms, MMBTU, Ton-Hours - either common utility energy consumption units	Monthly consumption data updated monthly	No subcategories	For both public and private whole-building, whole-property, and/or whole-portfolio energy benchmarking in programs such as ENERGY STAR Portfolio Manager.	Internally to for performance metrics, create operations plans to reduce energy usage, to assist with capital budget preparation. Externally reported in a reputable 3rd party benchmarking program such as Energy Star, could be published to tenants and reported publically per local benchmarking policy requirements.	Next Generation Energy Act of 2007	City of Minneapolis Commercial Building Energy and Rating Disclosure Ordinance	Yes. May be difficult to get permission from all tenants, time consuming and costly to obtain. Data received varies from utility to utility and may not be in a format that is easy to use. May be difficult to identify all meters in a building if multiple addresses	No	No	Yes/No. XE maintains usage data by meter. Address data is not maintained to capture building-specific location. So, yes, if the building has one meter; no, if more than one meter. No MMBTU; no Ton-hours. Not clear what 'other common utility units' are, as MMBTU and ton-hours are not common to utility usage/billing data.	No - utility has address data, but not maintained to capture multi-building ownership/management	No - utility has address data, but not maintained to capture multi-building ownership/management	YES/NO CNP maintains usage data by meter. Data is also maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. So, yes, if the building has one meter; no, if more than one meter. No MMBTU; no Ton-hours. Unclear on what other common utility energy consumption units refers to.
15	[redacted]	Third-Party	kWh, therms, participants,participant address/premise number	monthly or annual data, updated one time or at specific intervals for statistical analysis	By customer type/ rate class/SIC code	determine potential participants	CIP program development & CIP program implementation	Minn. Stat. § 216B.241, 216B.2401, 216B.2422 [CIP and IRP]	none	yes	no, specific customer data would need to be made public in a regulatory proceeding	No	Yes if by rate class. XE maintains usage by individual meter with an associated rate class.	Yes.	YES	YES. If requested by rate class. Billing cycles may not align with monthly data, so monthly data may be an estimate.
16	[redacted]	Real Estate Agents	kWh; therms; cost	Average annual monthly data	Individual building and/or meter	By real estate agents/homebuyers to calculate annual energy budget	For potential owners to calculate annual budgets; to calculate cost-benefit analysis for energy improvements pre-sale	Next Generation Energy Act of 2007		If contact information can be obtained and with consent		No	Yes. XE maintains usage data by individual meter.	Yes.	YES	YES
17	[redacted]	Gov't by subpoena (AG, other LE) consent presumed	kWh; therms; cost	Average annual monthly data	Individual building and/or meter	Individual benchmarking - previous data may be needed in order to measure progress	To calculate cost-benefit analysis for energy improvements; to measure energy efficiency improvements from previous owner	Next Generation Energy Act of 2007		Previous owner might not be known or available	Yes. DOE Buildings Performance Database and Sustainable Buildings 2030 B3 Benchmarking tool designed for this purpose	No	Yes/No. XE maintains usage data by individual meter, so if one meter = one customer/unit, yes; otherwise, no.	Yes.	YES	YES
18	[redacted]	Homeowner or potential homeowner	kWh; therms; cost	Average annual monthly data	Individual building and/or meter	Individual benchmarking - previous data may be needed in order to measure progress	To calculate cost-benefit analysis for energy improvements; to measure energy efficiency improvements from previous owner	Next Generation Energy Act of 2007		Previous owner might not be known or available	Yes. DOE Buildings Performance Database and Sustainable Buildings 2030 B3 Benchmarking tool designed for this purpose	No	Yes/No. XE maintains usage data by individual meter, so if one meter = one customer/unit, yes; otherwise, no.	Yes.	YES	YES

	Use Case Type/Category	Requestor (Who wants the data):	Describe the Data (kWh, Therms, Participants, etc.)	Data Interval and Frequency (Interval, monthly, annual, etc.)	Granularity (describe the categories/subtotals/ data breakdowns)	Purpose (Why is the Data Wanted/Needed?)	How will the Data Be Used?	What State Energy Goal Will the Requestor's Use of this Data Support? (Statute cite and common name, and description of support afforded)	Other Legal Requirement(s) Driving Need for Data? (Statute or other legal premise not already cited)	Possible to Obtain Data Directly from Customer(s)?	Is the Data Available/the subject of a regulatory proceeding? (Cite Statute, Rule, Order, Tariff, or Docket)	Is the Data Otherwise Publically Available?	XE	MVEC	DEA	CNP
19		Individual Customer/Owner	kWh, KW, KVAR, Therms	Monthly billing data for 12-36 mo period	Individual customer	To see/track billed usage; possibly compare to other similar customers	Specifics of customer use of this data not known.	Purpose not known, so not known if/how supports state energy goal; may support CIP goals, indirectly	Generally, Minn. R. 7820.4600 Info Avail to Cst & Public; XE believes that customers have a general right to their data	Same info as provided on monthly customer bills	No	No	Yes. XE maintains usage data by individual meter.	Yes.	YES	YES
20			kWh, KW, KVAR, Therms	Interval on a realtime or near-realtime basis	Individual customer/process	To analyze operations; Assess/monitor for curtailment to comply with rate requirements	Specifics of customer use of this data not known.	Purpose not known, so not known if/how supports state energy goal; may support CIP goals, indirectly	Generally, Minn. R. 7820.4600 Info Avail to Cst & Public; XE believes that customers have a general right to their data	No. This level of data not otherwise made available to customer	No	No	Yes. XE maintains usage data by individual meter.	No.	NO - HOWEVER ON-SITE INTERVAL METER PULSE OUTPUT IS AVAILABLE FOR C&I CONSUMER EQUIPMENT WITH ONE-TIME SETUP FEE	NO
21			kWh, KW, KVAR	Interval on a monthly basis	Individual customer or process	To analyze operations; Assess/monitor for curtailment to comply with rate requirements	Specifics of customer use of this data not known.	Purpose not known, so not known if/how supports state energy goal; may support CIP goals, indirectly	N/A	No. This level of data not otherwise made available to customer	No	No	Yes. XE maintains usage data by individual meter.	Yes.	YES	YES/NO. Interval data (daily) is only available for certain rate classes.
22			Payment amounts owed and paid	Monthly billing data for 12-36 mo period	Individual customer	To see/track billing amounts and payment behavior.	Specifics of customer use of this data not known.	N/A	Generally, Minn. R. 7820.4600 Info Avail to Cst & Public; XE believes that customers have a general right to their data	Same info as provided on monthly customer bills	No	No	Yes. XE maintains usage data by individual meter.	Yes.	YES	YES
23			Dates of service at a specific premise/address	One-time	Individual customer	Confirmation of service at a location and residency verification	Specifics of customer use of this data not known.	N/A	Generally, Minn. R. 7820.4600 Info Avail to Cst & Public; XE believes that customers have a general right to their data	No. It must come directly from the billing utility	No	No	Yes. XE maintains usage data by individual meter.	Yes.	YES	YES
24			Credit/payment history for the most recent 12 month period starting the day of request	One-time	Individual customer	Used by customer to demonstrate good credit at Xcel Energy	Specifics of customer use of this data not known.	N/A	Generally, Minn. R. 7820.4600 Info Avail to Cst & Public; XE believes that customers have a general right to their data	No. It must come directly from the billing utility	No	No	Yes. XE maintains usage data by individual meter.	Yes.	YES	YES
25			Findings of natural gas leak calls, outage/electric disruption, or other G/E service-related matter	One-time	Individual customer	Documentation of gas/electric service at customer's premise	Specifics of customer use of this data not known.	N/A	Generally, Minn. R. 7820.4600 Info Avail to Cst & Public; XE believes that customers have a general right to their data	No. This type of data not otherwise made available to customer	No	No	Yes. XE maintains usage data by individual meter.	Yes.	YES	YES
26			Current Billing Amount Due and Due Date	Monthly, ongoing	Individual customer	Electronic monthly billing	To facilitate electronic electronic billing	N/A	N/A	No. This type of data not otherwise made available to customer	No	No	Yes. XE maintains usage data by individual meter.	Yes.	YES	YES
27			Billed Usage, Amounts Due and Due Date	Monthly and Monthly for a one year period	Individual customer	To facilitate customer's application for energy/crisis assistance	To qualify the customer for energy/crisis assistance	N/A	Generally, Minn. R. 7820.4600 Info Avail to Cst & Public; XE believes that customers have a general right to their data	No. It must come directly from the billing utility	No	No	Yes. XE maintains usage data by individual meter.	Yes.	YES	YES
28			Could be any information maintained by the utility	One-time or Ongoing	Individual customer	Specifics of customer/3rd party use of this data not known.	Specifics of customer/3rd party use of this data not known.	Purpose not known, so not known if/how supports state energy goal; may support CIP goals, indirectly	N/A	Depends on the data requested	No	No	Yes. XE maintains usage data by individual meter.	Yes.	YES	YES
29			Could be any information maintained by the utility	Generally one-time	Individual customer	The customer has asked a regulatory agency to examine details regarding a specific circumstance	To assess the circumstance	N/A	216B* (14, 17, 21,19, 48) Comm/Reg Agency inquiry and Cust Complaint; could additionally involve Commission Rule or Order requirements/compliance	No. It must come directly from the billing utility	Not generally, but could be	No	Yes. XE maintains usage data by individual meter.	Yes.	YES	YES
30		MN Dept of Labor and Industry and/or its contracted agents (nonprofit agency)	kWh; Therms; Cost, Emissions; Total Annual Energy use in kBtus	Average annual monthly data;	By Building Type and size (sqft); Compare using individual building type, can be by individual or aggregated buildings/ meters	To confirm compliance of energy code requires within newly constructed or existing buildings on a state wide or city basis; To measure and verify energy efficiency improvement effectiveness	Individual or aggregated current utility customer data	B3 Sustainable Building 2030 (SB 2030) Energy Standard	State Building Energy Code MN Administrative Rules Chapter 1322 (Res) and Chapter 1323 (Comm) Energy Code; Dept of Energy (DOE) EERE Studies on Energy Code Compliance	Yes - with difficulty, by getting consent from building owner.	No	No	*Usage data:* XE maintains usage data by meter. Address data is not maintained to capture building-specific location. So, yes, if the building has one meter; no, if more than one meter. *Other data:* XE does not maintain building type, size or other attribute info, nor kBtus or emissions.	No. Utility has address data, but no building-specific specs. .	No. Utility has address data, but no building-specific specs. .	YES/NO. CNP maintains usage data by meter. Data is also maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. So, yes, if the building has one meter; no, if more than one meter. *Other data:* CNP does not maintain building type, size or other attribute info.
31		Public Housing Authority	kWh and therms	monthly data (benchmarking, savings opportunities, equipment performance), annual data (adequate for utility allowances)	whole building	benchmarking to identify cost-effective improvement opportunities, to verify improvements meeting performance expectations, identify performance problems (i.e. spiking bills indicate failing boiler), develop utility allowance to represent typical utility	Detailed information for internal use only; may be analyzed using third-party benchmarking software tools; utility allowance an average/median number that is published widely	Next Generation Energy Act of 2007		Yes - with difficulty, by getting consent from tenants.	No	No	Yes/No. XE maintains usage data by meter. Address data is not maintained to capture building-specific location. So, yes, if the building has one meter; no, if more than one meter.	Yes, if requesting for specific meter	No. Utility has address data, but not maintained to capture building-specific savings potential .	YES/NO. CNP maintains usage data by meter. Data is also maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. So, yes, if the building has one meter; no, if more than one meter.

	Use Case Type/Category	Requestor (Who wants the data)?	Describe the Data (kWh, Therms, Participants, etc.)	Data Interval and Frequency (Interval, monthly, annual, etc.)	Granularity (describe the categories/subcats/ data breakdowns)	Purpose (Why is the Data Wanted/Needed?)	How will the Data Be Used?	What State Energy Goal Will the Requestor's Use of this Data Support? (Statute cite and common name, and description of support afforded)	Other Legal Requirement(s) Driving Need for Data? (Statute or other legal premise not already cited)	Possible to Obtain Data Directly from Customer(s)?	Is the Data Available/the subject of a regulatory proceeding? (Cite Statute, Rule, Order, Tariff, or Docket)	Is the Data Otherwise Publically Available?	XE	MVEC	DEA	CNP
32	[redacted]	Local government (City or County)	kWh; therms; emissions factor;	Monthly data	By meter and aggregated by building	To benchmark public buildings	To understand baseline performance of buildings; identify efficiency opportunities; measure progress	Next Generation Energy Act of 2007	City energy goals for public buildings	Yes, sometimes, although multiple meters can make it difficult	No	No	Yes/No. XE maintains usage data by meter. Address data is not maintained to capture buildings. So, yes, if the building has one meter; no, if more than one meter. Billing cycles may not align with monthly data, so monthly data may be an estimate. We do not calculate or track the emissions factor.	Yes.	YES - energy only	YES/NO. CNP maintains usage data by meter. Data is also maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. So, yes, if the building has one meter; no, if more than one meter. Billing cycles may not align with monthly data, so monthly data may be an estimate. We do not calculate or track the emissions factor.

APPENDIX I

Utility Customer Energy Usage Data Accessibility and Risk Mitigation Study Scope

Summary

The proposed study would provide contextual information to assist Minnesota utility regulators in establishing guidelines for utilities to make customer energy usage data (CEUD) and customer program participation data (CPPD) public or provide it to parties not involved with providing regulated utility service. The study would include:

1. Identification, summary, and analysis of existing publicly available and third-party access to CEUD/CPPD across the U.S., to include a discussion of the legal structure within which the data is made available;
2. An analysis or literature review of potential risks from the re-identification of utility customers from public or utility-provided CEUD/CPPD;
3. A review of privacy protection techniques currently in use to prevent re-identification within the utility industry;
4. A review of privacy protection techniques currently in use within other industries or with other types of data, such as census data, health care data, and "big data" computer science techniques ; and ***one*** of the following:

5a. A statistical analysis of CEUD/PPD from Minnesota utilities that assesses re-identification risk given different data types, use cases, and differing privacy protection and risk mitigation techniques such as data aggregation and data anonymization; or

5b. A statistical analysis of CEUD/CPPD that determines the validity of existing studies by examining their statistical methodologies, assumptions, and conclusions. Analysis must also include the supporting legal/regulatory framework as it compares to Minnesota, and a discussion of potential implementation strategies.

Study purpose & need

The Minnesota Public Utilities Commission has charged a working group (the CEUD workgroup) to examine issues surrounding utility release of customer energy usage data for purposes of furthering state energy goals while balancing customer privacy concerns. The workgroup is composed of utilities, state agency staffs, environmental and customer advocacy organizations, local government, and other interested parties. While the workgroup has engaged in rich conversations about different approaches to providing parties not involved in providing regulated utility service access to CEUD/CPPD, a robust analysis of privacy risk mitigation measures is beyond the expertise of the workgroup.

In order to provide fact-based recommendations to the Commission, it is necessary to engage experts in the fields of statistics, energy policy and privacy protection to conduct an analysis of practical risk mitigation approaches that can be applied to the "use cases" the workgroup has developed. The intent

of the analysis is to assess the magnitude and likelihood of re-identification of individual data based on particular use cases and mitigation techniques.

While several data aggregation standards for release or provision of utility customer usage data to entities that are not associated with the provision of regulated utility service exist across the country, there is no broad agreement or acceptance of a particular risk mitigation standard or method. Public Utility Commissions in California, Colorado and Minnesota are all currently engaged in conversations about how to balance individual privacy concerns with facilitating greater access to energy data for purposes of advancing public policy objectives. This study, therefore, has the potential to significantly advance energy policy in Minnesota and across the nation.

Study components

1. **Identification, summary, and analysis of existing publicly available and third-party access to CEUD/CPPD across the U.S., to include a discussion of the legal structure within which the data is made available.** Access to customer energy usage data by third parties is currently available in varying forms through utilities, regulators, government agencies, research organizations and other entities. To better understand the existing landscape of access to data, as well as real and perceived risk of greater CEUD/CPPD availability, this study will analyze existing data access and availability, the purpose for the access/availability, the basis of the access/availability, including the underlying/supporting legal framework within which data is available, and the documented or perceived risks associated with that access. Examples include data access tools provided by utilities for building- or neighborhood-level data, data shared or published by third-party energy service providers, and data maintained by state and federal government agencies.

2. **An analysis or literature review of potential risks from the re-identification of utility customers from public or utility-provided CEUD/CPPD.** To balance the policy objectives of access to data with privacy considerations, regulators must understand the existing and potential risks that exist from the re-identification of CEUD/CPPD. This study should review the landscape of third-party utility data access, and document cases of re-identification that have resulted, the basis/how the data was re-identified, and the consequences that resulted from the re-identification. The study should also consider changing technology, review potential risks that may be realized by increasing access to data, such as layering requests/datasets for the purpose/intent of re-identification. The spectrum of risk should be analyzed based on the categories of use cases presented during the Workgroup process.

3. **A review of privacy protection techniques currently within the utility industry.** Numerous utilities and some states have studied this issue and established or proposed aggregations thresholds or other methodologies to apply to utility customer data, for it to be provided publicly or to third parties. The study must include a summary of these aggregation methods/thresholds, including the parameters and conditions of its release or publication (customer consent, contractual, etc.), the parties to whom it is/can be released, and the methods employed for access/release/publication of the data. The study must also include an analysis of the aggregation methods/thresholds with

respect to the protection of individual utility customer privacy, the purpose and basis upon which the standards/thresholds were formed, and any supporting legal or regulatory framework and how it compares to Minnesota's legal and regulatory framework.

4. **A review of privacy protection techniques currently in use within other industries.** Other industries and fields of study, such as census data, health care data, and masking or other "big data" techniques used in the computer science field. These fields already employ sophisticated techniques for maintaining individual privacy and reducing the risk of re-identification of individual data, while providing third-party access to usable data that supports public policy objectives. Examples include demographic research and surveys (US Census) and health care information. The study should look at "big data" masking techniques and specific practices employed in these areas for the purpose of identifying methods that may be appropriate for the utility customer data use cases identified by the workgroup. A comparison of the magnitude and likelihood of risks associated with data types (e.g. health data vs. utility data) should be included when reviewing risk mitigation approaches.

5. **A statistical analysis of CEUD/CPPD from Minnesota utilities that assesses re-identification risk given different data types, use cases, and differing privacy protection and risk mitigation techniques such as data aggregation and data anonymization.** This study should assess the likelihood of re-identification of individual data given different risk mitigation measures, such as data aggregation and data anonymization. Using Minnesota utility customer data and other publicly-available data, the likelihood of re-identification of individual customers should be assessed through a statistical analysis approach. Possible risk mitigation strategies should assess re-identification risk associated with various aggregation thresholds, anonymization, masking, temporal or spatial averaging or other statistical summarization, and other methods identified by the study team. Risk should be assessed for data interval and granularity identified in workgroup use cases (actual or average monthly by rate class, for example), and data type (kWh, therms, KW, CPPD, etc.). Data groupings analyzed must include whole building (residential and mixed-use), neighborhood or multi-building geographic unit (census block, zip code, etc.), and any differences between rural and urban utility populations.

Study Team

The workgroup assumes that this study will require a multi-disciplinary team that includes expertise in the areas of statistics, demographic analysis, data privacy, and energy policy and law. Additional areas of expertise the workgroup believes may be needed include computer science, health policy and utility regulation.

Schedule

The duration of the study should not exceed 1 year.

The study schedule will include multiple opportunities for feedback by members of the CEUD workgroup prior to the completion of the final report. Study authors should be prepared to meet with members of

the working group at least twice to collect feedback on work products before making a final presentation of the study to the workgroup. In addition, the Study authors are expected to present study findings to the Commission and provide general support to the Commission as it considers the implications of any new policies and procedures associated with utility release of CEUD/CPPD. The workgroup believes the Commission may initiate a procedural comments process following delivery of the final report, which would potentially subject the study to broad public input and scrutiny.

Deliverables

Deliverables will include a final report covering items 1 through 5, one scoping meeting with the workgroup as well as two feedback sessions during the report drafting, and final presentations to the workgroup and the Commission. The final report will address feedback provided by workgroup members, and separately identify how the authors responded to the feedback.

APPENDIX J

MEMORANDUM

5/21/14

TO: CEUD Workgroup
FR: Brendon Slotterback, City of Minneapolis
RE: Additional details on the development of an Energy Data Center for the processing and distribution of CEUD

City of Minneapolis staff submits these comments in response to the discussion at the 5-16-14 CEUD workgroup meeting regarding the desire for more detail about the proposal for developing a central point for the collection, processing and distribution of CEUD for specific use cases. For the purposes of this memo, this central point is referred to as an Energy Data Center. This memo will present a framework for the functioning of the Energy Data Center, identify what use cases it might satisfy, and briefly discuss approaches for use cases in which the Data Center is not an appropriate approach for granting access to CEUD.

Use cases will be identified by number, consistent with the numbering found in the "Use Cases and Utility Data Availability" matrix dated 5-14-14.

Summary of proposed CEUD access methods by use case

Use Case(s)	Description of Use Cases	Proposed Method to Access CEUD	Notes
1-7	Neighborhood, City, County, Utility Service territory aggregated data	Energy Data Center	Utilities provide energy usage data to Center, where it is processed using appropriate disclosure avoidance techniques. Public data sets are published once per year. No special requests, no overlapping requests.
8-13, 31, 32	Whole-building data from buildings with multiple tenants	Utility-run building aggregation/benchmarking system	New tools developed by utilities (see DOE Data Accelerator). Accessed by owner/manager/third party service provider. May require verification of requestor's identity.
14-30	Single customer, groups of single customers, special requests	Request to utility for manual processing OR access via online customer billing system (Green Button)	Usually requires consent form(s). Govt subpoena, research, and unique requests may have special processes (NDAs, etc).

How the Energy Data Center would work

Collect data from utilities

Once per year, all regulated utilities (or other interested non-regulated utilities) would send individual customer energy usage and program participation data to the Energy Data Center. This data would be considered non-public and protected. It would include usage, applicable program participation information, premise location (address or other more accurate location information such as geocoded point), and class (R/C/I).

Process data using disclosure avoidance techniques

The Energy Data Center would process the data using appropriate disclosure avoidance techniques to develop data sets that could be made public that would present a low risk of an individual customer's usage being estimated by a third party. Techniques would likely include aggregation, annonymization, and rules to protect very large users, like the n-k rule (see Minneapoils comments dated 5-5-14 from more on n-k and other disclosure avoidance techniques in use by federal agencies).

GIS technology would be used to develop tabular and map data that met standards for disclosure avoidance. This should enable the Data Center to provide more fine-grained data than utilities can with their existing infrastructure (some utilities may be limited to zip codes, according to CEUD workgroup discussion).

Publish public data sets

The Energy Data Center would publish annually specific data sets in tabular and map form that could be accessed electronically. They would be machine-readable. Suggested data sets include:

- Aggregated class usage (total commercial, total industrial, total residential usage) by census block group or census tract for all regulated utility service territory. Could be monthly and/or annual.
- Aggregated class usage (total commercial, total industrial, total residential usage) by political boundaries (city and county) for all regulated utility service territory. Could be monthly and/or annual.
- Aggregated class usage (total commercial, total industrial, total residential usage) by utility service territory (city and county) for all regulated utility service territory. Could be monthly and/or annual.
- Aggregated program participation (total commercial, total industrial, total residential participation) by census block group or census tract for all regulated utility service territory. Could be monthly and/or annual.
- Aggregated program participation (total commercial, total industrial, total residential participation) by political boundaries (city and county) for all regulated utility service territory. Could be monthly and/or annual.
- Aggregated program participation (total commercial, total industrial, total residential usage) by utility service territory (city and county) for all regulated utility service territory. Could be monthly and/or annual.

Neighborhood or community groups and local governments could access these data sets to achieve their goals. Generally, census block group or tract-level data should be sufficient to satisfy all requestors identified during the CEUD workgroup process that are interested in data beyond the building scale. It should be noted that zip code-level data would very likely not be sufficient to meet the needs of these requestors, given their size. Changes in the geographic boundaries of zip codes are also not documented like those of census block groups and tracts, making comparisons over time more difficult.

These data sets would be available through an online map and in tabular format for download. Before publication, all data sets would be screened, as noted above, using disclosure avoidance techniques to ensure that either individually or in combination their publication would present a low risk for the estimation of an individual customer's usage.

No custom data requests or requests to individual utilities

The Energy Data Center would publish specific sets of data on an annual basis for the previous year. Risks associated with multiple, overlapping requests made to utilities would be mitigated, since such requests for community-scale data would not be possible.

This approach would also limit the need for each utility to process requests that fit these use cases, each adopting their own techniques, staff and technical resources. This could be a significant cost savings to rate payers.

An example of tabular data

The table below is a sample of what a table of published CEUD might look like at the Census block group level. This table is for illustrative purposes only, values are fictional.

Block Group	Census Place	Count of Residential Customers	Count of Commercial Customers	Count of Industrial Customers	Total residential kWh	Total commercial kWh	Total industrial kWh	Total kWh
2892	Minneapolis	1,000	7	0	4,200,000	58,800	0	4,258,800
564	Minneapolis	1,010	10	6	4,242,000	60,400	100,800	4,403,200
3911	Minneapolis	900	0	3	3,780,000	0	N	N

In Census block group 3911, the "Total industrial kWh" cell is marked "N" because data has been suppressed. Data was suppressed because in that geography, the minimum aggregation threshold for industrial customers was not reached. In addition, "Total kWh" for block group 3911 was suppressed because knowing that total would allow a third party to determine the aggregate total for industrial kWh.

About the Energy Data Center

This proposal assumes the Energy Data Center is operated by an entity that can adequately protect non-public data. This could be a state agency or other public entity, or a non-profit. Examples of entities that gather private, sensitive data and process it for publishing include the Census Bureau, the Bureau of Labor Statistics, the Energy Information Agency, Minnesota Community Measurement (for health care

data) and many others. Approaches used by the Data Center could model these entities, even though the proposed scope of the Center is much more limited.

Funding the Center could be approached similarly to individual utility methods of funding CEUD processing infrastructure.

APPENDIX K

Minneapolis
City of Lakes

Office of the City Coordinator

City Coordinator

350 South 5th Street - Room 301M
Minneapolis MN 55415

Office 612-673-2032
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September 16th, 2014

Tammy Pust
Chief Judge and CEUD Workgroup Facilitator
Minnesota Office of Administrative Hearings
600 N. Robert Street
St. Paul, MN 55164

FROM: Brendon Slotterback

RE: Comments on Draft Final Report dated 8-27-14, Docket E,G999/CI-12-1344

Dear Judge Pust,

The City of Minneapolis submits these comments on the Final Report of the CEUD Workgroup in response to your email request dated September 11, 2014. It is our understanding that these comments will be included in the Appendix to the final Workgroup report.

We again want to express our appreciation for the opportunity to participate in the workgroup, and for your leadership in facilitating the discussion as well as in preparing the final report.

We believe the topic of access to CEUD is vitally important as Minnesota, its communities, and its residents and businesses work to reduce energy costs, reduce the negative impacts of energy use, and to achieve state energy goals. In particular, we believe two categories of "use cases", or requests for data access, are both significantly increasing in number, and especially important to advancing state energy goals:

1. Access by communities and neighborhoods to energy usage and program participation data aggregated at small scales of geography to allow for establishing baselines, understanding the sources of energy use and emissions, emissions reduction and energy efficiency planning, and comparisons to like geographies. Examples of this type of use case include the Minneapolis Climate Action Plan, the Midtown Community Works Sustainability Initiative, and the more than 20 Minnesota cities now tracking energy and greenhouse gas data through the Urban Land Institute Regional Indicators Initiative.

2. Access by building owners and managers to energy usage data from buildings with multiple meters for the purposes of benchmarking their

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energy performance, estimating energy savings, planning improvements, and complying with local ordinances. Benchmarking is an increasingly common practice among building owners, as it is the first step in understanding building performance and the potential for energy efficiency improvements. Xcel Energy and the City of Minneapolis are part of a Department of Energy initiative, the Better Buildings Data Accelerator, which seeks to provide easy access by building owners to aggregated energy usage data. Minneapolis also adopted the Commercial Building Rating and Disclosure ordinance (local ordinance 47.190) in 2013, which requires the owners of large commercial buildings to annually benchmark the energy and water use in their building and submit the data to the City.

Changes to rules governing access to CEUD by third parties will significantly impact the stakeholders associated with these use cases, and the effectiveness of their efforts to increase energy efficiency and reduce greenhouse gas emissions. We believe that appropriate access to CEUD can be balanced with realistic potential risks of individual customer usage data disclosure or estimation.

Many examples exist, both inside and outside the utility industry, of the successful use of disclosure avoidance techniques to protect individuals while also providing rich data sources for third parties to use for public policy purposes. Some organizations, such as the US Census Bureau, have been using these techniques for decades to protect information that most would judge to be more sensitive than energy usage data. These examples, along with the experiences of utilities from other states who have dealt with similar issues, should provide valuable information for the Public Utilities Commission as they consider a decision about third party access to CEUD in Minnesota.

We look forward to future discussions about the topic of CEUD with the Commission, utilities and other stakeholders, and hope that our comments have been useful in the Workgroup process.

The City of Minneapolis has a limited set of additional comments on the final report, which you will find below.

Page 2, paragraph 2, Possible Risks

While the language of the paragraph is technically accurate, we feel that it overstates the reasonable risk that can be anticipated from access to data by third parties at the temporal and geographic scale discussed by the workgroup. While significant risks may be present from data types such as real-time, individual usage data, or data that includes personally identifiable information, such as names, social security numbers or addresses, the conditions for releasing this type of data was not part of the workgroup's discussion or part of its charge. We note that the workgroup discussion did not produce a single real world example in which the type of risks identified in this paragraph occurred based on the release of data of the type discussed by the workgroup, despite this type of aggregated data being available from many sources.

We believe the types of risk that may be present from the release of certain types of CEUD have not yet been well defined by the workgroup, and merit further discussion. In addition, we feel that this paragraph would benefit from context regarding how other data that may present risks (such as demographic, health care, and criminal justice data) has been successfully protected for many years, and in some cases decades, through established disclosure avoidance techniques. Examples of these techniques and their application by federal agencies can be found in the comments submitted by Minneapolis to the workgroup dated 5/5/14.

Page 14, paragraph 3, Minnesota's Energy Goals, CIP and Beyond

We do not believe the statement in the first sentence of this paragraph is factually accurate. Minnesota Statute 216.C17 pertains specifically to the collection and broad publication of energy statistics from utilities, which includes CEUD. Minnesota Administrative Rules Chapter 7610 spells out what information is required to be submitted by utilities to Commissioner of Commerce. The purpose of this data collection and publication is identified in the statute – it is to further the purposes of 216C.05, which includes energy planning and energy policy goals (achieving at least 1.5% annual energy savings, reduced per capita use of fossil fuels, and achieving a renewable energy target), as well as to "insure a central state repository of energy data and so that the state may coordinate and cooperate with other governmental data collection and record-keeping programs." Additionally, MN Statute 216.C17 Subdivision 4 specifies that these reports must be made available for public inspection. In practice the Department of Commerce has published the Energy Data Book online and shared the data in spreadsheet format with requestors.

While the workgroup was not made aware of Commerce's energy data reporting in the Energy Data Book until after the final Workgroup meeting, and thus official workgroup discussion did not include this topic, we believe this report should accurately reflect existing state law and existing data collection and publication practices.

September 16, 2014

To: Judge Pust and CEUD Workgroup

From: Mike Bull, Director of Policy and Communications
Center for Energy and Environment

RE: CEE Comments on the Final CEUD Report, Docket E,G999/CI-12-1344

The Center for Energy and Environment (CEE) is a community-based non-profit organization that works to advance the public interest in cleaner energy and a healthier economy. We are now in our 35th year, and are well known for our award-winning energy efficiency programs and nation-leading energy research projects. CEE's efficiency programs have saved Minnesota customers over $500 million over the years.

CEE would like to thank the Judge and other members of the Customer Energy Usage Data (CEUD) workgroup for making this a valuable process. We appreciate the amount of time all parties have dedicated to participating in it. Access to CEUD and program participation information (PPD) are necessary inputs for meeting state energy goals, and were recently identified in the Clean Energy Economy Summit hosted by the Dayton Administration as necessary to grow the Minnesota clean energy sector.

CEE believes the Commission should consider the following additional comments with regard to CEUD and PPD:

Commission Authority

Minn. Stat §216B.05, subdivision 2, describes the PUC's authority to regulate a public utility for products or services. CEE believes CEUD and program participation information falls under the broad umbrella of a rate or service. For this reason, CEE believes the PUC has authority to regulate CEUD and program participation data. Further, the PUC has an obligation to establish guidelines for CEUD and PPD that facilitate greater energy efficiency achievements, while protecting customer information. New law proposed by the CEE in the 2013 Minnesota legislative session established energy efficiency as the preferred energy resource over all other resources:

> The legislature finds that energy savings are an energy resource, and that cost-effective ***energy savings are preferred over all other energy resources***. The legislature further finds that cost-effective ***energy savings should be procured systematically and aggressively*** in order to reduce utility costs for businesses and residents, improve the competitiveness and profitability of businesses, create more energy-related jobs, reduce the economic burden of fuel imports, and reduce pollution and emissions that cause climate change.[1]

Absent such guidelines for CEUD and PPD, and enhanced methods for customers to get and grant access to their own data, it will become increasingly difficult to "systematically and aggressively" procure energy savings.

Privacy Treatment of Data

The workgroup explored two specific kinds of data, CEUD and program participation. CEE believes that access to energy usage data and program participation data warrant two distinct levels of privacy protection. CEUD in individual or aggregated form warrants a higher level of data privacy than program participation.

Ease of Customer Access to Their Own Data

During the workgroup process, much emphasis was placed on providing privacy assurance of customer data. However, providing the tools to efficiently request and generate the customer's own data is also significant. Customers should have the ability to easily access their own energy usage data as well as to easily and efficiently authorize others to have access to their data. CEE believes that a focused effort to make significant additional progress in this regard would be broadly supported and very productive.

Utility Data Repository

Fairly late in the workgroup process, the idea of forming a data repository was raised. Those discussions took two forms; as a central repository, managed by a government agency, that utilities would upload monthly and/or annual data, and as an individual utility repository where data, in a certain form is available via the utility website. CEE supports the exploration of either approach, and believes the concept of a joint utility-managed repository should also be further explored.

Cost of Data

[1] Minnesota Statutes §216B.2401 (emphasis added).

It has yet to be determined whether costs to provide the data systems and services are paid by the requestor or allocated to all customers. It may be prudent that a third party requesting data is charged for the services. However, CEE believes a third party that has requested data should not be charged when they are: 1) a government entity, 2) contracted by the utility to perform work, or 3) conducting research for a public, not-for-profit purpose.

Utility Cost Recovery

CEE agrees that if the PUC determines utilities are to be directed to provide CEUD, it is reasonable for utilities to receive cost recovery for prudent system enhancements, labor and other necessary costs.

INTERIM SOLUTION OPTION

CEE recommends the above options be considered in long term planning for energy data management. However, a clear and practical *interim* solution should be approved until the PUC has had the opportunity to fully vet long term options and determine the best alternative for ratepayers. CEE believes that until such a time as the PUC determines an appropriate aggregation level, an interim threshold consistent with the proposal made by the City of Minneapolis "Rule of Four" proposal should be established so utilities can provide data consistently, with clear guidance. As noted in the final report, the Minnesota Utility Data Book currently provides data in aggregate down to two customers. The proposal made by the City of Minneapolis would require aggregation of a **minimum of four** customers with no customer making up more than 80% of total usage.

CONCLUSION

The costs of continued uncertainty regarding consumer privacy continue to rise. Recently, CEE was asked by a utility for which we were seeking to administer an energy efficiency program to increase the level of insurance the Center carries against privacy risks. Insurance is generally a risk-mitigation tool against uncertainty, and that is certainly the case in this instance. At some point, the cost of the uncertainty regarding customer data will increase to a point where non-profit organizations such as CEE will find it difficult to compete with larger, for-profit entities. More importantly, these costs will ultimately be borne by consumers. It is important for the Commission to continue to place a high priority on these issues, and address them with some urgency.

Thank you for the opportunity to include comments to the final workgroup report. CEE believes the above recommendations to be simple and practical. We look forward to continued discussions regarding this important topic.

STOEL RIVES LLP
ATTORNEYS AT LAW

MEMORANDUM

September 5, 2014

TO: CEUD WORKGROUP

FROM: ANDREW P. MORATZKA, SARA E. BERGAN

RE: Comments on the Near Final Workgroup Report Prepared by the Administrative Law Judge: PUC Docket No. CI-12-1344

The Minnesota Large Industrial Group ("MLIG"), a continuing ad hoc consortium of large industrial end-users of electricity in Minnesota spanning multiple utilities and functioning to represent large industrial interests before regulatory and legislative bodies, submits the following thoughts in response to the Report prepared by Judge Pust and circulated to the Workgroup at the end of August ("Report").

I. INTRODUCTION

MLIG commends Judge Pust and her staff in assembling the most recent iteration of the Report and appreciates the attention to detail. It is clear from the attached redline[1] that considerable work was put into this near final Report. The Report reflects a lot of good work and thinking on the topic of Customer Energy Usage Data ("CEUD") while underscoring the considerable work left to do. MLIG has appreciated the opportunity to learn more about

[1] Attachment A.

potential new uses of CEUD and the associated potential risks and benefits. We have also appreciated the opportunity to voice the concerns of large energy consumers, whose data is both unique and proprietary. In an effort to avoid belaboring these thoughts or concerns, which have been argued at length during our meetings and in written submissions, we include a couple of our previous written comments as attachments.[2]

II. COMMENT ON REPORT THEMES

MLIG appreciates the efforts to incorporate various comments of workgroup participants and to track the new additions for participants' benefits. It appears this was no small task in light of the substantial revisions to this Report. While MLIG appreciates the desire to keep the process moving forward or to be inclusive of subject areas participants want covered, there is ever increasing material included that was not addressed at all as part of the more formal workgroup proceedings. MLIG does not believe it can adequately provide redlines to a voluminous report such as this in the very short time period allowed. As mentioned earlier, MLIG works as an ad hoc consortium and typically gives its members time and opportunity to review comments on their behalf. In light of this, MLIG respectfully requests that when the final report is filed with the Commission, parties are afforded the opportunity to file comments at that time. In the interim, MLIG provides the following comments on more general themes in the Report.

A. Substantial Changes, New Material and Conclusions

While MLIG is conscientious of the fact that good results can come up - and often do - late in a process, it is difficult to adequately comment on new topical material being addressed in a report intended to summarize the deliberations and conclusions of the workgroup. MLIG is uncomfortable with the addition of whole new sections such as that on the Minnesota Utility Data Book so late in the process and with so little time to review. The new section includes considerable discussion and interpretation of how the Minnesota Department of Commerce's (MNDOC's) practice relates to aggregation thresholds for CEUD - the critical question the workgroup wrestled with. Although the Report asserts otherwise, for example, MLIG is

[2] Attachments B and C.

concerned that the publication of the Minnesota Utility Data Book may not be complying with the Minnesota Government Data Practice Act ("MGDPA") in light of the MGDPA's requirement that the data is non-public information.

Similarly MLIG expresses concern that this iteration of the Report expands the above discussion considerably while striking sections that earlier clarified that the MGDPA protects the data as non-public according to Minn. Stat. §13.02.[3] While many of the insertions or deletions in the voluminous report were helpfully flagged in the comment fields, others - including this one - were not. The presence of highlighted or marked changes creates the presumption that the unmarked text remains unchanged. Our review was hindered because this was not the case. To this end and as previously mentioned, we have also attached the redline reflecting the changes from the prior draft (Attachment A).

B. Report Should Not be a Forum or Substitute for Stakeholder Conversations

Some of the new insertions are troubling in that they are directed at a particular stakeholder for the first time. For example, an inclusion by the Midwest Energy Efficiency Alliance newly asserts: "large industrial [consumers] need assistance to understand how to improve their energy efficiency and would benefit from sharing of information. Their first priority is to produce product not to save energy. Many look to their peers to understand best methods or best practices to implement before trying [them] on their own."[4] This is the first direct response MLIG has seen to why parties want to see large industrial data shared and we find it difficult to understand on what basis a third-party can assert more knowledge over an industry and specific facility than the team of engineers and utility representatives tasked to manage energy consumption at that specific facility. The temptation to engage in the dialogue aside, we recognize such back and forth could be a never-ending process and something very difficult for the Judge and her staff to manage. Further reaction to this comment would also simply risk rehashing issues and concerns MLIG has already raised in previous comments and that are attached to this memo.

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[3] Page 29 of the Report Redline (Attachment A).

[4] Page 60 of the Report Redline.

C. Proving a Risk is Difficult; Disproving Assertions Treated as Fact is Laborious

The Report begins by astutely highlighting that readers need not go further than the news to understand some of the risks of data use given the various data-breaches that have frequented the news in the past year or even months. The Report goes on to assert that privacy risks are almost necessarily grounded in "what ifs" rather than factual evidence in light of the fact that CEUD data sharing is a new interest. Despite this recognition, and the fact that MLIG offered an example of reverse engineering the 15/15 rule, stakeholders still assert that "neither the MLIG nor other Workgroup members identified any proven instance wherein the availability of this data has led to customer re-identification, in Minnesota or elsewhere."[5] These parties seem to be saying that the absence of a verified, documented example of the risk, calls the validity of the risk into question or renders it illusory. The risk MLIG describes has very high consequences. Such risks are precisely those you plan to avoid, knowing that once the damage is done, it is too late because there is likely no satisfactory remedy. Curiously, the entities that would require MLIG to prove a stated risk is a certainty, no doubt advocate the use of a more precautionary approach in other settings. MLIG simply asks that a cautionary approach be taken with CEUD sharing that adequately protects all customers' privacy. We stress the importance of such an approach in light of it being such a new endeavor and as we gain experience in Minnesota.

On a related point, MLIG notes that there has been relatively uneven treatment of parties' unsubstantiated assertions. MLIG is asked to prove that risks are verifiable, while other assertions are treated as fact, without qualification or verification. The process of trying to prove a risk, or disprove assertions treated as fact has been a laborious exercise. The table in Section IV.B.5 of the Report, for example, has been repeatedly incorporated into the workgroup discussions and the Report without verification of its accuracy. MLIG responded by researching the underlying practices, statutes and rules and then providing a memo[6] that further described the context. Notably many of the thresholds included in the table also include important exclusions -

[5] Page 59 of the Report Redline.

[6] Attachment C.

typically for the industrial and manufacturing data of interest to MLIG. After repeated comments regarding the incomplete and misleading nature of the table, MLIG appreciates that some context has finally been provided but also notes that it is relegated to footnotes. We find this frustrating because the fact that other programs (presumably offered as models for the workgroup to learn from) are specifically excluding industrial data is highly pertinent to the workgroup's conversations regarding potentially similar safeguards. Without such context repeatedly requested by MLIG, the table implies the opposite: that the standard applies to all customer classes.

III. CONCLUSION

MLIG respectfully offers its observation that it is difficult to continue the work of the workgroup itself through this report development. We understand that there is much more that needs to be addressed, but iterations of this report are adding new (even if interesting) material for participants to react to and providing a forum for indirect communication between participants that would be more effective in person. We do not blame anyone for wanting to keep the discussion moving forward and would like to do so ourselves, but are finding it difficult to do so through report drafting - particularly without that being the stated goal of the exercise. The Workgroup recommendations at the end of the report should underscore the fact that more work needs to be done by the Commission and stakeholders before CEUD standards are set. The MLIG also respectfully requests that when the final report is filed with the Commission, parties are afforded the opportunity to file comments at that time.

Attachment A

(Report Redline)

I. CEUD Overview: A Balance of Interests

Nationwide, there is a growing recognition by utilities, energy efficiency advocates and government decision-makers that utilities are in possession of detailed ~~information regarding consumers'~~and potentially valuable consumer energy usage data (CEUD), whether due to advancements in metering infrastructure or merely as a function of the provision of regulated services to the public~~,~~. This data is highly sought after as a means to promote and inform energy efficiency and conservation efforts. ~~The existence of this data in the hands of utilities raises~~Responding to the growing demand for such data is an increasingly time consuming and difficult exercise for utilities. As the uses of and desire for access to this data from entities other than individual customers continues to increase and the processes employed by utilities to grant access continue to develop, important legal, policy and practical questions ~~related to~~ will continue to arise. Most if not all of these questions can be addressed only after examining a foundational issue: the appropriate balance to be ~~maintained~~struck between the privacy interests of individual consumers and the energy-savings goals of the public as a whole.

The federal government, ~~many~~several states and various public policy-related organizations have undertaken efforts to examine the relevant issues as a means of identifying best practices ~~and promoting~~that promote energy efficiency efforts while adequately guarding privacy interests.[1] In Minnesota, any delineation of the parameters of this appropriate balance must be grounded in a thorough understanding of both the rewards to be gained through data~~-~~ sharing, and the risks to be avoided.

A. Potential Rewards

While achieving greater energy efficiency is the most~~-~~ widely recognized public purpose motivating discussions of energy usage data sharing~~. With~~, it is not the only identified public benefit; reduction of greenhouse gas emissions, promotion of renewable energy and improved dissemination of public information are also key public purposes potentially served through data sharing. If provided access to historical energy usage data, individuals, businesses and government agencies can make directed efforts to reduce energy consumption, increase energy efficiencies, and reap the dual benefits of increased economic competitiveness and environmental sustainability. Minnesota has long recognized the collection and understanding of detailed energy usage data as a valuable resource for state and local public policy-making processes. Throughout the state and across the country, discussions by regulators, utilities, energy efficiency advocates, and building owners increasingly suggest that a reassessment of the processes for collection and dissemination of utility customer usage data is critical to advancing energy policy goals.

[1] ~~Add list as Appendix.~~

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B. Possible Risks

One need look no further than local newspaper reports for evidence that unauthorized disclosures of private information, whether through data breach or otherwise, have become far too common and are of general concern for consumers.[1] Unlike in most industries in which consumers can choose whether to do business with a particular company, utility customers must accept service from the provider in their assigned service territory[2] and have very limited or no market freedom to change providers in order to be assured of greater privacy protections. As such, regulatory or other decisions that affect consumers' ability to protect their private energy usage data must withstand a high level of public scrutiny.

~~Consumers have an expectation of privacy in their consumer~~The Workgroup identified several possible risks associated with CEUD disclosure. Some types of energy usage ~~data. This data reveals not only~~datasets reveal personally identifiable information of customers including name~~,~~ and address ~~and often~~linked to social security numbers,[2] ~~it also~~ the release of which presents clear risks of harm as addressed by the Commission in another proceeding.[3] Certain types of CEUD can reveal energy usage patterns from which it could be determined whether a residential property is regularly occupied, the schedules maintained by residents, and perhaps ~~identify~~ the existence of specific energy-dependent ~~devices or~~ activities or devices such as the use of medical equipment. Knowledge of this type could be combined with other publicly available information to construct a profile of a customer's activities and finances. For a commercial or industrial customer, unauthorized release ~~can present a~~was identified by Workgroup members as a possible source of competitive risk within the marketplace. For utilities, allowing unauthorized dissemination of their customer's consumption data ~~present~~presents a reputational risk, which can have both economic and political ramifications even within this regulated industry. In extreme cases, inappropriate disclosure could risk the security of the energy grid.[4]

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[1] DePass, D. (Aug. 18, 2014). "Supervalu data breach affects more than 1,000 stores nationwide." *StarTribune* Retrieved from http://www.startribune.com/business/271406571.html. See also *In the Matter of a Commission Inquiry into Privacy Policies of Rate-Regulated Energy Utilities*, Docket No. 12-1344 (Docket 12-1344), OAG'S RESPONSE TO THE OCTOBER 8, 2012 COMMENTS OF XCEL (November 5, 2012), p. 4.

[2] *See* Minn. Stat. § 216B.01, .37 and .40.

[2] ~~The Workgroup acknowledges that the protection of personally identifiable information is not within its charge, as specified in the Commission's Order dated _____.~~

[3] The Workgroup acknowledges that the protection of personally identifiable information is not within its charge, as specified in the Commission's Order dated June 17, 2013. As such, the CEUD Workgroup did not discuss or make any recommendations regarding the disclosure of personally identifiable information in connection with efforts to meet public policy goals.

[4] Utilities have established individual policies and protections to guard against risks to the energy grid. Incidents are reported to the U.S. Department of Energy's Office of Electricity Delivery and Energy Reliability, as well as the Department of Homeland Security Industrial Control Systems Cyber Emergency Response Team. The Workgroup did not discuss in detail the extent or causes of risk to the nation's energy grid.

~~While~~In light of relatively newly emerging interest in CEUD, discussions of these ~~privacy~~ risks are ~~more~~most often grounded in "what ifs" rather than factual evidence based in actual experience~~,~~. The fact that consumers' privacy expectations may be ill-defined and their disclosure fears lack concrete evidence is not determinative of their value. ~~The fact remains~~While anecdotal, relevant date indicates that consumers' privacy ~~expectation~~expectations are evolving~~.~~[3] and legitimate.[5] As the public's awareness of the value of ~~the~~an individual's consumer information is ~~increasingly strong~~increasing, the ~~demand~~need for reasonable privacy protections is ~~increasingly unified.~~ progressively included as a necessary topic of public discussion.

II. ~~Commission Authority~~

~~The Minnesota Public Utilities Commission regulates the rates of all investor-owned utilities[4] and, with respect to natural gas, large privately-owned local distribution companies.[5] Historically, the Commission has functioned primarily as a rate regulation agency. With the advancement of the public's interest and investment in energy policy goals, the Commission's purpose and scope of influence has expanded to include a rich mix of additional issues, including the present study related to consumer energy usage data.~~

~~Minnesota's regulated utilities have a statutory duty to provide reasonable service to their customers,[6] and while this duty has not yet been the subject of judicial interpretation in the context of consumers' privacy interests it may provide a sufficiently broad umbrella to encompass Commission action in this field. In addition, the Commission's statutory authority includes the following:~~

> ~~*Every public utility shall file with and as a part of the filings under subdivision 1, all rules that, in the judgment of the commission, in any*~~

[3~~5~~] Xcel Energy provided the Workgroup with the results of a February 2014 customer ~~panel/~~survey~~?~~ in which ~~consumers~~residential and small/medium business customer panels were asked to provide feedback on issues related to energy usage data access, privacy and confidentiality expectations. The results ~~represented the views of over 1,250 individuals and entities, and~~ indicated varying levels of concern related to both generalized questions and specific data sharing scenarios. For example, 24.72% of the residential and 39.73% of the business respondents reported that they were "not at all" or "mildly concerned with third parties having access to their monthly energy usage data without the customer's knowledge or consent; while 75.28% of the residential and 60.26% of the business respondents reported that they were either "slightly" or "extremely" concerned. Several Workgroup participants caution the Commission against relying too heavily on these results for any specific purpose given the limited sample size and response rate. Of the 3,900 Minnesota and Colorado customers polled, 1400 responded representing approximately 36% of the sample, which itself was only .11% of Xcel Energy's 2,630,534 electrical customer base. A complete copy of the summary report is attached as Appendix __ to this Final Report.

[4] ~~Minn. Stat. ___ [add DEA as municipal utility??]~~

[5] ~~ng cite~~

[6] ~~Minn. Stat. § 216B.04.~~

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> ~~*manner affect the service or product*, or the rates charged or to be charged for any service or product, as well as any contracts, agreements, or arrangements relating to the service or product or the rates to be charged for any service or product to which the schedule is applicable *as the commission may by general or special order direct*; provided that contracts and agreements for electric service must be filed as required by subdivision 2a.~~[7]

~~One Workgroup participant representing Xcel Energy described the common understanding of this legal framework as follows:~~

> ~~"If we charge, it's a rate. If we provide data without charge, it's a service. Both rates and service are covered by the PUC's broad authority."~~

~~That broad authority allows the Commission to regulate: (1) utility spending, including financial investments related to conservation projects; and (2) utility investment in generation resources, including fossil fuels, renewable energy sources, and others. A non-exclusive summary of the Commission's legal authorities with respect to resource planning and rate decisions follows.~~

~~Resource Decision Authorities~~

~~Resource Plans~~	~~Minn. Stat. § 216B.2422: Utilities shall file resource plans with the Commission and the Commission shall approve, modify, or reject the plan. (For cooperatives and municipal utilities, the Commission's decision is advisory.)~~
~~Renewable Energy~~	~~Minn. Stat. § 216B.1691: 15 utilities must obtain 25% renewable energy by 2025 (Xcel must obtain 30% by 2020). Under Subd. 2b, the Commission may modify or delay the percentage.~~
~~Carbon~~	~~Minn. Stat. § 216B.2422, subd. 4 requires the Commission to make a public interest determination on whether a utility's resource plan helps the utility achieve the GHG goals found in Minn. Stat. § 216H.02, subd. 1: 15 percent below 2005 levels by 2015; 30 percent below 2005 levels by 2025; 80 percent below 2005 levels by 2050.~~ ~~Minn. Stat. § 216H.06: by January 1, 2008 and annually thereafter, the Commission shall establish an estimate of the likely range of costs of future carbon dioxide regulation on electricity generation. The estimate must be used in all electricity generation resource acquisition proceedings.~~

[7] ~~Minn. Stat. § 216B.05, subd. 2 (emphasis added).~~

~~Conservation~~	~~Minn. Stat. § 216B.16, subd. 6b: the Commission approves the recovery of CIP spending. The Commission has also set conservation standards for utilities in resource plans. For example, in the recent MP resource plan, the Commission set a conservation level of 1.87 percent.~~
~~Environment~~	~~Minn. Stat. § 216B.2422, subd. 3. The Commission shall establish a range of environmental cost associated with each method of electricity generation. A utility shall use the values established by the Commission when evaluating and selecting resource options in all proceedings before the Commission.~~
	~~Rate Decision Authorities~~
~~Overall rates~~	~~Minn. Stat. § 216B.05: Every public utility shall file with the Commission schedules "showing all rates, tolls, tariffs, and charges which it has established and which are in force at the time for any service performed by it within the state…"~~
~~Rates/ practices/ standards~~	~~Minn. Stat. § 216B.09, subd. 1: The Commission may "ascertain and fix just and reasonable standards, classifications, rules, or practices to be observed and followed by any or all public utilities with respect to the service to be furnished."~~ ~~Minn. Stat. § 216B.03: "Every rate made, demanded, or received by any public utility…shall be just and reasonable."~~
~~Changes in rates (rate cases/riders)~~	~~Minn. Stat. § 216B.16, subd. 1: "Unless the Commission otherwise orders, no public utility shall change a rate which has been duly established under this chapter."~~ ~~Minn. Stat. § 216B.16, subd. 6: If, after the hearing, the Commission finds the rates to be unjust/unreasonable/discriminatory, the Commission shall determine the rates to be charged or applied by the utility. (Rate cases)~~ ~~Minn. Stat. § 216B.16, subd. 7b (et al): annual automatic adjustments of certain expenses outside of a rate case can be allowed by the Commission.~~

~~One interest represented at the Workgroup, the Large Industrial Group,~~[8] ~~respectfully questioned the Commission's legal authority to take any action with~~

[8] ~~Define~~

~~respect to the establishment or enforcement of a data-sharing standard applicable to CEUD in the hands of regulated utilities. These end-users define their energy usage data to be proprietary information releasable only with consent. Noting that they compete in a global economic marketplace, LIG explained that the amount and value of these users' energy usage has significant economic value and can easily be used for anticompetitive purposes. Every component of these users' costs of doing business is protected in most legal landscapes as trade secret or other protected data, and the take the position that the Commission has no legal authority to require them to reveal this data for the public policy purposes at issue in the present proceeding.~~

~~LIG conceded that the Commission has jurisdiction to regulate how a utility responds to a data request from its own customer or from a third party with consent from the actual customer, as a means of regulating how the utility service is provided. Positing that a third party's request for a consumer's data does not involve the provision of a utility service and so is outside the scope of the regulated process, the LIG concludes that the Commission has no legal jurisdiction with regard to the request or the response to the request. In the same vein, LIG suggests that the Commission lacks statutory or other authority to gauge the public interest supported or thwarted by a request for an end-user's CEUD made by a conservation program not included in a utility's approved CIP plan. LIG urges the Commission to further examine the line between regulated production and regular, non-regulated production.~~

~~A detailed legal memorandum setting forth the arguments in support of LIG's position is attached as Appendix __ to this Final Report. The written response submitted by Xcel Energy is attached as Appendix __.~~

~~III.~~ Procedural Background

By Order dated June 17, 2013,[~~9~~6] the Minnesota Public Utilities Commission (Commission) established a workgroup to study and make recommendations on the appropriate use, and limitations on use, of Customer Energy Usage Data (CEUD) in the possession of rate regulated energy utilities. This effort found its start in the March 5, 2012 filing of Northern States Power Company, doing business as Xcel Energy (Xcel Energy), wherein Xcel Energy sought Commission approval of a Customer Data Privacy Tariff as an amendment to ~~its~~Xcel's Electric and Natural Gas Rate Books.[~~10~~7] Xcel filed the tariff in an effort to facilitate public dialogue about what it perceived as "a critical gap in current privacy protections for Minnesota energy utility customers" and to urge the Commission to adopt generally-applicable privacy principles relating to CEUD as a means to:

[~~9~~6] Docket 12-1344, ORDER ESTABLISHING PROCEDURES FOR FURTHER COMMENT AND FOR WORKING GROUP ~~dated~~ (June 17, ~~2013.~~2013).

[~~10~~] ~~Docket no. E, G-002/M-12-188,~~[7] *In the Matter of the Petition of Northern States Power Company for Approval of a Customer Data Privacy Tariff as an Amendment to its Electric and Natural Gas Rate Books*, Docket No. E, G-002/M-12-188 (Docket 12-188), PETITION (March 5, 2012).

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- Establish clear guidance and expectations for customers, energy utilities, and third-parties;

- Ensure consistency for all Minnesota energy utility customers; and

- Facilitate appropriate access for customers and third parties seeking access to CEUD for public policy reasons."[11][8]

After the filing of comments, the matter came on for discussion before the Commission on September 13, 2012 and December 13, 2012.

On December 13, 2012, the Commission heard comments from parties and engaged in a discussion concerning Xcel Energy's proposed tariff, filed as Docket No. E,G002/M-12-188. Noting the lack of clarity with regard to the protections afforded and uses allowed with respect to CEUD, the Commission issued a *Notice of Comment Period on Customer Data Privacy* on January 8, 2013. The Commission solicited public comment on the following summarized topics related to customer data privacy practices among rate-regulated energy utilities:

1. Do current service standards provide adequate customer data privacy protection and redress for customers in the event of a data breach?

2. Should the Commission establish uniform customer data collection and privacy policies for rate-regulated utilities?

3. Should the Commission enact or prohibit certain practices immediately?

4. With the advent of 'smart grid' and increasing awareness of energy usage in general, is there a public interest in allowing greater access to customer energy usage data? If so, what would be a reasonable balance between allowing greater access and protecting customers from the risk of identity theft or privacy intrusion?

5. What issues should be included or excluded as to the scope of this proceeding?

[11] Xcel[8] Docket 12-1344, COMMENTS dated filed by Xcel Energy (January 30, 2013,2013), p. 4.

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6. A re there whitepapers, federal guidelines or other state proceedings that have addressed the topics identified in Question No. 5, which should be incorporated into this docket or possible rulemaking?[~~12~~9]

A broad mix of responders provided input to the Commission.[~~13~~10] Comments were received from regulated utilities, cooperatives, telecommunications providers, legal and privacy advocates, public policy and consumer organizations, infrastructure and market transformation groups including some that provide energy-related consulting services, the Minnesota Office of the Attorney General – Antitrust and Utilities Division (OAG-AUD) and the Minnesota Department of Commerce (MDOC). On the whole, the submitted comments revealed the important and competing interests at stake, as illustrated below,[11] and further evidenced the need to strike a fair and maintainable balance between those interests.

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[~~12~~9] *See* Docket 12-1344, NOTICE OF COMMENT PERIOD ON CUSTOMER DATA PRIVACY (January 8, 2013).

[~~13~~10] Comments were received as follows. Initial Comments: Carter, Richard; CenterPoint Energy; CenturyLink, Inc.; Citizens Telecommunications Company of Minnesota, LLC and Frontier Communications of Minnesota, Inc.; Dakota Electric Association; Fresh Energy, Minnesota Green Communities and Institute for Market Transformation; Future of Privacy Forum; Great Plains Natural Gas Co.; Interstate Power and Light Company; Legal Services Advocacy Project; Midwest Energy Efficiency Alliance; Minnesota Energy Resources Corporation; Minnesota Power; Northern States Power Company d/b/a Xcel Energy; Opower, Inc.; Otter Tail Power Company; Technology Network; and Windstream Communications, Inc. Reply Comments: Fresh Energy, the Institute for Market Transformation, ~~USGBC~~U.S. Green Building Council - Minnesota, Minnesota Green Communities, and Bright Power, Inc. and EnergyScoreCards, Inc.; Legal Services Advocacy Project; Minnesota Department of Commerce; Minnesota Large Industrial Group; Northern States Power Company d/b/a Xcel Energy; and Office of the Attorney General – Antitrust and Utilities Division. Supplemental Comments: CenterPoint Energy.

[11] The graphic was distributed at the Workgroup's initial meeting as a general guide to the policy issues raised before the Commission, only a portion of which were before the Workgroup for discussion as specified in this Final Report.

Privacy
Access
Personal Data
Account Data
Customer Energy Usage Data (CEUD)
Utility: Data Holder
Public Policy Objectives
Benchmarking
Vendor Interests

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Its review of filed comments led the Commission to issue its *Order Establishing Procedures for Further Comment and for Working Group* on June 17, 2013, wherein the Commission directed the formation of three separate tracks of inquiry focused on the following topics:

1. CEUD. The ~~current~~CEUD Workgroup was charged with studying and making written recommendations to the Commission on the appropriate use of, and limitations on, customer energy usage data given the necessary balance between customer privacy interests and Minnesota's energy goals.

2. Personally Identifiable Information (PII). PII, which includes a customer's name, address and other identity-related information, presents unique privacy interests and legal protections. In recognition of these facts, the Commission directed ~~an~~a separate effort focused specifically on the potential for development of standards for protection of PII collected by regulated utilities.[~~14~~12]

3. Red Flags Rule. This additional effort addressed the utilities' compliance with the Federal Trade Commission's "Red Flags Rule,"[~~15~~13] which seeks to prevent identify theft through the identification of certain "red flags" and the requirement that businesses, including regulated utilities, establish Identify Theft Prevention Programs designed to detect, prevent and mitigate identify theft in connection with the use and storage of PII.[~~16~~14]

This Final Report relates only to the work of the CEUD Workgroup noted above. Separate workgroups were formed to discuss PII and the Red Flags Rule, and separate reports have been submitted by those groups.[15]

On July 19, 2013, the Commission issued a notice soliciting members for the CEUD Workgroup~~ members.~~[~~17~~ 16]. By notice dated September 4, 2013,[~~18~~17] the

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[~~14~~ ~~Update re status – attach briefing papers as appendix~~12] *See* Docket 12-1344, ORDER REQUIRING UTILITIES TO ADOPT AND DOCUMENT PROCESSES REGARDING PERSONALLY IDENTIFIABLE INFORMATION AND OTHER ACTION (June 24, 2014).

[~~15~~13] *See* 16 C.F.R. § 681.1, promulgated under Section 114 of the Fair and Accurate Credit Transaction Act of 2003 (FACTA), 15 U.S.C. § 1681m(e).

[14] *See* Docket 12-1344, ORDER DETERMINING MINIMUM STANDARDS FOR GUARDING CUSTOMER DATA FROM IDENTITY THEFT (March 25, 2014).

[~~16~~ ~~Status?~~15] Relevant filings can be located in ~~a ___[date] Order, the Commission _____. 2~~the eDockets electronic filing system, accessible at https:/~~27/14 staff briefing papers – this docket~~/www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showeDocketsSearch&showEdocket=true&userType=public.

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Commission selected Chief Administrative Law Judge Tammy L. Pust, Minnesota Office of Administrative Hearings, to manage the Workgroup meetings and submit the written report of the proceedings. The Commission identified eight meeting dates within which the Workgroup was expected to complete its discussions and published a list of approved Workgroup participants and observers.[~~19~~18] The members of the Workgroup represented a broad range of interests including utilities, state agency staffs, environmental and customer advocacy organizations, local government, and other interested parties. The full list included representatives from:

- Building Owners and Managers Association
- Center for Energy and the Environment
- CenterPoint Energy
- City of Minneapolis
- Dakota Electric Association
- Department of Commerce
- Fresh Energy
- Great Plains Natural Gas
- Institute for Market Transformation
- Interstate Power & Light
- Midwest Energy Efficiency Alliance (MEEA)
- Minnesota Energy Resources Corporation
- Minnesota Large Industrial Group
- Minnesota Power
- Minnesota Valley Electric Cooperative
- National Federation of Independent Business
- Office of Attorney General – Antitrust and Utilities Division
- OPower
- Otter Tail Power
- U.S. Green Building Council – MN (USGBC-MN)
- Xcel Energy
- ~~Commissioner~~ Phyllis Reha, ~~MPUC~~consultant with PAR Energy Solutions LLC

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[~~17~~16] Docket 12-1344, NOTICE SOLICITING CUSTOMER ENERGY USAGE DATA (CEUD) WORKGROUP MEMBERS ~~*In the Matter of a Commission Inquiry into Privacy Policies of Rate-Regulated Energy Utilities*, dated~~ (July 19, ~~2013.~~2013).

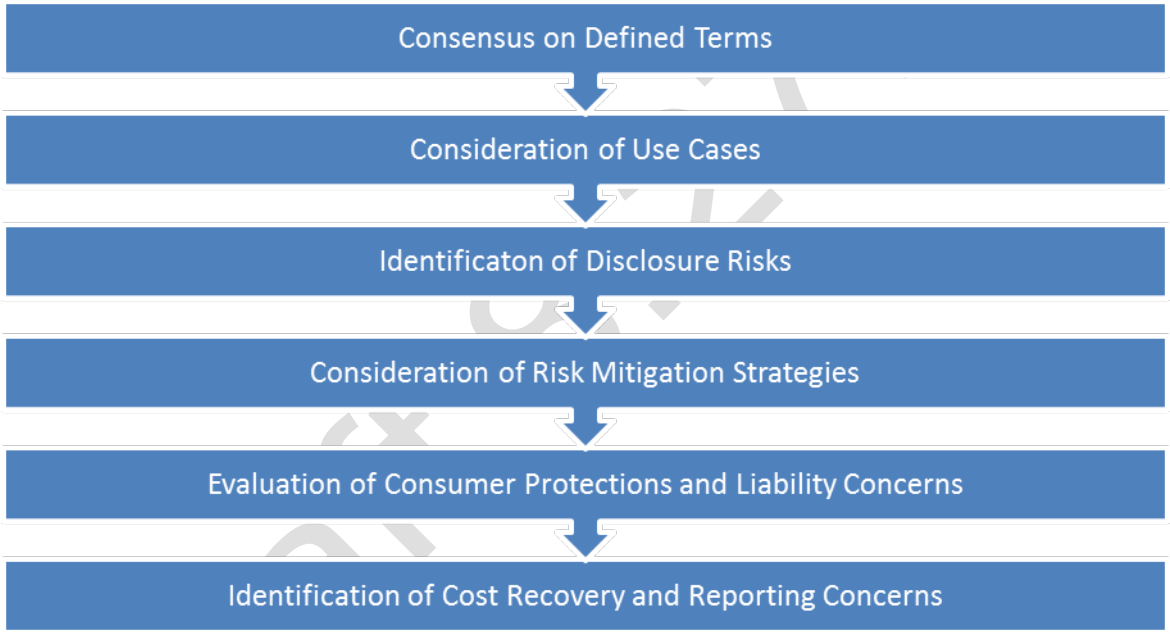
[~~18~~17] Docket 12-1344, NOTICE OF CUSTOMER ENERGY USAGE DATA (CEUD) WORKGROUP SCHEDULING AND PROCESS~~, dated~~ (September 4, ~~2013.~~2013).

[~~19~~18] ~~See Appendix ___~~ *Id*.

Collectively, these members represent decades of expertise in matters related to utility operations and oversight~~,~~ as well as in public policy development ~~related to~~regarding the energy efficiency interests of both the industry and the public.

The Commission provided the CEUD Workgroup with a comprehensive, non-exclusive list of issues upon which recommendations were ~~requested/~~required.[~~20~~19] Following its initial review of the most recent studies and publications representing national and state-specific efforts to address relevant issues,[~~21~~20] the Workgroup developed a process plan to guide its work. The plan focused the Workgroup's discussion on specific, ~~over-arching~~overarching topics and, in doing so, attempted to include each of the Commission's identified interest areas as a focus of consideration within the context of the broader discussion.

Workgroup Process Plan

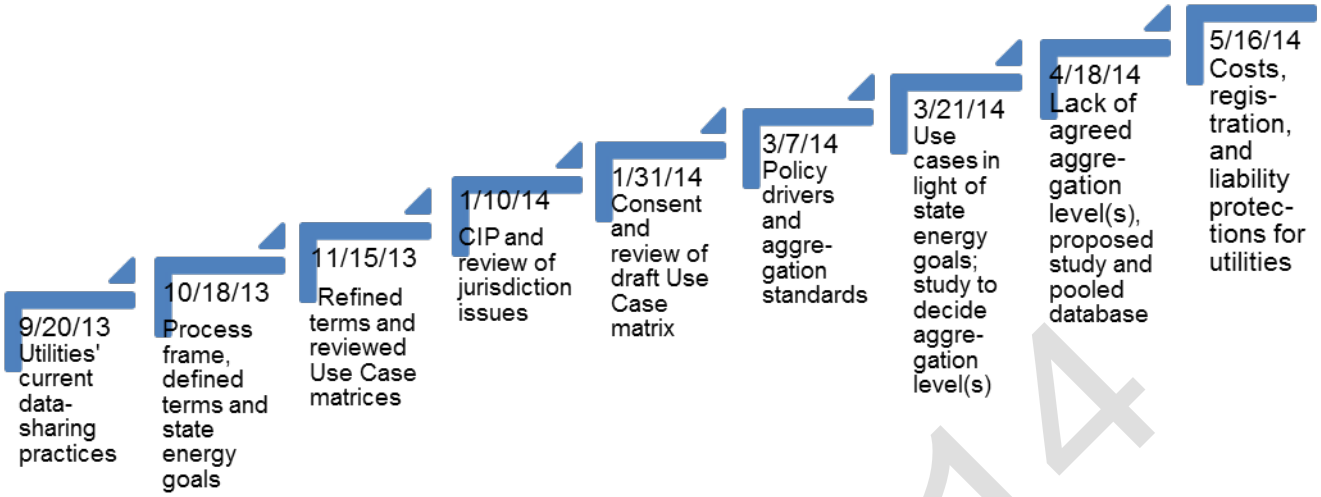


The CEUD Workgroup met for two-hour sessions on nine occasions: September 20, 2013; October 158, 2013; November 15, 2013; January 7, 2014; January 31, 2014; March 7, 2014; March 21, 2014; April 18, 2014; and May 16, 2014. In its meetings~~,~~ it addressed the following general topics.

Timeline and Focus of Workgroup Discussions

[~~20~~19] See Appendix __.

[~~21~~ ~~See Appendix C~~20] A list of the publications provided to and reviewed by the Workgroup is attached as Appendix __ to this Final Report.



A subcommittee of all available Workgroup members participated in several telephone conference calls on December 11, 2013, January 14, 2014, April 2, 2014, May 21, 2014 and July 8, 2014. Participants discussed the identified Use Cases and attempted to flush out the parameters of various proposals as noted below.

Each meeting commenced with a period available for public comment. Commission staff attended the meetings, provided input when appropriate and administered the electronic posting of all meeting agendas, minutes, and written documents submitted for the Workgroup's consideration. ~~Copies~~Though minutes were posted for review, CEUD Workgroup members did not formally review or approve minutes from each meeting. Copies of all meeting minutes are available ~~at https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=eDocketsResult&userType=public~~online[21] and attached in Appendix ___ to this Final Report.

III. Commission's Regulatory Authority

As a threshold matter, the Workgroup discussed the Commission's legal authority to regulate third-party access to CEUD. Many Workgroup members, including but limited to Xcel Energy, noted that the Commission has broad authority to regulate the reasonableness and standards of utility service. These members concluded that action on appropriately aggregated and anonymized CEUD would be within the Commission's grant of authority. Others disagreed. While no participants questioned the Commission's role in setting rules for utilities to follow with regard to their own customers, the Minnesota Large Industrial Group (MLIG),[22]

[21] Copies are available at https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=eDocketsResult&userType=public.

[22] MLIG is an ad-hoc consortium of large industrial users of electric energy in Minnesota, spanning multiple utilities and spending in excess of $350 million annually. See Docket 12-1344, [insert filing name and date]

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in particular, sought to better understand from where the Commission would draw authority to mandate release of customer information, even if aggregated, to third-parties not subject to the Commission's jurisdiction, and to identify how utilities or others would seek redress in appropriate circumstances through existing Commission processes.

A. Commission's[23] Existing Statutory Authority

The Commission's authority is set forth in state statute:

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[23] Although this Final Report focuses on the statutory authority of the Commission as directed in the originating Order, the Commission is not the only state level agency with regulatory authority affecting CEUD. As discussed in detail in section ___ of this Final Report, the Minnesota Department of Commerce has broad authority under state legislation to collect customer energy usage data for the purposes of maintaining "an effective program of collection, compilation, and analysis of energy statistics." in order "to insure a central state repository of energy data and so that the state may coordinate and cooperate with other governmental data collection and record-keeping programs." Minn. Stat. § 216C.17, subd. 1.

> The commission, on its own motion or upon complaint and after reasonable notice and hearing, may ascertain and fix just and reasonable standards, classifications, rules, or practices to be observed and followed by any or all public utilities with respect to the service to be furnished.[24]

The term "service" appears in the definitions section of Chapter 216B, and is defined to mean "natural, manufactured, or mixed gas and electricity; the installation, removal, or repair of equipment or facilities for delivering or measuring such gas and electricity."[25]

Under the authority of Minnesota Statutes Chapters 216A and 216B, the Commission regulates the rates of all investor-owned utilities and, with respect to natural gas, large privatelyowned local distribution companies.[26] The Commission's purpose and scope of influence includes a rich mix of issues including reliability, rates, energy efficiency, renewable energy, service quality, resource planning and others. While the topic of CEUD sharing relates to many of Minnesota's statewide energy policy goals, the scope of work addressed in this CEUD Workgroup was limited to how such data sharing relates to the achievement of the state's energy conservation and efficiency policy goals. While the Commission has broad authority to regulate rates and services[27] and its scope of influence may be growing as the public demands more or new things from its energy sector, the Commission's activities are bounded by its statutory limits.[28]

Minnesota's regulated utilities have a statutory duty to provide reasonable service to their customers.[29] While this duty has not yet been the subject of judicial interpretation in the context of consumers' privacy interests, it may provide a sufficiently broad umbrella to encompass Commission action in this field. The Commission's statutory authority includes the following directives:

> *Every public utility shall file with and as a part of the filings under subdivision 1, all rules that, in the judgment of the commission, in any manner affect the service or product*, or the rates charged or to be charged for any service or product, as well as any contracts, agreements, or arrangements relating to the service or product or the rates to be charged for any service or product to which the schedule is applicable *as the commission may by general or special order direct*;

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[24] Minn. Stat. § 216B.09.

[25] Minn. Stat. 216B.02, subd. 6.

[26] Minn. Stat. §§ 216B.01 - .02; 216B.025 - .026.

[27] *See* e.g. *Hoffman v. Northern States Power Co.*, 764 N.W.2d 34, 44 (2009) ("The MPUC further enjoys broad power to 'ascertain and fix just and reasonable' policies for all public utilities.")

[28] *See Peoples Natural Gas Co. v. Minn. Public Utilities Comm'n*, 369 N.W.2d 530, 534 (Minn. 1985).

[29] Minn. Stat. § 216B.04.

provided that contracts and agreements for electric service must be filed as required by subdivision 2a.[30]

Workgroup participants agreed that the Commission's broad authority allows it to regulate: (1) utility spending, including financial investments related to conservation projects; and (2) utility investment in generation resources, including fossil fuels, renewable energy sources, and others. A non-exclusive summary of the Commission's legal authorities with respect to resource planning and rate decisions follows.

Resource Decision Authorities

Resource Plans	Minn. Stat. § 216B.2422: The Commission sets conservation standards for utilities in integrated resource plans. (For cooperatives and municipal utilities, the Commission's decision is advisory.)
Renewable Energy	Minn. Stat. § 216B.1691: 15 utilities must obtain 25% renewable energy by 2025. (Xcel must obtain 30% by 2020). The Commission may modify or delay the percentage.
Carbon	Minn. Stat. § 216B.2422, subd. 4: The Commission is required to make a public interest determination on whether a utility's resource plan helps the utility achieve the greenhouse gas (GHG) reduction goals found in Minn. Stat. § 216H.02, subd. 1: 15 percent below 2005 levels by 2015; 30 percent below 2005 levels by 2025; and 80 percent below 2005 levels by 2050. Minn. Stat. § 216H.06: Annually the Commission establishes an estimate of the likely range of costs of future carbon dioxide regulation on electricity generation. The estimate must be used in all electricity generation resource acquisition proceedings.
Conservation	Minn. Stat. § 216B.16, subd. 6b: The Commission approves the recovery of CIP spending and sets conservation standards for utilities in resource plans.
Environment	Minn. Stat. § 216B.2422, subd. 3: The Commission establishes a range of environmental costs associated with each method of electricity generation. Utilities must use the values established by the Commission when evaluating and selecting resource options in all proceedings before the Commission.

[30] Minn. Stat. § 216B.05, subd. 2 (emphasis added).

Rate Decision Authorities	
Overall rates	Minn. Stat. § 216B.05, subd. 1: Every public utility shall file with the Commission schedules "showing all rates, tolls, tariffs, and charges which it has established and which are in force at the time for any service performed by it within the state…"
Rates/ practices/ standards	Minn. Stat. § 216B.09, subd. 1: The Commission may "ascertain and fix just and reasonable standards, classifications, rules, or practices to be observed and followed by any or all public utilities with respect to the service to be furnished." Minn. Stat. § 216B.03: "Every rate made, demanded, or received by any public utility…shall be just and reasonable."
Changes in rates (rate cases/riders)	Minn. Stat. § 216B.16, subd. 1: "Unless the Commission otherwise orders, no public utility shall change a rate which has been duly established under this chapter." Minn. Stat. § 216B.16, subd. 6: If, after the hearing, the Commission finds the rates to be unjust or unreasonable, the Commission shall determine the rates to be charged or applied by the utility. Minn. Stat. § 216B.16, subd. 7b: Annual automatic adjustments of certain expenses outside of a rate case can be allowed by the Commission.

B. Scope of Commission's Authority: Participants' Divergent Views

While many participants agreed that these cited authorities provided the Commission with sufficient jurisdiction to regulate the sharing of CEUD, others did not. As such, the Workgroup did not reach consensus on whether these statutes provide a sufficiently clear grant of authority on the jurisdictional issues present in this docket.

An Xcel Energy representative described the widely-held understanding of this legal framework as follows:

> "If we charge, it's a rate. If we provide data without charge, it's a service. Both rates and service are covered by the PUC's broad authority."[31]

[31] Docket 12-1344, Comment of Xcel Energy representative at January 10, 2014 Workgroup meeting.

The majority of Workgroup participants agreed[32] that the regulation of CEUD sharing was sufficiently included within the Commission's broad authority to regulate: (1) utility spending, including financial investments related to conservation projects; and (2) utility investment in generation resources, including fossil fuels, renewable energy sources, and others. A memorandum authored by Xcel Energy and addressing these views is attached as Appendix ___ to this Report.

MLIG was not in agreement with this view. On behalf of its end-users, MLIG respectfully asserted that its members' energy usage data is proprietary information releasable only with explicit consent. Highlighting the fact that in some cases MLIG members are direct competitors and barred from sharing individual company data due to antitrust concerns, and noting that its members compete in a global economic marketplace, MLIG explained that CEUD has particular value for energy-intensive industries. The Workgroup participant expressed the large industrial customers' fears that CEUD could be combined with other publicly available information to closely approximate the costs of production for a particular plant - something a competitor could use to gain market share at the expense of the exposed company. Further, MLIG explained that misuse of an industrial customer's CEUD by a competing industry would most likely go unnoticed until the financial injury was severe, the customer had lost significant market share, and redress had become very difficult. Positing that a third party's request for a consumer's data does not involve the provision of a utility service and so is outside the scope of the regulated process, MLIG questioned the Commission's existing jurisdiction with regard to actions involving the release of CEUD to third parties. A legal memorandum setting forth MLIG's position is attached as Appendix __ to this Final Report.

In its filing in Xcel Energy's initial tariff-related proceeding, the MDOC, raised for the Commission's consideration issues related to the primary jurisdiction doctrine.[33] The Commission may choose to reexamine that analysis in light of the questions posed in the current docket

In this Final Report, the Workgroup does not seek to provide a legal analysis regarding the raised jurisdictional issues, as such efforts are outside the scope of the Workgroup's assigned tasks. Thus, these important matters remain for the Commission's future study and conclusion.

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[32] Specific agreement was noted by Xcel Energy, USGBC-MN, Fresh Energy, MEEA, the City of Minneapolis, and the Center for Energy and Environment.

[33] Docket 12-188, DEPARTMENT OF COMMERCE REPLY COMMENTS (November 5, 2012).

IV. Public Energy Goals in ~~Minnesota~~Relationship to CEUD

A. Energy-Related Public Policy Goals

1. Minnesota's Energy Goals: CIP and Beyond

~~Minnesota~~Although Minnesota has no state law or other mandated standards specifically directing the release of CEUD to fulfill public energy goals,[34] the state has a long-standing commitment to energy conservation and efficiency and a record of innovative efforts designed to achieve these goals. From the creation of the state's Energy Information Program beginning in ~~1982~~[22]1980[35] to the passage of the Next Generation's Energy Act (NGEA) in 2007[23]36 and legislative ~~enactments~~amendments that have followed annually,[24]37 Minnesota has both a rich history and current commitment to energy efficiency initiatives. The state's overall energy savings policy goal is statutorily defined as follows:

> The legislature finds that energy savings are an energy resource, and that cost-effective energy savings are preferred over all other energy resources. The legislature further finds that cost-effective energy savings should be procured systematically and aggressively in order to reduce utility costs for businesses and residents, improve the competitiveness and profitability of businesses, create more energy-related jobs, reduce the economic burden of fuel imports, and reduce pollution and emissions that cause climate change. Therefore, it is the energy policy of the state of Minnesota to achieve annual energy savings equal to at least 1.5 percent of annual retail energy sales of electricity and natural gas through cost-effective energy conservation improvement programs and rate design, energy efficiency achieved by energy consumers without direct utility involvement, energy codes and appliance standards, programs designed to transform the market or change consumer behavior, energy savings resulting from efficiency improvements to the utility

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[34] Docket 12-1344, REPLY COMMENTS OF OAG-AUD (February 20, 2013), p. 3; *citing* earlier filed Comments of Otter Tail Power at 3 and Comments of Xcel Energy at 3-4.

[22] ~~The 1980 Minnesota Legislature recognized that the "state has a vital interest in providing for: increased efficiency in energy consumption, the development and use of renewable energy resources wherever possible, and the creation of an effective energy forecasting, planning and education program." [Add proper cite… *1980 c 579 s 18; 1980 c 614 s 123; 1981 c 356 s 182,248; 1982 c 561 s 4;*]~~[35] *See* 1980 Minn. Laws, Ch. ~~579, § 4. [something existed in 1979…?] 116H~~571, sec. 18.

[23]36 2007 Minn. ~~Stat. § 216B~~Laws, Ch. 136, Art.~~241??~~ 1.

[24] ~~Reference~~[37] Most recently, in 2013 ~~energy policy act. In 2013,~~ Minnesota enacted legislation requiring the state's large utilities to meet a 1.5 percent solar electricity standard by 2020, a requirement that is in addition to the 25 percent renewable mandate by 2025. *See* 2013 Minn. Laws Ch.85, Art. 10, Sec. 3.

infrastructure and system, and other efforts to promote energy efficiency and energy conservation.[25][38]

Consistent with this goalstatutory charge, Minnesota has established an energy savings goal for each electric and natural gas utility equal to at least 1.5 percent of annual retail energy sales. These annual targets support the state's broader goals of reducing per capita fossil fuel use by 15 percent by 2015 and requiring that 25 percent of the total energy used in the state be derived from renewable energy resources by 2025.[26][39] These goals go hand-in-hand with the state's directive to reduce greenhouse gas (GHG) emissions to a level at least: 15 percent below 2005 levels by 2015; 30 percent below 2005 levels by 2025 and 80 percent below 2005 levels by 2050.[27][40]

A. **Energy Conservation Improvement Program**

In addition, sixteen utilities[41] are subject to Minnesota's Renewable Energy Standard which sets, for each utility, a required percentage of retail sales comprised of renewable energy.[42] Each year, these utilities submit filings related to their renewable energy mix. The Commission reviews, approves or modifies submitted plans in reference to statutory requirements, the state's GHG reduction goals and the public interest.[43]

Minnesota'sThe state seeks to achieve all of these energy-related goals through the concurrent use of several tools and strategies, the most primary of which is the Conservation Improvement Program (CIP). CIP is aMinnesota's utility-administered program provided regulatory oversight by the Minnesota Department of Commerce, Division of Energy Resources (DER). Enacted over 30 years ago, CIP originally required Minnesota's investor-owned and municipal/cooperative natural gas and electric utilities to annually dedicate a portion of their gross operating revenues on projects designed to reduce the consumption of electricity and natural gas. Utilities collected CIP funds as a surcharge on utility rates and spent the funds to provide consumers with financial incentives to purchase energy efficient products or obtain home energy audits, as well as on consumer education plus research and development.[28] With the

[25][38] Minn. Stat. § 216B.2401.

[26][39] Minn. Stat. § 216C.05.05, subd. 2.

[27][40] Minn. Stat. § 216H.02, subd. 1.

[41] This total includes four investor-owned utilities (Xcel Energy, Minnesota Power, Otter Tail Power, and Interstate Power & Light) plus ten generation and transmission cooperatives and municipal power agencies.

[42] The term "renewable energy" means "electricity generated through use of: wind; solar; geothermal; hydro; trees or other vegetation; landfill gas; or other predominantly organic components of wastewater effluent, sludge, or related by-products from publicly owned treatment works, not including incineration of wastewater sludge." Minn. Stat. § 216B.2422, subd. 1(c).

[43] Minn. Stat. § 216B.2422, subd. 2.

[28] Evaluation Report Summary of the Office of the Legislative Auditor, Energy Conservation Improvement Program, dated January 2005.

passage of the NGEA in 2007, Minnesota established, ratepayer-funded energy efficiency resource standard for electric and natural gas utilities. While CIP was originally enacted as a spending requirement over 30 years ago, the 2007 passage of the NGEA incorporated into CIP an annual energy savings goal of 1.5 percent of average retail sales for electric and natural gas utilities beginning in 2010. Legislation passed in 2009 established an interim savings goal of 0.75 percent over 2010-2012 for qualifying natural gas utilities.[29] To meet these goals, utilities integrated resource plans with the DER at least every three years, and annually report their actual CIP spending and achieved savings; the requirement took effect in 2010.[44] CIP is currently the largest energy efficiency and conservation program in the state.

CIP currently regulates elevenAll investor-owned, municipal, and cooperatives utilities in Minnesota must comply with the CIP statutes.[45] Minnesota currently has four gas, two electric, and two combined gas and electrics investor-owned utilities (representing 66 percent of electricity sales and the majority of gas sales in the state), 44 distribution cooperatives (twentyconsisting of 20 percent of electricity sales), and 130 municipal utilities (fourteenaccounting for 14 percent of electricity sales).[30][46] Each electric and natural gas utility develops its own conservationCIP plan, offering a variety of programs to assistprovide residential and business customers become more energy efficient. Special programs that specifically meet the needs of low-income customers are also required by statute, including the mandate that utilitiesconsumers with financial incentives to purchase energy efficient products and other services to educate customers and help reduce energy consumption.[47] Each investor-owned utility files its CIP plan with the MDOC[48] at least every three years and an annual report of actual CIP spending and achieved energy savings; municipal and cooperative utilities file CIP plans and report performance annually. The CIP statute mandates that each utility invest .2% (electric) and .4% (natural gas) [of _____] on low-income programs.of its residential gross operating revenue on low-income programs. The statute also authorizes MDOC to assess utilities in support of research and development efforts.[49] MDOC currently administers a $3.6 million research and grant fund through which it manages over 65 research grants investigating technologies and strategies to achieve the state's energy savings goals.

Typical CIP-Approved Projects

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[29] 2009 Laws Ch. 110, Art. __, Sec. 32.

[44] Legislation passed in 2009 established an interim savings goal of 0.75 percent over 2010-2012 for qualifying natural gas utilities. *See* 2009 Laws Ch. 110, Sec. 32.

[45] Minn. Stat. § 216B.241.

[30][46] Cite to website

[47] Investor-owned utilities collect CIP funds as a surcharge on utility rates and spend the funds to provide CIP programs. Non-rate regulated utility practices may vary.

[48] CIP is administered by the MDOC's Division of Energy Resources.

[49] Minn. Stat. § 216B.241 subd. 1e.

In addition to CIP, many statewide energy savings efforts are housed within the MDOC, including:

Residential Customers	Commercial or Industrial Customers
• Energy audits, where a trained energy consultant examines your home and offers specific advice on energy improvements.	• Rebates for high efficiency boilers, chillers, and rooftop units
• Rebates on high efficiency heating, cooling, and water heating appliances	• Rebates for high efficiency lighting and lighting control systems
• Air-conditioner cycling programs, which allow the utility to manage its peak energy demand in return for discounted electric bills for participating customers	• Rebates for high efficiency motors and drives
• Compact fluorescent lighting rebates	• Building-recommissioning studies
• Low-flow showerhead rebates, which serve a dual purpose by conserving water and the energy needed to heat the water.	• Manufacturing process improvements that reduce energy intensity and improve productivity

CIP also directs efforts toward meeting the energy-efficiency needs of consumers, state agencies, local units of government, researchers, utility vendors and energy-efficiency program implementers, and trade allies. As part of this work, CIP administers a $3.6 million research and grant fund through which it manages over 65 research grants designed around achieving the state's energy savings goals. Many of these research projects use energy usage data, at various levels of aggregation, to inform the subject projects.

- Federal Weatherization Assistance Program - assists low-income families improve their homes' energy efficiency;

- Minnesota's regulatory framework[31] built to support the state's energy efficiency goals does not rely solely on cost-recovered investments in CIP-related projects. In addition, the state: has invested in the development of building design guidelines such as the Sustainable Building 2030 standards and others,[32] Guaranteed Energy Savings Program - provides technical, contractual and financial assistance to state agencies, local government units, school districts, and institutions of higher learning that elect to implement energy efficiency and renewable energy

[31] Cite somewhere to Rule 7690

improvements through energy savings performance contracts;[50] authorized local and state agencies to participate in the Guaranteed Energy Savings Program and required reporting of energy usage in all state buildings for the use in benchmarking toward a goal of reducing energy consumption by 20 percent;[33]

- Sustainability Building 2030 program - develops sustainable building design guidelines that are mandatory for all new buildings receiving funding from the specified bond proceeds;[51]

- Buildings, Benchmarking, and Beyond (B3) - a required energy benchmarking tool for reporting the energy usage in all state buildings as a means to measure progress toward a goal of reducing energy consumption by 20 percent;[52] supports municipal sustainability initiatives including the Green Star Award Expansion/ "Green Step Cities" and the Regional Indicators Initiative;[34]

- Alternative Conservation Improvement Programs delivered by third party providers of approved services;[53] and

- Energy Conservation Information Center - provides specific energy information to consumers about how to save home energy through affordable conservation and efficiency improvements.[54]

The Commission and the MDOC are not the only state agencies with efforts directed toward achieving the state's energy savings goals. The Minnesota Pollution Control Agency (MPCA) is responsible for regulation of air quality, water quality, waste reduction, and broad sustainability efforts, many of which directly relate to achievement of the statewide energy efficiency policy goals including: Green Star Award Expansion;[55] GreenStep Cities;[56] Regional Indicators Initiative;[57]

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[32][50] *See* Minn. Stat. §§§ 16B.325, subd. 1; 216B.241, subd. 9. Executive9; Exec. Order 11-13 (2011).

[51] *Id.*

[33][52] *See* Minn. Stat. §§ 16B.325, subd. 1; 216B.241, subd. 9.9; 2001 Minn. Laws, Ch. 212, Art. 1, Sec. 3.

[53] See Minn. Stat. § 216B.241, subd. 1b(i).

[54] Minn. Stat. § 216C.11.

[55] *See* Minn. Stat § 114C.25.

[56] Under its general authority, MPCA participates in GreenStep Cities, a voluntary program that provides a pathway to help cities achieve their sustainability goals through implementation of best practices focused on cost savings, energy use reduction, and innovation. See http://greenstep.pca.state.mn.us/.

is revising residential and commercial building code standards to surpass the minimums required by the American Recovery and Reinvestment Act of 2009;[35] and continues to promote building certification programs such as Energy Star, Leadership in Energy and Environmental Design (LEED), or Green Globes.[36]and the Clean Air Minnesota Initiative.[58] Also, the Minnesota Department of Labor and Industry recently revised residential and commercial building code standards as part of its process of adopting the standards set in the 2012 International Energy Conservation Code, an effort identified in Minnesota law as a means to achieve energy efficiency and conservation goals.[59]

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[34][57] 2008 Minn. Laws, Ch. 356, Sec. 13.

[35] Cite to something on DOLI website.

[58] *See* MPCA description of current status at http://www.pca.state.mn.us/index.php/view-document.html?gid=21043 and at http://environmental-initiave.org/projects/clearn-air-minnesota.

[36][59] See Minn. Stat. § 216B.241, subd. 1f(c).,2401.

~~B. **Minnesota's Renewable Energy Standard**~~

~~Sixteen utilities[37] are subject to Minnesota's Renewable Energy Standard (RES), which sets, for each utility, a required percentage of retail sales comprised of renewal energy. Each year, these utilities submit filings related to their renewable energy mix in light of required standards.[38] The Commission reviews, approves or modifies submitted plans in reference to statutory requirements, the state's GHG reduction goals and the public interest.[39]~~

2. ~~C.~~ Local Energy Goals

In February 2013, the City of Minneapolis became the first Midwestern city[~~40~~60] to adopt an energy benchmarking[61] and disclosure ordinance.[~~41~~62] The Minneapolis ordinance was passed as a means of implementing the City's goal to reduce citywide GHG by 15 percent by 2015 and 30 percent by 2025, as compared to a 2006 baseline. One~~ component~~ of the City's ~~plan~~strategies to meet ~~its emissions reductions~~these goals focused on achieving 20 percent energy efficiency in commercial~~/industrial~~ and residential buildings by ~~2025; these buildings had accounted for 46 percent of the citywide emissions in 2010.[42]~~20 and 15 percent, respectively, by the year 2025.[~~6~~3]

The Minneapolis ordinance applies only to buildings that include at least 50,000 square feet of commercial space. ~~Covered~~ Buildings subject to the ordinance are required to annually benchmark both energy and water use using the Energy Star Portfolio Manager tool. The City ~~required~~requires public disclosure of reported results in an effort to provide public transparency and utilize market forces to build energy performance awareness and motivate investment in energy efficient improvements as a means of improving market competitiveness.

The City began benchmarking certain public buildings on June 1, 2013, and recently reported that participating public buildings were responsible for 3 percent

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~~[37] This total includes four investor-owned utilities (Xcel energy, Minnesota Power, Otter Tail Power, and Interstate Power & Light) plus ten generation and transmission cooperatives and municipal power agencies.~~

~~[38] The Midwest Renewable Energy Tracking System (MRETS) is the exclusive tracking system utilized for this purpose. MRETS is a system which converts energy generated into Renewable Energy Credits (RECs) and provides a calculation of the amount of RECs retired by a utility during a specific plan year based on the utility's renewable portfolio.~~

~~[39] Minn. Stat. § 216B.2422, subd. 2.~~

[~~40~~60] The following cities have already enacted similar ordinances: New York, NY; Philadelphia, PA; San Francisco, CA; Seattle, WA; Austin, TX; Boulder, CO; and Washington, D.C.

[61] The term "benchmarking" refers to the collection of current energy usage data for the purpose of measuring future reductions.

[~~41~~62] Minneapolis Ordinance 47.190, enacted February 8, 2013.

[~~42~~63] These buildings accounted for 46 percent of the citywide emissions in 2010. *City of Minneapolis 2012 Benchmarking Report: Public Buildings*~~, dated~~ (November ~~2013, at~~2013), p. 1.

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of citywide greenhouse gas emissions (149,000 metric tons of CO2e emissions of a total of 4.9 million metric tons citywide in 2012).[43][64] Commercial buildings of 100,000 square feet or more are required to commence benchmarking on June 1, 2014, while commercial buildings with 50,000 to 100,000 square feet will start benchmarking on June 1, 2015.[44][65]

While Minneapolis was the first Minnesota city to adopt a benchmarking ordinance, it likely will not be the last. In its *Thrive MSP 2040* long-range plan adopted in May 2014,[66] the Metropolitan Council recognized the importance of its taking a more active role in assisting local governments reduce their contributions to GHG and increase theirefficient use of energy efficiency. Many members of the Workgroup predictspredicted that other local governments willmay begin to follow Minneapolis on this path, which efforts may in turn increase the need for Commission actiondemand for more readily available CEUD.

In addition to building benchmarking, the City of Minneapolis and at least 21 other cities in Minnesota have been tracking community-wide energy and GHG data for many years.[67] This tracking allows local governments to understand and communicate with residents about impacts, set local goals, and track progress in meeting the state's goals to increase energy efficiency and reduce reliance on fossil fuels. Workgroup members repeatedly cited difficulties with local government data collection efforts given utilities' disparate data distribution practices, and discussed the negative programming impacts that could result if the Commission adopts more restrictive approaches to data access.

3. D. Regional and National Efforts

The U.S. Department of Energy (DOE) has directed significant resources toward the issues related to data sharing. Its publication titled *Data Access and Privacy Issues Related to Smart Grid Technologies*, dated October 5, 2010, recommended increasing public education and affording appropriate protections to detailed energy consumption information, noting: "While utilities need access to this energy consumption data for operational purposes, both residential and commercial consumers should be able to access their own energy consumption data and decide whether to grant access to third parties."[68]

Working in partnership as part of the U.S. Department of EnergyData Accelerator Project sponsored by DOE's Better Buildings Alliance, Xcel Energy and

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[43][64] *Id.*

[44][65] Minneapolis Ordinance 47.190

[66] Relevant information is accessible at http://www.metrocouncil.org/Planning/Projects/Thrive-2040.aspx

[67] See "Minneapolis Use Case Comments March 2014" and email submitted by Rick Carter of LHB Architects and Use Cases 5, 6 and 7.

[68] U.S. Department of Energy, DATA ACCESS AND PRIVACY ISSUES RELATED TO SMART GRID TECHNOLOGIES (October 5, 2010), p. 3.

the City of Minneapolis have entered into a voluntary agreement to ~~explore the use of advanced aggregated data collection practices in order to jointly promote energy benchmarking for large buildings.~~ develop a tool for building owners and managers to gain access to aggregated, whole-building CEUD, at aggregation levels determined by the partnership. This two-year pilot project is intended to ~~identify best practices for making energy usage data more readily available to~~result in the development of a tool for building owners to gain access to whole-building aggregated data. The project partners acknowledge the Commission's lawful authority to review and approve any proposed data~~-~~ sharing practices that implicate changes to existing regulation and welcome the Commission's input and suggestions as the project develops.

The DOE has also commissioned a study on methodologies for aggregating building level energy usage data. The study is being conducted by the Pacific Northwest National Laboratory, managed by the DOE's Energy Office of Science. ~~Although the Workgroup expected~~It is expected to provide valuable information on aggregation thresholds and other privacy protection strategies self-imposed by participating utilities across the nation. Although preliminary information ~~from this study~~was initially expected in late 2013, current estimates now tag the release date to late 2014.

B. CEUD Sharing as a Tool for Achieving Policy Goals: Pros and Cons

1. Arguments for Increased CEUD Sharing

Many Workgroup participants identified examples of programmatic efforts wherein broader or easier access to CEUD would directly serve the public policy objectives identified above. According to these discussions, CEUD is used by state agencies, utilities, efficiency implementation vendors, researchers working to identify innovative programs or technologies, program developers implementing energy efficiency, environmental advocates, and others to achieve increased energy efficiency and conservation through direct and indirect utility involvement. On behalf of the proponents of this view, the MDOC identified the following purposes served by increased access to CEUD is an important tool for furthering energy efficiency goals and policies.

1. Baseline establishment and goal setting – Management of energy usage requires measurement. Whether accessed by a consumer, third party, government unit, researcher or other stakeholder, CEUD is valuable to establishing a baseline of electric and natural gas consumption and demand. Without establishing a baseline, it is nearly impossible to set realistic goals for improvement at the customer, local, state, regional or national level.

2. Engagement and awareness – Often, consumers and other energy conservation stakeholders do not have sufficient knowledge of how energy is consumed, billed or conserved. CEUD can be used to effectively engage consumers and stakeholders for the purpose of increasing critical awareness and advancing energy efficiency project implementation.

3. Program planning and implementation – CEUD can be, and currently is, used to inform the development and planning of efficiency programs ensuring that efforts developed meet the needs of state energy policy goals and of the market. In aggregate form, CEUD can help define and establish performance metrics for programs that are not directly related to utility efficiency activity.

4. Measurement and verification of energy savings – CEUD is critical to ensuring energy efficiency projects are actually achieving the goals set for achievement. Measurement and verification can occur at the individual customer level as well as in the aggregate in order to ensure that projects and programs are achieving claimed energy savings and to justify further expenditures relating to energy efficiency projects.

In summary, the proponents of this view within the Workgroup identified data sharing as a necessary and effective tool for achieving public policy goals linked to increased energy efficiency. Defining energy efficiency as a compelling and overarching public interest, these Workgroup members concluded that the appropriate balance between customer expectations of privacy and broader data sharing should tip in favor of greater access to CEUD.

2. Arguments Against Increased CEUD Sharing

Other Workgroup participants, including the OAG-AUD and the MLIG, noted that Minnesota's statutory goals related to energy conservation and efficiency should not be considered apart from the specific programs authorized by the legislature to meet those goals. These Workgroup members asserted that the legislature's policy of achieving annual energy savings equal to at least 1.5 percent of annual retail energy sales does not require or authorize utilities to disclose customers' energy usage information to unregulated, outside entities simply because those entities purport to promote energy conservation and efficiency. Rather, these participants asserted that the legislature has provided several regulatory tools — including CIP and other conservation improvement programs, the renewable energy standard, and the resource planning process — to effectuate the policy goals of promoting conservation and efficiency. Therefore, these members questioned whether the Commission should authorize utilities to disclose CEUD in an effort to "balance" customer privacy interests with energy savings

goals. At a minimum, these participants suggested that without explicit statutory authorization to release CEUD to further the state's energy policy goals, the Commission should seek a balance that is heavily weighted toward customer privacy.

V. Privacy Rights~~: Need for Protections~~ and Expectations: Consumer Protection Considerations

Currently, Minnesota has no state law or other required standards specifically directed toward protecting ~~the~~consumer privacy ~~of~~with respect to CEUD ~~in the possession of utilities~~. The Minnesota Government Data Practices Act (MGDPA)[~~45~~69] ~~does provide~~provides protections for some energy-related data but, as the MGDPA only applies to data in the possession of government entities, the statutory protections it defines are likewise limited. Most directly on point to the Workgroup's discussions,[~~46~~] the MGDPA contains statutory protections for government-held "information on individual business customers of a public utility pursuant to section … 216C.17."[~~47~~70] ~~Minn. Stat. §~~ Minnesota Statutes, Section 216C.~~17~~17, is the statutory authority upon which the ~~Department of Commerce~~MDOC collects and publishes the *Minnesota Utility Data Book*, a compilation of utility customer data reported to the agency annually since ~~1965.~~[~~48~~] ~~Under the MGDPA, the underlying data is protected as nonpublic data.~~[~~49~~]1965, which is discussed in relevant detail in section __ below.

On the federal level, there again is no specific law or agency directive related to privacy protections for CEUD ~~in the possession of utilities.~~[~~50~~].[71] As noted in ~~"~~*A Regulator's Privacy Guide to Third-Party Data Access for Energy Efficiency,*[72] a December 2012 publication of the Customer Information and Behavior Working Group of the State & Local Energy Efficiency Action Network (SEE Action), various privacy standard initiatives being implemented on the federal level should be considered as instructive to state efforts, including:

[~~45~~69] Minn. Stat. Ch. 13.

[~~46~~] ~~Minn. Stat. §§ 13.679, 13.68, 13.681 and 13.685(5) provide protections for other categories of energy-related data not specifically relevant to the charge of the Workgroup.~~

[~~47~~70] Minn. Stat. § 13.68, subd. 1.

[~~48~~] ~~Neither this statutory authority nor the Department's publication of the Minnesota Utility Data Book was brought to the attention of the Workgroup during its formal deliberations. These facts were identified by a Department of Commerce representative following the Workgroup's final meeting. They were the subject of discussion at a later telephone conference in which several Workgroup members participated. See June 6, 2014 submission by Brendon Slotterback, representing the City of Minneapolis.~~

[~~49~~] ~~See Minn. Stat. 13.02, subd. 9, for a definition of the protections afforded to "nonpublic data."~~

[~~50~~71] *See* Schira, A. "Protecting Progress and Privacy: The Challengers of Smart Grid Implementation." *A Journal of Law and Policy for the Information Society* (Summer 2011).

[72] Available at https://www4.eere.energy.gov/seeaction/system/files/documents/commercialbuildings_data_access_guide_0.pdf

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- Fair Information Practice Principles
- Consumer Privacy Bill of Rights
- FTC Codes of Conduct
- Non-Binding Industry Standards such as U.S. Green Building Council, LEED and ENERGY STAR certifications.
- Privacy Seal Initiatives including TRUSTe.[73]

This publication reviews the importance of commercial building-wide benchmarking to achieving energy efficiency goals, and highlights the role that access to customer energy usage data plays in making such benchmarking possible.

Several of these initiatives share a common core of foundational principles, identified in the Consumer Privacy Bill of Rights[74] released by the ~~Obama~~ Administration of President Obama in February 2012 as follows:

Transparency	Easily understood mechanisms that reflect the scale, scope, and sensitivity of the personal data collected
Individual Control	Policy that makes it as easy for an individual to withdraw consent as it was to grant consent in the first instance
Respect for Context	Consumers should expect companies to handle data consistent with the context of the consumer's consent
Focused Collection	Consumers should have a right to set reasonable limits on data use and collection
Access and Accuracy	Consumers should have the ability to both access and correct and incorrect data
Security	Consumers have a right to secure and responsible handling of personal data
Accountability	Companies must take appropriate measure to ensure compliance, even if transferring data to another party.

[73] SeeAction, *A Regulator's Privacy Guide to Third-Party Data Access for Energy Efficiency* (December 2012), pp. 13-16.

[74] The Consumer Privacy Bill of Rights provides a baseline of consumer protections aimed at maintaining privacy in today's interactive and highly interconnected world. This effort was not a specific focus of the Workgroup's discussions, though the project's guiding principles were evident throughout the Workgroup's discussions. See CONSUMER DATA PRIVACY IN A NETWORKED WORLD: A FRAMEWORK FOR PROTECTING PRIVACY AND PROMOTING INNOVATION IN THE GLOBAL DIGITAL ECONOMY (February 2012).

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VI. ~~Current Practices in Minnesota: Data~~CEUD Collection, Requests and Responses: Current Practices

A. Current Data Collection Practices in Minnesota

~~(1)~~1. Data Collection By Utilities Serving Minnesotans

Minnesota's utilities collect energy usage data as a business practice incidental to their primary function: the provision of regulated utility services to customers. Their metering and other data collection ~~infrastructure~~infrastructures were built to serve this primary purpose,[~~51~~75] not to perform as seamlessly accessible data centers.

Minnesota's utilities operate a diverse population of meter types. Many are automated and remotely readable, while others require manual reading. None of the utilities ~~in Minnesota~~represented in the Workgroup have employed ~~"~~smart meters~~"~~ to date.[76]

While some portion of the meter population ~~are~~is capable of capturing energy usage data in as small as five-minute increments, that capacity is infrequently utilized even by large industrial customers~~;~~. Hourly or ~~in~~15-minute increments ~~is~~are the most common usage ~~capture~~captures even for the most automated meters available to Minnesota customers.

As each system was built independently for unique business purposes, utilities' data collection practices are not uniform in many respects. Most utilities reported that the following statements accurately describe their data collection systems:

- Utilities record energy usage data by meter, which is tied to a customer of record and a billing address.
- Customers are billed, on average, on a regular billing cycle which does not necessarily correspond with the beginning of a month. As a result, annualized averages may not

[~~51~~75] In its March 21, 2014 submission to the Workgroup, Xcel Energy sought to differentiate its position on various proposed Use Cases with respect to whether the use fulfilled a "primary purpose," defined similarly to the term as used above, or a "secondary purpose," defined by Xcel Energy as any non-primary purpose for which prior notice and explicit customer consent should be required absent sufficient aggregation. Other than in this submission and in the Commission's initial charge to the Workgroup, this nomenclature was not actively used though the concepts were organically embedded in the Workgroup's discussions.

[76] Utilities' reports filed in Docket No. E999/CI-08-948 indicate some degree of advanced metering infrastructure (AMI) deployment in Minnesota, and the MDOC reports that many cooperatives have installed AMI.

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correspond with a calendar year or other designated time period.

- Data collection systems are not designed to differentiate between buildings that are publicly versus privately owned ~~nor~~or necessarily based on the type of use to which the building is dedicated.

- Collected data is retained, on average, for a period of ten years.

~~(2)~~2. Data Collection by the State of Minnesota

Since 1965, Minnesota Statutes Section 216C.17 has required the Minnesota Department of Commerce ~~has been statutorily required to "~~to:

> maintain an effective program of collection, compilation, and analysis of energy statistics. The statistical program shall be developed to insure a central state repository of energy data and so that the state may coordinate and cooperate with other governmental data collection and record-keeping programs.~~"~~[~~52~~77]

Under this authority and as specified in the promulgated Energy Information Reporting Rules,[~~53~~78] the ~~Department of Commerce~~MDOC collects information in its Regional Energy Information System ~~(REIS)~~[79] as reported by the electric and natural gas utilities serving Minnesota.

~~Using the reported data, the Department of Commerce publishes an annual report, the *Minnesota Utility Data Book*, which includes annual and long-term trend analysis related to energy consumption, numbers of customers, sales revenue and price. The *Minnesota Utility Data Book* is publicly available in an online format.~~[~~54~~]The MDOC uses much of this data internally in its work. As required by statute,[80] the MDOC also makes the collected information available to the public in compliance with the requirements of the Minnesota Government Data Practices Act.[81] In an effort to streamline the processing of data requests and to make the existence of the data more visible to the public, the MDOC compiles information

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[~~52~~77] Minn. Stat. § 216C.17, subd. 1.

[~~53~~ ~~Minnesota~~[78] Minn. Rules parts 7610.0100 to 7610.1130.

[79] This term refers to the information collected by the MDOC through Minn. Rules Parts 7610.0100 to .1500 and the agency's internal tools and processes for managing that information.

[80] Minn. Stat. § 216C.17, subd. 4.

[81] As noted earlier, Minn. Stat. § 13.68, subd. 1, classifies "energy and financial data, statistics, and information furnished to the commissioner of commerce by a coal supplier or petroleum supplier, or information on individual business customers of a public utility pursuant to section 216C.16 or 216C.17" as "nonpublic data." By law, nonpublic data is accessible to the subject of the data but not to the public without the subject's consent. *See* Minn. Stat. § 13.02, subd. 9.

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representing the most frequent data requests and posts that information on the agency's website as the *Minnesota Utility Data Book* (*Data Book*).[82] The *Data Book* presents annual and summary data related to energy consumption, numbers of customers, sales revenue, and average price.

Because the Minnesota Government Data Practices Act classifies portions of this collected information as "nonpublic data," which by law is accessible to the subject of the data but not to the public without the subject's consent,[83] MDOC redacts and/or combines the data so as not to release information related to any "individual business customers" before publishing it in the *Data Book*. According to MDOC, its redaction practices would "rarely, if ever, … result in the redaction of the data of only two customers (i.e., redaction of data for two customer classes with only a single customer in each class)."[84] As this explanation makes clear, the MDOC's practices related to the *Data Book* are grounded only in its interpretation of the Minnesota Government Data Practices Act and not in any public discussions related to privacy protections or the identification of an appropriate aggregation level for utilities faced with CEUD requests.

Many Workgroup participants urged the Workgroup to consider the MDOC's redaction practices as evidence that the agency utilizes a "threshold of two" as an aggregation standard appropriate for CEUD requests, and further urged the Workgroup to recommend to the Commission the adoption of a similarly low aggregation threshold. The MDOC opposed these suggestions and asserted that "describing [its] data redaction as an aggregation method is an inaccurate characterization of its procedures and would be misleading to the reader [of this] Report."[85]

The opposing positions of the MDOC and other Workgroup participants on this issue are explained by the fact that neither MDOC's statutory authority to collect the data nor its publication of the *Data Book* was brought to the attention of the Workgroup during its formal deliberations. These facts were identified by a MDOC representative following the Workgroup's final meeting on May 16, 2014, and were the subject of discussion at a later telephone conference in which several but not all Workgroup members participated. Following this conversation, many Workgroup participants submitted written comments identifying the MDOC's "two person standard" of the *Data Book* as a feasible and preferred model for the collection and public distribution of cleaned CEUD from a centralized distribution point. Other members questioned the MDOC's legal authority to utilize the identified

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[54][82] The ~~2010 Minnesota Utility~~ *Data Book* ~~is~~was most recently published containing 2010 data, and is available at https://mn.gov/commerce/energy/images/2010v2_Databook.pdfhttps://mn.gov/commerce/energy/images/2010v2_Databook.pdf.

[83] See Minn. Stat. § 13.02, subd. 9.

[84] Docket 12-1344, UTILITY DATA BOOK – CONTEXT AND CLARIFICATION: COMMENTS PREPARED BY MINNESOTA DEPARTMENT OF COMMERCE, DIVISION OF ENERGY RESOURCES (July 29, 2014).

[85] *Id.*

redaction procedures even with respect to its publication of the *Data Book*, and strongly opposed any consideration of these practices as a foundation for an aggregation standard for CEUD sharing by utilities.

~~From written submissions received by Workgroup participants following the completion of its scheduled work, it is apparent that many Workgroup participants were unaware of the existence of this publication. Several expressed concern that the resource was not earlier identified, and indicated a continuing interest in exploring the parameters of the published data as well as its compliance with existing authority in light of the privacy interests at issue in the current effort.~~

Clearly, this issue requires further consideration and public discussion. The Commission is cautioned to carefully evaluate any and all reliance on or objections to the MDOC's *Data Book* redaction procedures in its future discussions relevant to CEUD data sharing. By carefully examining all references to the *Data Book*, the Commission will be better able to ensure that its consideration of the issue is grounded in fact and not assumptions.

~~(3)~~3. Data Collection at the Federal Level

The U.S. Energy Information Administration (EIA), an agency within the ~~U.S. Department of Energy~~DOE, collects, analyzes, and disseminates independent energy data, analyses, and forecasts. EIA conducts a comprehensive data collection program that covers a spectrum of energy sources, end uses, and energy flows. Its energy analyses, monthly short-term forecasts of energy market trends, and long-term ~~U.S.~~national and international energy outlooks are publicly disseminated, primarily through its website at EIA.gov.

Relevant to the Workgroup, the EIA makes available a data set defining retail sales of electricity by state, by sector, by utility, by customer class, and by number of users and their collective energy consumption. The EIA ~~utilizes privacy thresholds in publishing this data, the specifics of which were not available to the Workgroup.~~uses disclosure avoidance techniques that assure that nonzero value data cells are based on the information of three or more respondents.[86]

In addition to providing the information relevant to the EIA, the City of Minneapolis cited multiple additional examples of the collection and dissemination of sensitive information by federal agencies that use disclosure avoidance techniques such as aggregation, anonymization, and other techniques. These agencies included the Bureau of the Census, Department of Agriculture, National Center for Health Statistics, Department of Justice, Department of Labor and the Department of the Treasury. While these federal agencies do not deal with energy information, they are charged with protecting sensitive data on individuals, and use disclosure avoidance techniques very similar to those beginning to be used by energy utilities and regulators, as cited by the Minneapolis representative. Most of

[86] See Docket 12-1344, Comments submitted by City of Minneapolis CEUD Comments (May 5, 2014), at the submission's Appendix A.

the agencies use at least an aggregation approach, with a common threshold being aggregated information on no less than three to five individuals making up a data cell, as further described in Appendix A to the City of Minneapolis comments dated May 5, 2014, attached as Appendix ___ to this Final Report.

B. ~~Current~~Responding to Data Requests ~~and Responses~~: Current Utility Practices in Minnesota and Beyond

1. ~~(1)~~ Customer Requests for Their Own Data

According to the information shared with the Workgroup, all of the represented utilities provide their customers with customer-specific CEUD upon request. Most utilities require that customer requests be made in writing, and many provide a specific consent form for their customers' use. Requests are sometimes processed by telephone if the requestor provides sufficient information to allow the utility to verify that the requestor is actually the customer of record. Requests made by building tenants or others who are not identifiable as the customer of record are denied absent proof of customer consent.

Xcel Energy ~~[and?] are currently in the process of implementing~~has recently implemented the Green Button initiative, which ~~will allow~~allows customers to ~~electronically download~~access their CEUD in ~~a machine~~ readable ~~format. Currently, can go~~PDFs through ~~"my~~an account portal, download their data, and provide it to whomever they ~~want~~choose without requiring the utility to be involved in the data ~~sharing transaction.~~ sharing transaction. CenterPoint Energy also allows its customers to download and share individual data in a table or PDF format. These processes were broadly supported by the Workgroup as a means of providing customers the important ability to easily access their own energy usage data and to efficiently share it with or authorize its access by others.

With respect to requests for building-wide CEUD made by owners of commercial buildings or multi-family residential buildings, the process varies by utility and by metering setup. If the building owner is the customer of record in that the owner receives service invoices and provides payment, the utilities generally release building-wide CEUD to the owner upon request. If the building is separately metered by tenant, most utilities require the building owner to obtain written consent from current tenants in order to receive building-wide CEUD. In the case of very large buildings, ~~current practices may at times~~some utilities allow a building owner to obtain building-wide CEUD without obtaining consent in certain circumstances. ~~[accurate?~~

~~[~~

2. ~~(2)~~ Government Requests for Customer-Specific Data

Minnesota's utilities provide individual customer's CEUD to law enforcement and other government entities as required by law upon proof of a subpoena,

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warrant or other court order. Specific court orders are not required to provide this data to the Commission, the Minnesota Department of Commerce, the ~~Minnesota Pollution Control Agency, and~~MPCA, the Office of the Attorney General, and other state agencies with specific statutory authority to gather the data for regulatory purposes.

The Workgroup heard many examples of government entities seeking CEUD for important public policy objectives~~ but without any statutory authority to mandate production. While some~~ . Utilities ~~reported providing~~generally provide data upon request to counties and other local governments without ~~any formal legal authority supporting the request (MN Power), most do not. The most-oft-cited example focused on~~requiring formal service of a subpoena or other legal process. This practice is based primarily on the shared understanding that the consumer has consented to the release of data as a required condition of receiving various types of government assistance or programming (i.e, child support collection; fuel assistance; other social service programs) or that the investigative authority of the involved governmental agency authorizes the release.

The Workgroup heard many examples of state agencies issuing grants to nongovernmental entities in support of important policy-related studies or other efforts, the results of such were often stymied or limited by the grantees' inability to obtain customer consent to collect necessary CEUD data. All of the following programs were referenced as examples of efforts that had encountered difficulty in collecting individual consumer consent: Green Building Program; Minnesota Green Step Cities; Minnesota ~~Green Corp.~~GreenCorps, public housing studies, as well as certain electric vehicle efforts and environmental assistance programs. Each of these examples involved the collection of customer specific data and not aggregated or otherwise anonymized data.

3. ~~(3)~~ Data Sharing with Utility's Contracted Agents or Vendors

Utilities often contract with third-party vendors for services, which ~~require~~requires the vendor to have access to the utilities' customers' CEUD. For example, vendors who process billing statements or perform collections services for a utility are provided access to customer CEUD. Through contract terms relating to use, retention and required security processes, the utilities generally require their vendors to ~~protect their customers' privacy interests in the shared data to the same degree as does the utility itself.~~: (1) maintain appropriate data security; (2) notify the utility in the event of actual or suspected data breach; and (3) not use the data for any secondary purpose.[87] These agreements contain confidentiality clauses such that the exact terms of the contracts are not publicly available for ~~Commission review.~~review. Although the Commission has the legal authority to access these

[87] Docket 12-1344, Comments filed by Xcel Energy (June 6, 2014 – verify date).

documents in appropriate circumstances,[88] the Workgroup did not have or request access to them for purposes of its discussions.

No Workgroup participant represented entities who serve as utilities' vendors or contracted agents. Therefore, the Workgroup's discussion of the proper scope of these arrangements was limited.

Energy customers also contract with third parties in ways which involve the release and use of CEUD. When customers purchase energy-tracking appliances and services, they consent to the third party's receipt of their information for specified purposes. The legal landscape will have to continue to develop to ensure that these third-party vendors do not stray outside the allowedauthorized uses forof the data, and that consumers are provided sufficient legal safeguards upon which to rely if and when theythe vendors do.

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[88] *See* Minn. Stat. § 216B.12, which allows the Commission access to regulated utility "accounts, books, papers, and documents . . . for the purpose of exercising any power provided for in Laws 1974, chapter 429." [verify quote]

4.
4. ~~(4)~~ Third Party Requests and Responses

(A) ~~(a)~~ For Individual Customer Data

With a customer's consent, utilities routinely provide CEUD~~ data~~ to whomever the customer authorizes. Utilities do not limit what they provide other than with respect to what data is maintained and available; they do not seek any assurance ~~of~~regarding how the data will be used or whether it will be secondarily provided to any other entity. In post-discussion submissions, Xcel Energy shared with the Workgroup the privacy policy it administers and under which it allows its customers to authorize release of certain account data to third parties, as follows:

> Xcel Energy also makes available a form for customers to authorize a one-time release of their account data to a third party for purposes such as obtaining a credit reference letter, service verification letter, or lock authorization. Such release typically include the customer's name and mailing address, Xcel Energy account number, service address, service type(s), and service dates. **In no case will Xcel Energy allow the one-time release authorization form to be used to release a customer's Social Security Number or any financial account number to a third party.**[89]

The participating utilities reported that they receive CEUD requests from a multitude of other types of requestors, including both existing and ~~start up~~startup businesses seeking the information in order to market products or services to consumers. No matter how related the requestor's identified purpose is to the state's energy savings goals, utilities do not provide their customer's CEUD to these requesters without proof of customer consent. As a result, even entities working specifically to increase or promote energy efficiency must seek and obtain customer consent before they can obtain CEUD or ~~PPD~~Program Participation Data for a specific property, region or sector of the economy in Minnesota.

The only reported caveat to this general practice relates to utilities' historic practices involving realtors. For decades, ~~many~~some utilities have provided information about a specific property's average annual utility usage and ~~cost~~costs to ~~realtor~~realtors upon request, without proof of consent from a current or former owner or building occupant. Participants explained that this practice grew out of the recognition that this information is useful to facilitate sales and lease transactions. Given the level of current public interest in privacy issues, Xcel Energy recently changed its practice and now requires requesting realtors to obtain specific consent from ~~realtors just as it does~~utility customers, thus handling these requests in the same manner as those from all other non-customer-of-record requestors. Both CenterPoint Energy and Dakota Electric reported that they continue to provide

[89] Docket 12-1344, Comments submitted by Xcel Energy (July 29, 2014), emphasis in submission as provided and as emphasized from original.

realtors, upon request, with a property's average energy usage over the past 12 -month period without seeking or obtaining customer consent.

(B) (b) For Aggregated Data

Currently there is no regulated data- sharing or aggregation standard applicable to utilities in Minnesota.[55][90] As a result, utilities are developing their own best practices regarding what CEUD should be released, to whom and for what purpose.

Utilities reported using various different aggregation thresholds in responding to requests for CEUD of a customer group, geographic area or specific class or industry type, as follows: . Noting that responding to a city-wide CEUD request provides their customers with more anonymity than does responding to a whole-building request involving only five customers with five utility accounts, these utilities appropriately differentiate between aggregated CEUD requests made at the community-of-interest level (such as by city, zip code or neighborhood) and requests for whole-building aggregated CEUD. Doing so, CenterPoint Energy, Minnesota Power, Minnesota Valley Electric Cooperative and the Dakota Electric Association all utilize a case-by-case threshold analysis in an effort to protect privacy and prevent re-identification for aggregated data requests. They require consent from all tenants when responding to a whole-building CEUD request.

In pursuit of the same privacy protection goals, Xcel Energy currently utilizes its "15/15 Rule" threshold in responding to requests for CEUD in all of its assigned territories nationwide. Using the 15/15 Rule, Xcel Energy consistently provides aggregated data for no fewer than 15 customers in a manner that no one customer can make up more than 15% of the aggregated total. Like the other utility participants, Xcel Energy also indicated that it has in the past provided aggregated data at the community scale upon request, as part of the Regional Indicators Initiative.

Utility	Aggregation Threshold Currently Utilized
Xcel Energy	15/15 Rule
CenterPoint Energy, MN	Case by case threshold designed

[55] In[90] Although several Workgroup participants urged the inclusion of the MDOC's "threshold of two" redaction practice relevant to its publication of the Minnesota Utility Data Book, the Minnesota Department of Commerce uses two customers as a minimum threshold for the publication of aggregated energy usage data. The Workgroup did not have an opportunity to discuss the ramifications of or reasons for this existing state agency practice as part of the Commission-directed work due to the fact that these facts were not identified during the course of the Workgroup's proceedingsData Book as evidence of an existing aggregation standard being used in Minnesota with regard to the release of CEUD, this information was not included at this point in the report for the reasons set forth in section __ above.

~~Power, MN Valley Electric Cooperative~~	~~to protect privacy and prevent re-identification~~
~~Dakota Electric~~	~~No aggregation; customer consent required~~
~~CenterPoint Energy~~	~~Require consent of all tenants for whole-building requests with separate meters~~

Responding to non-standardized requests requires the utilities to invest significant amounts of time and resources into reviewing and responding to each. Across the board, utilities participating in the Workgroup expressed a strong desire for standardization in this issue area in order to increase customer protections, define the parameters of utility liability, and reduce the necessary investment of time and financial resources associated with the ever-increasing numbers and complexity of requests for energy usage information.

Government, nonprofit and other community-based interests also seek standardization in this arena as a means of ensuring that they are able to cost-effectively pursue the public's interest in energy efficiency, primarily through benchmarking. As individuals and organizations seek to improve their own or their community's use of and investment in energy resources, they require a baseline of data from which to project savings goals into the future. All of these interests reported that the difficulty of obtaining written consent grows exponentially with the scope of the benchmarking project. All agreed that while it is possible to seek and obtain consent when one is seeking to review the energy usage of a few discrete properties, seeking to benchmark an entire community or even a large commercial property with many separately metered tenants is an effort that requires significant investments of time plus human and financial resources. Participants described the required effort on a spectrum spanning the following measures: "extremely difficult" through "impractical and excessively time-consuming" to "virtually impossible."

The Workgroup took notice of the level of difficulty requesters experience ~~is~~in seeking to gather consent from consumers. Even so, the Workgroup did not conclude that the goal of lessening this difficulty should drive the adoption of standards or practices that put consumers' privacy interests at risk. Instead, an appropriate balance must be struck between the right to or expectation of privacy protections and the need for data access.

5. Responses to Requests by Non-Minnesota Utilities

Workgroup members also provided examples of utilities outside of Minnesota responding to requests for CEUD from non-contracted third parties. In some cases, these utilities' policies have been formulated to respond to local demand for whole-building aggregated data needed for energy benchmarking in commercial buildings. In these cases, utilities have developed minimum

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aggregation standards designed to protect individual customer's energy usage data from being re-identified from an aggregated data set. As submitted by the City of Minneapolis and amended in relevant detail by other Workgroup participants as footnoted, the table below provides examples of existing account aggregation thresholds used by a few non-Minnesota utilities.

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Utility Company or PUC	Account Aggregation Threshold Number of accounts/ maximum percentage of total energy usage one account can contribute
Avista (WA)	No threshold[91][92]
Consolidated Edison (NY)	No threshold[93]
Seattle City Light (WA)	No threshold[94]
Commonwealth Edison (IL)	4
Austin Energy (TX)	4/80[95]
Puget Sound Energy (WA)	5
Pepco (DC)	5
Colorado PUC	15/15
California PUC	Add current description

[91] If the threshold in the chart is listed as "No threshold," that signifies that the utility will release non-exempt whole-building energy consumption data to a building owner without tenant consent regardless of the number of accounts in a building.

[92] Industrial and manufacturing buildings are exempt. *See* City of Seattle Ordinance Number 123993, Section 1, D ("This Chapter shall not apply to buildings used primarily for industrial manufacturing purposes.") *See also* Section D of Director's Rule 6-2011, published on December 5, 2011 and effective May 21, 2012 ("The following building types are exempt from all benchmarking, disclosure and reporting requirements: . . .(d) Buildings used primarily for manufacturing or industrial purposes, as demonstrated by submitting one of the following: a) A valid Certificate of Occupancy or construction permit documenting that at least 50% of the building is classified under the current Seattle Building Code as Factory Industrial Group F. This includes buildings used for assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair or processing operations. B) DPD's self-certification exemption form, in which the building owner has verified that: neither they nor DPD staff have been able to locate a Certificate of Occupancy for their building; and their building meets the definition of a Factory Industrial Group F building as classified in the Seattle Building Code.")

[93] *Id.*

[94] *Id.*

[95] There is no threshold for residential properties. The stated threshold only applies to commercial buildings; certain manufacturing buildings are exempt if they meet the criteria for a particular sales tax exemption, *See* City of Austin, Ordinance No. 20110421-002, amending Chapter 6-7 of the City Code Relating to Energy Conservation Audit and Disclosure Requirements (effective May 2, 2011). See Chapter 6-7 of the City of Austin Municipal Code, available at http://www.austintexas.gov/resident/city-code. See, http://www.austinenergy.com/wps/portal/ae/Programs/ECAD-Ordinance/for-commercial-buildings/, cited in MLIG RESPONSE TO LHB, INC. AND CITY OF MINNEAPOLIS COMMENTS (April 4, 2014), p. 5.

The City of Minneapolis representative also noted for the Workgroup that, in some cases, non-Minnesota utilities provide customer energy usage data for individual customers, as listed below.

Gainesville Green
Gainesville Green presents the monthly energy usage data (electricity, natural gas and water) for individual households in the Gainesville, Florida area served by Gainesville Regional Utilities. This tool helps residents track their energy use and compare themselves to their neighbors, similar to utility programs in Minnesota provided by OPower. This data is publicly accessible at the website http://gainesville-green.com.

Madison Gas and Electric
Madison Gas and Electric (MG&E) serves 140,000 electric customers and 145,000 gas customers in Dane County, Wisconsin. MG&E allows the public to search by address for high, low and average monthly energy use over the last 12 months and high, low and average monthly bill amounts over the last 12 months for residential addresses in their service territory.
This data is publicly accessible at
http://www.mge.com/customer-service/home/average-use-cost/.

VII. Recommended Components of Any Adopted Minnesota Standard

A. Defined Terms

After extensive discussion and consideration of various proposals,[56] the Workgroup reached consensus on the following definitions of "Customer Energy Usage Data" and of "Program Participation Data." In accordance with the other tracts of inquiry undertaken by the Commission, the Workgroup noted that neither of these definitions is intended to include personally identifiable information within their scope.

Customer Energy Usage Data:

> "Customer Energy Usage Data" (CEUD) means natural gas and electric usage data, including but not limited to ccf, Mcf, therms, dth, kW, kWh, voltage, var, or power factor, and other information that is collected from the utility meter for utility purposes,[57][96] and that is necessary to further state energy goals.[58][97]

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[56] See October 11, 2013 written submission from Xcel Energy for discussion of certain proposed definitions.

[57] The Office of the Attorney General noted for the Workgroup its position that this definition of[96] The OAG-AUD expressed concern with the definition's limitation that data be collected "for utility purposes." Noting that certain utilities contract their meter reading function to outside companies, such as the case of Xcel's contract with CellNet, the OAH-AUD questioned whether these outside

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Program Participation Data

> "Program Participation Data" (PPD) means customer specific data related to participation in: types of differentiated rates; programs related to generation;[98] programs related to receipt of energy assistance; conservation improvement and demand response/management programs; and programs related to renewables that is necessary to further state energy goals.

The Workgroup acknowledges that the Commission's charge did not include any reference to Program Participation Data. The Workgroup determined that a definition of this term was necessary given the fact of its direct link to efforts designed to achieve the state's energy goals and the recognition that many of the Use Cases identified below include requests for this type of information.[59] Given that each utility operates different types of energy efficiency and conservation programs, the definition was drafted to include broad program categories rather than specific, named programs.

After agreeing upon this definition, the Workgroup's time-limited discussions did not specifically focus on PPD separate from its discussions of CEUD. Members did acknowledge that the two are separate and distinct, and should be further examined in light of this fact. For example, data aggregation thresholds or other risk mitigation measures appropriate for CEUD may prove inappropriate for PPD. In recognition of the fact that issues related to the sharing of CEUD and PPD are not interchangeable, the Workgroup urges the Commission to further examine and differentiate between CEUD and PPD in its ongoing discussions.

B. Monthly Data Intervals

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companies sometimes collect more data from meters than is necessary "for utility purposes" such that they could be considered outside the intent of the CEUD definition. For example, while a utility may require monthly energy consumption data to perform its functions, CellNet typically collect energy consumption data multiple times per day. The OAG_AUD was concerned that, under the recommended definition, entities may not consider these numerous reading to constitute CEUD. While the OAG-AUD recommended removing the phrase "for utility purposes" from the definition of CEUD, it agreed to use of the definition for discussion purposes with the understanding that CEUD would specifically include the consumption data currently collected and recorded by CellNet~~, a vendor of Xcel Energy which collects infrastructure verification data in 5-minute increments from customer meters in addition to a daily energy usage figure~~.

~~58~~97 Despite discussions led by the representative of the MEEA, the Workgroup declined to include the term "District Energy information" in the definition of CEUD. While the Workgroup appreciates that District Energy produces and uses significant amounts of steam heat in its operations, the Commission has no authority to require data disclosure from District Energy, a generator and not a utility, and so its exclusion from the definition was deemed appropriate by the Workgroup.

98 This reference is intended to include renewable program offerings.

~~59 After agreeing upon this definition, the Workgroup did not specifically focus on PPD separate from its discussions of CEUD.~~

Throughout the Workgroup's deliberations, ~~its~~ participants considered and discussed over 30 potential "Use Cases" for which a data~~-~~ sharing standard should be considered applicable. None of these submitted Use Cases[99] revealed a need for the release of CEUD to any non-contracted third party on a more frequent basis than monthly usage numbers. ~~For this reason,~~Identifying this as a specific item of consensus during its discussions,[100] the Workgroup recommends that the Commission limit any CEUD sharing standard to data aggregated at the monthly level~~. Any requests for data collected at less than monthly intervals should require~~, absent additional customer consent ~~for release~~.

C. Benchmarking as the ~~Only Policy-Driven~~Driving Purpose for Data Sharing

In all of the Use Cases submitted by participants, the Workgroup identified ~~only this~~ one current purpose - energy benchmarking at the building, neighborhood or community scale in support of state and locally-enacted energy efficiency goals – as sufficiently grounded in the public interest to justify the Commission's continued efforts to develop a data~~-~~ sharing standard relevant to CEUD and PPD. The Workgroup specifically rejected data request motivations based in other market-driven purposes, including economic competition, in recognition that such purposes do not justify the Commission's efforts to regulate this developing field. Without tying any submitted Use Case to these goals, several members of the Workgroup noted that other purposes, including those related to the reduction of energy use and related greenhouse gas emissions, market stimulation for solar energy deployment, as well as climate change reduction and environmental goals, are also served by access to CEUD.

D. Cost Recovery

Regulated utilities in Minnesota do not currently charge customers or other requesters for the provision of CEUD or PPD. Xcel Energy ~~reported that it~~ processed ~~117,000~~112,400 submitted consent forms from Minnesota customers in 2013~~?~~, and additionally responded to a significant number of subpoenas and other court orders~~.~~; it has noted a significant increase in these numbers in 2014.[101] Whether the request is a simple as a copy of last month's residential invoice~~, or~~ for one customer, or annualized energy usage for an entire community accessed by specific zip codes, historically utilities have invested the necessary staff hours into pulling and manipulating responsive data without an ability to seek specific remuneration for costs associated with necessary technology or staff time.

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[99] Following the Workgroup's formal discussions, the MDOC suggested that the matrix of submitted Use Cases may not encompass all scenarios in which less-than-monthly data may prove useful, and cautions the Commission to remain open to considering additional types of data requests in the future.

[100] Docket 12-1344, Agendas and minutes for Workgroup meetings dated _____

[101] Add other data.

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Traditionally these costs have been ~~traditionally been~~ spread across all consumers through each utility's rate structure.

Subject to the participants' disagreements regarding whether requests for CEUD or PPD sharing fall within the definition of "utility service" for jurisdictional purposes, the Workgroup agreed that any mandated data access standards should be cost neutral to utilities. ~~Costs related to~~The Workgroup did not thoroughly discuss whether costs should be paid by the requestor or allocated to all customers. However various members expressed contrary views on the topic: MLIG asserted that ratepayers should not be assessed the costs of requests distinct from utility service (e.g., requests made for academic research purposes);[102] while the Center for Energy and Environment opposed assessing request-related charges to government entities, third parties under contract with utilities, or entities conducting research for a public, not-for-profit purpose.[103] Reasonable costs of both technology improvements and staff hours related to processing data responses could be included in cost recovery plans with the requirement of transparency supporting reimbursement requests.

~~Given the uncertainty of what standards the Commission might consider enacting,~~ The utilities were unable to provide any definite cost estimates to inform the decision-making. Anecdotally, the following gross estimates of potential utility-specific costs were shared.

Xcel Energy	Estimated IT-related development cost for Green Button was $1.3 million, which figure assumed no need for new software, with a one-year development timeframe.
Minnesota Valley Electric Cooperative	Estimated $80,000 for IT development plus $20,000-$40,000 annually.

In the California proceeding, utilities in that state estimated their development costs between $1.6 and 19.4 million, plus ongoing operational costs.[~~60~~104]

E. Differently-Focused Use Cases Treated Differently

The vast majority of the Workgroup's discussions centered on an identification of the specific types of CEUD Use Cases that~~, in the consensus of the Workgroup, should be allowed pursuant to any data-~~ members agreed are sufficiently linked to attaining the state's energy goals such that these requests should be granted by utilities. The consensus reached by the Workgroup on this list

[102] MLIG Memorandum, June 6, 2014, at 8-9.
[103] CEE Memorandum, July 29, 2014, at __.
[~~60~~104] Cite to cpuc decision and add further information describing content of numbers.

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of Use Cases provides a basis of agreement upon which the Commission can continue to build in any ongoing discussions related to the development of a regulated data sharing standard adopted by the Commission.

By category, the participants debated the identified purpose of the request, the type of requestor, the apparent connection to the state's energy savings goals, and the risks associated with improper disclosure in reaching a consensus on this issue. Though these identified[105] Use Cases are not unique to Minnesota, the Workgroup's consideration of each was specific to the legal and policy environments that exist in the state and required consideration of the following questions:

- Who wants the data and for what purpose?
- What type and granularity of data is sought, and at what frequency?
- How will the data be used?
- What state energy or other public purpose drives the need for the data?
- Can the data be accessed from the customer or other non-utility source in a cost-effective and practical manner?
- Is the requested data collected and maintained by utilities in a manner that it is available to be produced?
- Is the utility's cost of producing the data justified by the public purpose motivating the request?

The results of the Workgroup's complete analysis are noted on the final Use Case Matrix attached as Appendix __ to this Final Report. In summary terms, the identified Use Cases can be considered in four unique categories, as illustrated below.

[105] Every Use Case suggested by any participant was submitted to and considered by the Workgroup. Because suggested Use Cases represented only scenarios fro which the proposer urged inclusion as a type of CEUD request that should be granted by utilities, requests that participants did not support were not proposed or included in the Use Case Matrix. As an example, while the Workgroup acknowledged that marketing or advertising interests may seek access to CEUD or PPD for commercial benefit, because this purpose does not assist the state in achieving its energy goals no participant urged inclusion of this type of request on the matrix. As such, the Commission should note that the Use Case Matrix is not an exhaustive or exclusive list of all types of Use Cases imaginable; it constitutes instead the Workgroup's consensus on the specific Use Cases for which data access should be allowed with appropriate safeguards for consumer privacy.

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4. ~~(1)~~ Use Cases 1 and 2: Requests for Individual Customer Data Require Consent

(A) ~~(a)~~ Use Case 1: Customer's Request for Own Data

The Workgroup agreed that any utility customer should be able to obtain the customer's CEUD or PPD upon making a verifiable request to the serving utility. As long as the utility can confirm the identity of the customer, the data should be freely shared upon request.

A non-exhaustive and summarized list of the potential purposes for an individual consumer's CEUD request includes ~~the following: Single Family Home Assessment; Billed Usage History; Real-time Usage; Detailed Billed Usage; Payment History; Service Verification; Credit Reference; Gas or Electric Service; Current~~seeking information necessary to:

- Analyze billed energy usage;
- Analyze payment history;
- Verify utility service;
- Verify a payment (EDI/electric billing)~~; Energy Assistance Agency; Provide My Information to a 3rd Party; and/~~;
- Provide a credit reference;
- Provide information to a third party; or
- Prepare a regulatory Inquiry or complaint.

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(B) ~~(b)~~ Use Case 2: Third-Party's Request for Identifiable Customer's Data

The Workgroup also reached consensus that no requester should be allowed access to any specifically-identifiable customer's CEUD without obtaining the customer's consent. For example, customer consent would be required to obtain the identified CEUD or PPD for:

- A specific single-family home located at 123 Main Street in Lake Wobegan, Minnesota;[~~61~~106]
- John Q. Public's separately-metered office space located anywhere in Minnesota;
- The multi-tower office building occupied by the Abraham Lincoln Law Firm in St. Paul, Minnesota; or
- A multi-family apartment complex with only one utility meter, for which the property owner is the customer of record.

In each of these cases, the CEUD would reveal the energy consumption of one identifiable customer or entity. In such cases, the Workgroup determined that the privacy interests of that entity or individual outweigh the potential public benefits of disclosure such that customer consent ~~is~~should be required.

5. ~~(2)~~ Use Case 3: Request for Whole-Building Data Requires Aggregation and Other Risk-Mitigation Measures

This Use Case represents various ongoing and growing efforts to utilize building-wide benchmarking to increase energy efficiency in support of achieving the state's energy savings goals. ~~The term "benchmarking" refers to the~~Proponents consider collection of current energy usage information for the purpose of understanding past use~~,~~ as a first step toward reducing future energy use. The components of this Use Case are set forth below.

Energy Benchmarking Multi-tenant/ Multi-family/ Commercial Building with Separate Tenant Meters

[~~61~~106] Though some members of the Workgroup, specifically including Fresh Energy~~ and~~, continued to support release of this information to realtors without customer consent, the consensus of the group was to require consent for realtors as well notwithstanding past practice to the contrary.

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~~Requester~~	~~Real Estate Agents~~	**Real Estate Agents for Sales or Lease Transactions**	**Building Professional (Architect or Engineer) for new design ~~or~~/ construction or retrofitting ~~existing building~~**	**Building Manager or Owner**	**Research and/or Policy Development**
~~Data Requested~~	~~kWh, therms,~~	kWh, therms, costs	kWh, therms, costs, monthly/annual energy use in kBtus	kWh, Therms, MMBTU, Ton-Hours - other common energy consumption units	kWh; therms; participants; include pre and post analysis of retrofitted measure
~~Frequency Interval~~	~~Monthly and~~	Monthly and average annual data	Average annual monthly data	Actual monthly, actual annual	Monthly or annual data, updated ~~one time or~~ at specific intervals for statistical analysis
~~Granularity~~	~~Individual building~~	Individual building – may include multiple meters	Building type and size (sq. ft.); compare using individual building type, single/multiple meter	Individual building with multiple meters	~~Citywide data, broken down by census block group and~~By customer type ~~Multiple~~/rate class
~~Purpose~~	~~Calculate annual~~	Calculate annual energy budget and cost-benefit analysis for presale energy improvements	Energy modeling for comparison to other buildings and to minimums in Building Energy Code	Energy benchmarking to assess performance, track progress, plan improvements/ upgrades	Research and analysis linked to efforts to benchmark and measure energy usage
	Availability				

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Availability

Utilities maintain data by meter. Data is also maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. As a result, requested data is not readily available due to multiple meters at same address. Utilities do not maintain building type, size or other attribute information including 'public' building identifier, nor kBtus.

As noted above, this Use Case includes requests for data that is not readily available from the utilities' data storage systems as currently configured. Therefore, further consideration of this Use Case will require the Commission to examine cost recovery mechanisms related to any required changes in data collection systems.

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~~(3)~~ 3. Use Case 4: Requests for Geographically-Defined Data Require Risk-Mitigation Measures.

This Use Case is focused on requests for CEUD~~ and/or PPD~~ used to benchmark a neighborhood, city, or other geographically-defined community -of -interest. As indicated on the summary chart that follows, much of the requested information is not currently available in utilities' current data~~-collection systems~~ collection systems. During Workgroup discussions, most if not all of the utility participants noted that they had in the past responded to requests for community-scale CEUD by undertaking resource-dependent efforts designed to address the specific parameters of each request. The Commission should note ~~the~~that further consideration of this and similar Use Cases will require a thorough exploration of the ~~issue of~~unresolved issues of aggregation and cost recovery, addressed later in this Final Report.

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Energy Benchmarking by Geographic Area within a Utility Service Territory (by City, Neighborhood, or other Defined Community of Interest)

Requester	**Research and/or Policy Develop-ment**	**Third-Party**	**Non Profit Program Manager (i.e., ULI Regional Indicators Program)**	**Local gov't (City or County)**	**Neighborhood Association or Community Group**
Data Requeste	kWh, therms, participants		All energy converted to kBtus	kWh; therms; emissions factor; PPD	kWh; therms; program participation data
Frequency and	monthly or annual data, updated one time or at specific intervals for statistical analysis		Monthly consumption data	Annual data, each year	Monthly & ~~Average~~ annual data each year
Granularity	By customer type/ rate class		Ideally separate data for Residential, Public Buildings and Commercial/ Industrial	Citywide data, broken down by census block group and customer type	Multiple buildings within parameters of determined boundaries (i.e., neighborhood-wide, county-wide, etc.); likely broken down by customer type
Purpose	Benchmark a neighborhood's energy usage and CIP participation; determine energy savings potential		Benchmark and track cities' energy use and emissions annually	Measure citywide progress toward state and local energy goals	Measure and meet neighborhood and state energy goal progress
Availability	Utilities maintain data by meter with an associated rate class. Data is also maintained by address, but does not capture the number of buildings at an address or the number of meters located at a specific building. Utilities do not maintain data categorized by geo-political boundaries (neighborhood) ~~are not maintained. Do not maintain~~or by 'public' building ~~identifier, nor~~identifiers. Participating utilities noted that they do not track kBtus, and do not calculate or track emissions factors.				

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~~(4)~~ 4. Use Cases 5 and 6: Special Requests Require Commission Approval.

(A) ~~(a)~~ Use Case 5: Researchers' Requests

This illustrative Use Case involves a request made for data necessary to compile energy ~~benchmarking~~statistics by customer segment. These requests would generally be made by or on behalf of a research facility, policy-maker or ~~a related~~its contracted third party entity. The request encompasses data not otherwise available from public sources, and from too large of a customer segment to support individual requests for consent. The Workgroup identified no potential public harm that could result from the standardized release of this CEUD ~~and PPD~~, assuming the granularity of production is by rate class and the aggregation is absent of any personally identifiable information.

Energy Benchmarking by Customer Segment

Requestor	Research and/or Policy Development	Third-Party
Data Requested	kWh, therms, participants	
Data Interval/Frequency	Monthly or annual data, updated one time or at specific intervals for statistical analysis	
Granularity	Rate Class	
Use of Data	Research and analysis	CIP development & implementation
State Energy Goal	Minn. Stat. ~~§~~§§ 216B.241, 216B.2401, 216B.2422 [CIP and IRP]	
Available from Utility?	Yes if at total system/utility level. Usage maintained by individual meter with an associated rate class. Billing cycles may not align with monthly data, so monthly data may be an estimate.	

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(B) ~~(b)~~ Use Case 6: Governmental Requests[107]

Throughout the Workgroup's discussions, participants raised for discussion various governmental agencies' identified needs for CEUD~~ and PPD~~. The type, frequency and granularity of the agencies' data requests correspond with those ~~of the private and nonprofit sector~~ noted above, as ~~do~~does the driving public purpose: achieving the state's energy savings goals. Considered together in summary form as noted below, this Use Case addresses ~~the following~~several types of public efforts.

Energy Benchmarking by Government Agencies

Agency	Purpose	Availability
Minnesota Department of Labor & Industry, plus its contracted agents	State Building Energy Code[~~62~~108] compliance studies	Utilities maintain data by meter and by address, but do not capture the number of buildings at an address or the number of meters located at a specific building. Data is not readily available for properties with multiple meters at same address.
Public Housing Authorities	Benchmarking existing building portfolios by government finance agencies	
County and City Governments leasing space	Benchmarking of buildings used for public purposes	
Minnesota Pollution Control Agency, plus its contracted agents	Efforts in support of implementation of Toxic Pollution Prevention Act[~~63~~109] plus others efforts to achieve measurable environmental outcomes.	

Although the Workgroup was supportive of the government's need to obtain CEUD~~ and PPD~~ for ~~the above and similar~~ efforts ~~with~~serving an important public purpose, participants noted that government requesters and their contracted

[107] This Use Case represents data requests from governmental agencies that do not otherwise have the legal ability to compel production of CEUD or PPD as a matter of statutory or subpoena authority.

[~~62~~108] Minn. Rules ~~Chs.~~Parts 1322 (Residential) and 1323 (Commercial).

[~~63~~109] Minn. Stat. § 115D.01 – 115.D12.

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agents generally have many more tools at their disposal than do nonpublic entities with respect to obtaining required information. State agencies can seek statutory or rulemaking authority to compel data disclosure, and in some instances can require disclosure as a contracted term of any provided grant funding. ~~While~~The Workgroup agreed that local governments do not necessarily have the same access to ~~directed authority, they too can~~these tools, and cannot compel data disclosure based on their status as utility consumers. Although municipal agencies may in limited instances be able to include reasonable disclosure terms in ~~grant~~grants and/or franchise agreements as an accountability measure tied to the use of public funds, in most situations their ability to require data disclosure is very limited, to nonexistent. In recognition of these differentiating factors, the Workgroup did not compile an exhaustive list of either the governmental agencies in need of CEUD ~~or PPD data~~ or of the other avenues that might be available to satisfy these needs outside a Commission proceeding ~~or with separate approval as necessary~~.

VIII. Reducing Disclosure Risks Through Mitigation Measures

~~Without consent, mandated~~ Release of customers' private CEUD ~~or PPD will always be accompanied by risk.~~carries some level of risk. The risk varies based on the type of CEUD released, the type of customer that is the subject of the CEUD, and the disclosure avoidance mechanisms that have been applied to the data before it is released. Commercial and industrial customers may ~~bear the risk of market-based competition~~be at risk of having their trade sensitive operations information being put in the hands of competitors; residential customers may bear the risk of personal security violations or unwanted intrusion into matters related to the operation of their homes. ~~Whether one's expectation of privacy varies between the home and workplace does not alter the critical fact that consumers currently expect that their energy consumption data is protected absent their decision to share it. As a result, the development of a~~The CEUD Workgroup was not equipped to assess the types and severity of risk present for all types of CEUD release. Rather, the Workgroup engaged in a general discussion of the range of potential risks and the types of disclosure avoidance mechanisms that could be used to minimize risk.

The Workgroup participants generally agreed that development of any mandated data~~-~~ sharing standard ~~requires~~would require the implementation of the risk mitigation measures best designed to protect utility customers from being identified while still making CEUD ~~and PPD~~ information available to those who need it to meet state energy goals. Even in pursuit of the laudable public purposes represented in the Use Cases identified above, the Commission ~~will~~should use caution in determining whether, and how, to balance consumers' privacy interests against the public interests at stake. In an effort to assist the Commission in that task, the Workgroup identified the following risk aggregation measures for the Commission's consideration. Consensus was not achieved with respect to any one measure being better than others; the Workgroup concluded that risk mitigation

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measures should instead vary with the amount of risk represented in any approved Use Case. For this reason, all proposed and discussed risk mitigation measures are summarized below.

A. Aggregation

The most widely practiced risk mitigation measure is aggregation. In this Final Report, the term ~~was~~is used to refer to the practice of manipulating or combining data for the purpose of preventing either the identification of the customer or the re-identification of the customer's information from a larger ~~dataset~~data set. The Workgroup discussed ~~the three proposed~~multiple aggregation measures, all of which generated both support and opposition for the reasons stated below.

~~(1)~~1. 15/15 Rule

In its tariff filing and in the Workgroup discussions, Xcel Energy proposed adoption of the 15/15 Rule, the aggregation standard it has adopted as a corporate-wide policy and practice. Using this measure, Xcel Energy releases CEUD only if the requested dataset contains at least 15 customers and no one customer accounts for 15 percent or a greater amount of the ~~whole. Through the use of this standard, Xcel Energy seeks to protect the identity and privacy of each individual customer even if their CEUD is provided to a requestor without consent.~~responsive data. Xcel Energy noted that adherence to its customer notice and consent process is fundamental to maintaining its customers' privacy and confidentiality, and that the release of aggregated data reports should reasonably protect against re-identification of individual customers and their energy usage data. It has determined that the 15/15 Rule meets these parameters in appropriate circumstances.

The state of Colorado recently adopted ~~the~~a similar 15/15 Rule as a minimum aggregation level.[~~64~~] [110] In Colorado, the 15/15 Rule requires that aggregated data contain at least 15 customers or premises and, within any customer class, no single customer's data or premise may comprise 15 percent or more of the data aggregated in that customer class.[111] The rule has also been used by utilities in California.[112]

~~[64] *See* 4 Colo. Regs. 723-3 Part 3, section 3031(b)(c).~~

[110] 4 Colo. Regs. 723-3, § 3031. Attempts to revise the Colorado 15/15 Rule were recently considered as part of the Colorado PUC's Docket No. 13M-1052EG, IN THE MATTER OF POSSIBLE REVISIONS TO THE COMMISSION'S ELECTRIC RULES AND POSSIBLE Additions to the Commission's Gas Rules Relating to Data Access and Privacy. Without the adopting of any changes, this proceeding was closed by minute entry on April 30, 2014. *See* file:///C:/Users/tpust/Downloads/13m-1052eg.pdf.

[111] 4 Colo. Regs. 723-3, § 3031.

[112] Need cite

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The recommended adoption of the 15/15 Rule in Minnesota generated opposition both from Workgroup members who found it too stringent and others who found it too lenient. The first group noted that requiring at least 15 customers' data to be aggregated would frustrate ~~both citywide~~building-scale, city-wide, and neighborhood-specific energy savings efforts currently being undertaken in the City of Minneapolis. For example, a representative working with the City's East Isles Green Team reported to the Workgroup that approximately 60 percent of the neighborhood's residents live in 80 ~~multifamily~~multi-family buildings. Implementation of the 15/15 Rule would prevent that group from non-consensually collecting aggregated consumption data for 55 of ~~those~~these buildings because each has less than 15 tenants~~.~~[65]; instead, the data collectors would need to obtain customer consent from the 15 or fewer tenants.[113] For similar reasons, most of the participants representing organizations focused solely on energy efficiency efforts opposed generalized adoption of the 15/15 Rule.

The OAG-AUD expressed its concern that the aggregation standard represented by the 15/15 Rule has not been adequately evaluated on a technical level to determine if it sufficiently protects customer privacy. Similarly, MLIG expressed concern that a 15/15 aggregation standard may not prevent reverse engineering into a large industrial customer's specific CEUD, and provided an example of such for the Workgroup's consideration.[114] The MLIG representative noted that, by its very nature, large industrial customers' energy use is conspicuous and often relatively geographically isolated. As such, MLIG expressed the view that these particular customers' data may be of greater risk of re-identification through reverse engineering if combined with other publicly available information and used to identify a plant's costs of operation, a data point with obvious anti-competitive value.

~~Arguing the opposite, the LIG reported that the 15/15 Rule was too lenient in that its use would allow for the possibility that a large industrial customer's CEUD could be easily re-identified through the layering of methodical data requests. The LIG representative expressed strong concerns that any level of aggregation would allow for the possibility of specific large industrial customer data being disclosed through the combination of other publicly-accessible data. With such data, a competitor could "back into" the net operating income of a LIG business and use this information to marginalize the business in the marketplace.~~

In response to these identified concerns, other Workgroup members noted that Minnesota industrial customers' data aggregated at low levels, even below the 15/15 standard, is already widely available from sources such as EIA and the *Data Book*. The City of Minneapolis, as well as Fresh Energy, USGBC-MN, and MEEA, also respectfully highlighted the fact that neither the MLIG nor other Workgroup members identified any proven instance wherein the availability of this data has led to customer re-identification, in Minnesota or elsewhere.

~~[65] See Electronic correspondence sent to Chief Judge Pust from~~[113] See Comments submitted by David Bryan, Third Level Design~~, dated~~ (March 27, ~~2014.~~2014).

[114] Docket 12-1344, MLIG JURISDICTION ANALYSIS AND RISK ASSESSMENT (March 14, 2014).

~~Together with these expressed concerns, LIG~~MLIG questioned ~~how~~some Workgroup participants' foundational assumption that the energy efficiency efforts of nonprofits and other organizations would adhere to ~~LIG members' benefit. LIG~~the benefit of MLIG members.[115] The assumption was best expressed by MEEA:

> Large industrial [consumers] need assistance to understand how to improve their energy efficiency and would benefit from sharing of information. Their first priority is to produce product not to save energy. Many look to their peers to understand best methods or best practices to implement before trying [them] on their own.[116]

In response ,MLIG explained that its members have a strong financial incentive to keep their energy costs as low as possible, which already motivates them to invest in human, technological and other investments in energy efficiency as well as conservation efforts, both with the aid of CIP and otherwise. ~~LIG~~MLIG concluded that the Workgroup members had produced no evidence indicating that benchmarking efforts by nonprofit organizations or others would add any significant value to these consumers' ongoing efforts. As a result and given the identified risk of economic competition, ~~these~~the entities represented by MLIG oppose being included in any data~~-~~ sharing standardization efforts under consideration by the Commission.

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[115] The National Federation of Independent Business (NFIB) participant noted during the Workgroup's ___[insert date] discussions that these expressed concerns are not unique to large industrial customers. Noting that most of the small businesses in Minnesota are organized as Subchapter S corporations and many operate out of home offices, this participant concluded that the delineation between corporate and personal entities can be somewhat obscure such that it may be difficult to differentiate between business and personal energy usage data. These boundary issues raise additional concerns when considering standardization practices for release of this data absent customer consent.

[116] MEEA Comments with redlined draft report, July 29, 2014, p. 39.

~~The NFIB participant noted that these expressed concerns are not unique only to large industrial customers. Noting that most of the small businesses in Minnesota are organized as Subchapter S corporations and many operate out of home offices, this participant concluded that the delineation between corporate and personal entities can be somewhat obscure such that it can also be hard to differentiate a line between business and personal energy usage data. These boundary issues raise additional concerns when considering standardization practices for release of this data absent customer consent.~~

~~**(2) Large Industrial Exemption**~~

~~Addressing the expressed concerns relating to the re-identification, LIG offered another aggregation threshold for the Workgroup's consideration. Simply stated, the following large industrial customers would be exempt from data disclosure:~~

- ~~electric customers with a peak demand of 5 MW~~
- ~~natural gas customers with demand of 500,000 MCF or greater~~

~~The first category would exempt 98 entities; the second would exempt 26 entities, all as measured at 2013 calculations.~~

~~Several Workgroup participants expressed opposition to this suggested threshold in light of the fact that communities would be unable to gather a complete picture of their energy use if large industrial users were always exempt from disclosure and resulting benchmark calculations. In recognition of the fact that different energy savings strategies exist for each type of class, these participants perceived that exempting out an entire class would needlessly hamper the efforts to achieve state- and locally -enacted savings goals. Other participants supported the Large Industrial Exemption proposal for CEUD requests focused on a census block or neighborhood boundary, but perceived the risk of re-identification to be less significant with respect to requests focused on state or other jurisdictional boundaries.~~

~~(3) **Rule of Four**~~
2. Rule of 4/80

~~The City of Minneapolis reiterated its commitment to protect customers from the risk of re-identification but emphasized the growing need to make CEUD and PPD available to individuals and entities trying to meet state energy goals. In this context, the representative noted the Workgroup's apparent agreement~~In an effort to learn from existing efforts to match risk mitigation strategies to actual ~~risk. The City of Minneapolis, as well as Fresh Energy and [others] noted that though the group's discussions had included a focus on a risk of re-identification and the~~

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competitive disadvantages claimed to result from such, no participant had reported to the group any real-world examples where the aggregated release of CEUD data had led to these negative results despite the participants' request for this information. The Cityrisks of data disclosure, the City of Minneapolis provided the Workgroup with materials describing various aggregation and disclosure avoidance techniques, including those used by the U.S. Census Bureau.[66][117] Two of the main risk mitigation tools utilized by federal agencies include aggregation and a calculation based on the percentage of the total made up by an individual customer. With these tools in mind, the representative provided the Workgroup withand after considering information related to aggregation thresholds adopted by othernon-Minnesota utilities, as specified below.

Utility Company or PUC	Account Aggregation Threshold Number of accounts/maximum percentage of total energy usage one account can contribute
Avista (WA)	No threshold[67]
Consolidated Edison (NY)	No threshold
Seattle City Light (WA)	No threshold
Commonwealth Edison (IL)	4
Austin Energy (TX)	4/80[68]
Puget Sound Energy (WA)	5
Pepco (DC)	5
Colorado PUC	15/15 (proposed)
Xcel (MN)	15/15 (proposed)
California PUC	[Add current decision] [69]

Based upon a review of this information and in light of the its continued interest in benchmarking to promote energy efficiency,set forth above,[118] the City of Minneapolis proposed an aggregation threshold for requests seeking whole-building data. In essence, the proposal provides that any request for CEUD or PPD data on a building-scale must include the aggregation of at least four customers. Requests for energy consumption data for a geographic grouparea (city, county, neighborhood, etc.) within a utility service area would requiredrequire aggregation of four customers of any one type with no one customer making up

[66] See list includedCite to Mpls submission – include in Appendix __.

[67] If the threshold in the chart is listed as "No threshold," that signifies that the utility will release whole-building energy consumption data to a building owner without tenant consent regardless of the number of accounts in a building.

[68] Only applies to commercial buildings, there is no threshold for residential properties.

[69] Insert reference to summary in Appendix

[118] See table on page 32.

more than 80 percent of that customer type's total usage within the geographic area.

Rule of ~~Four~~4/80 Proposal for Whole-Building & Community-Scale Data

Use Case Type	Requirements for availability	Other risk mitigation measures
Building-scale use cases (monthly or annual whole-building usage data, from multiple tenants, provided to a building owner/manager or other entity)	Minimum of four customers, aggregated	Standardized requestor verification form and other measures to validate ownership/management interests in the building (meter numbers, etc.).
Community-scale use cases (monthly, quarterly or annual usage or PPD at the block group level for each of the following customer types: commercial, residential and industrial)	Minimum of four customers of any one type (residential, commercial, industrial), with no one customer using more than 80% of the total usage for that customer type in that geography. Geographies can be combined until thresholds are met.	Standardized requestor information form, and agreement to terms of use, submitted to publishing entity (utility, DOC, etc.).

The OAG-AUD opposed the Rule of 4/80, advising that the purported purpose of developing an aggregation standard was to protect customer privacy in situations where obtaining individual consent from numerous utility customers was too burdensome for a data requestor. The OAG-AUG suggested that obtaining individual consent from as few as four customers should not be considered as overly burdensome.

3. Large Industrial Exemption

Positing that large industrial CEUD is often anomalous in a particular geographic setting and is sensitive information for energy intensive companies, MLIG repeatedly expressed concerns about the ability to potentially reverse engineer company-specific information from responses to aggregated requests. As an example, MLIG noted that many of the suggested thresholds consider only what is being requested and not what might be intentionally left out of a request. MLIG offered a sample means to reverse engineer even under a 15/15 threshold: intentionally exempting from the request a city or region with a large industrial customer; then making an additional request for the same area without omitting the

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large industrial customer; upon comparison of the two results, being able to identify the energy usage of the specific large industrial customer. Once again it asserted that its members' CEUD is uniquely susceptible to reverse engineering and particularly sensitive given the harm that could be caused by its misuse.

In consideration of its concerns and rather than dismiss any particular threshold as too lenient, MLIG offered a proposal that could work in tandem with virtually any other aggregation threshold: exempting MLIG customer data over a specified threshold. In its basic form, the proposal would set the threshold in such a way that most data that can be effectively benchmarked is still subject to aggregation, but unique, industrial enterprise energy data would not be disclosed. MLIG suggested the following would be exempt from data disclosure:

- electric customers with a peak demand of 5 MW;
- natural gas customers with demand of 500,000 MCF or greater.[119]

As measured at 2013 calculations and related only to the utilities participating in the Workgroup discussions, the first category would exempt 98 entities; the second would exempt 26 entities.[120] MLIG further requested that customers that impose a peak electric demand of 1 MW or greater be provided the opportunity to opt-out by providing the utility notice of its objection.

Several Workgroup participants expressed opposition to this suggested exemption threshold, and appeared to claim that communities would be unable to gather a complete picture of their energy use and resulting benchmark calculations if large industrial users were always exempt from disclosure. In response, MLIG continued to question what value a large industrial customers' CEUD would add to a community's energy efficiency plans given the unique and complex manufacturing processes of large industrial customers. Other participants supported the Large Industrial Exemption proposal for CEUD requests focused on smaller geographic areas, but perceived the risk of re-identification to be less significant with respect to requests focused on state boundaries.

4. California Decision/ Aggregation by Zip Code

Less than two weeks before the Workgroup's final meeting, the California Public Utilities Commission released its *Decision Adopting Rules to Provide Access to Energy Usage and Usage-Related Data While Protecting Privacy of Personal Data* (California Decision).[121] Because this decision was released shortly before the Workgroup concluded its discussions, the Workgroup was not able to fully

[119] MLIG Memorandum dated May 5, 2014.
[120] Workgroup participants requested an accounting of how many of these customer types were located in each service territory. MLIG produced a total for the whole state, not identified by territory.
[121] Cite to California PUC decision

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analyze or extensively discuss the merits of the California Decision. Regardless, the California Decision adopted a different aggregation standard than those discussed by the Workgroup, a standard which allowed for data aggregation at the zip code level unless a specific zip code failed to meet minimal aggregation thresholds established for each customer class. For residential customers, aggregated data cannot be published unless at least 100 customers are included in the data set.[122] Though the Workgroup did not discuss this proposed aggregation standard in its public deliberations, it did agree that the California Decision should be studied further by the Commission as it continues to consider the relevant issues within the framework of Minnesota's legal and regulatory systems. In this context, the OAG-AUD identified this zip code-based aggregation threshold for the Commission's consideration.[123]

B. Anonymization

The Workgroup did not substantively explore this option separate from its discussions about aggregation with the removal of all PII. Overall, the participants agreed that ~~any request for~~, depending on the size of the associated geographic area attached to a request, releasing a specific customer's CEUD, even without a name attached, ~~would~~could be sufficiently subject to the risk of re-identification to justify the requirement of formal consent. For example, a CEUD request for an anonymized big-box retailer located anywhere in the Longfellow neighborhood in Minneapolis would in fact include the data of only one customer, which could then be easily identified. A request for CEUD for one anonymized residential customer located anywhere within the same neighborhood is far more unlikely to result in re-identification. Generally, the addition of specific criteria (one residential customer located on a particular block, or one paper mill in a specific county) or the reduction in the size of an associated geographic boundary increases the risk of re-identification.

Although the Workgroup did not discuss this concept in detail, Xcel Energy and other Workgroup members suggested that anonymization could prove to be an appropriate privacy protection strategy for CEUD or PPD requests related to research or other public policy purposes. MEEA advised that anonymization of individual usage data was identified as an appropriate disclosure avoidance tool for some use cases identified in the California Decision. Generally, the Workgroup agreed that further input and record development would be required in order to identify the circumstantial links between anonymization and the risk of

[122] The other aggregation standards referred to in this Final Report represent only those standards specifically discussed by the Workgroup and do not represent all of the potential standards that could be adopted by the Commission or that are used elsewhere. For example, the OAG-AUD noted in comments filed with the Workgroup that the Health Insurance Portability and Accountability Act (HIPPA) requires that, absent an appropriate technical analysis, data must be removed of all unique identifiers and aggregated to the level of a zip code's first three digits, with no fewer than 20,000 people, in order for the data to be considered not individual identifiable health information. *See* 45 CFR § 164.514.

[123] OAG-AUD redline of report draft (July 29, 2014).

re-identification in order to develop methodologies to protect against foreseeably negative consequences.

C. Registration

The Workgroup considered the concept of registration with the Commission as it pertained to potential data requestors. Noting that The state of Colorado requires requestors to file a certificate of ability to conduct business in the state before receiving any data upon request from a utility, the.[124] Some Workgroup participants suggested that a utility-by-utility registration process would be unduly cumbersome. Instead, the Workgroup suggested and recommended that any registration process could be centralized similar to that tied to the CIP system. Requiring training at the time of registration could also serve the state's interests in educating requestors about the Commission's expectations in a cost-effective and uniform manner. The Workgroup did not explore this issue in detail or reach any consensus on the topic.

IX. Two Proposals: Choosing the Right Threshold and Standardizing the Data

A. Statistical Study of Risk Mitigation Measures

The Workgroup agreed that different Use Cases present varying degrees of disclosure and re-identification risks depending on the class of consumer (residential; commercial; industrial); the data frequency (monthly data versus annual data or averaged data); the granularity of the data requested (one customer's data versus whole -building data); and other factors. As different risk levels demand different risk mitigation strategies, the Workgroup agreed that different levels of aggregation and anonymization should be crafted to address the specific risk level represented in any particular Use Case.

The Workgroup recognizesrecognized that all of the Commission's decisions must be based upon demonstrably verifiable analyses of the factors relevant to any specific issue under review. The Workgroup also agreed that, to date, there has been no demonstrably verifiable statistical or other analysis to support adoption of the 15/15 Rule, the Rule of 4/80, the Large Industrial Exemption, or any other data aggregation proposal. In the present case, the Commission will need to examine and make decisions regarding what level of effort required to obtain customers' consent presents an undue burden to approved requesters, and what level of risk of identification and/or re-identification is appropriate to require consumers to bear in favor of pursuing the state's energy efficiency goals.

[124] Insert cite.

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It is the consensus of the Workgroup that a robust analysis of privacy risk mitigation measures is both necessary~~,~~ and beyond the Workgroup's expertise to achieve. In order to provide fact-based recommendations to the Commission, the majority of the Workgroup recommends that the Commission engage a multi-disciplinary team that includes expertise in the areas of statistics, demographic analysis, data privacy, and energy policy and law; additional expertise in computer science, health policy and utility regulation may be useful as well. This team of experts ~~would~~could be tasked with conducting an analysis of practical risk mitigation approaches that can be applied to the Use Cases developed by the Workgroup, by assessing the magnitude and likelihood of re-identification of individual data.

Public Utility Commissions in California, Colorado, and other states[70] are all currently engaged in conversations about how to balance individual privacy concerns with facilitating greater access to energy data for purposes of advancing public policy objectives. The Workgroup believes that this recommended statistical study has the potential to significantly advance energy policy in Minnesota and across the nation.

A brief summary of the statistical study proposal follows. A more detailed description is found in Appendix __ to this Final Report.

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[70] ~~cite to list in 2012 study~~

1. Identification, summary, and analysis of existing publicly available and third-party access to CEUD/CPPD across the U.S., to include a discussion of the legal structure within which the data is made available.
2. Analysis or literature review of potential risks from the re-identification of utility customers from public or utility-provided CEUD/CPPD.
3. Review of privacy protection techniques currently within the utility industry.
4. Review of privacy protection techniques currently in use within other industries.
5. Statistical analysis of CEUD/CPPD from Minnesota utilities that assesses re-identification risk given different data types, use cases, and differing privacy protection and risk mitigation techniques such as data aggregation and data anonymization.

Study Duration

The duration of the study should not exceed one year.

Study Deliverables

Final report covering items 1 through 5, one scoping meeting with the Workgroup as well as two feedback sessions during the report drafting, and final presentations to the Workgroup and the Commission. The final report will address feedback provided by Workgroup members, and separately identify how the authors responded to the feedback.

Study Cost

The Workgroup was unable to identify a funding source for the study. Possible identified sources include the DER research funds and a legislative appropriation specific to this purpose.

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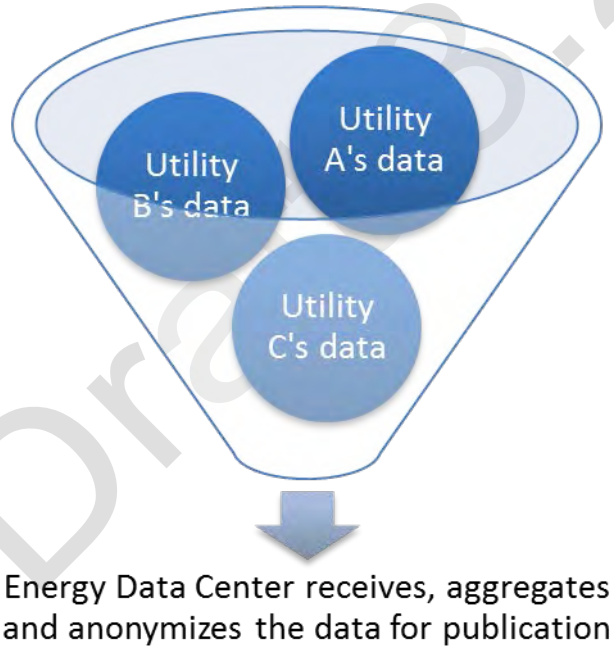
B. Energy Data Center

During the Workgroup's extensive discussions about various aggregation thresholds and other privacy protection methodologies, the participants explored the possibility of a centralized data compilation center. ~~This~~The idea of an "Energy Data Center" generated positive interest from most participants in the Workgroup as a means of limiting the types and numbers of requests to which utilities are required to respond, and thus standardizing processes while minimizing costs.

The concept is relatively simple. It would allow regulated utilities to report their customers' CEUD and PPD[125] on an annual basis to a centralized repository. ~~The repository would be responsible for scrubbing the data of all PII and otherwise standardizing it for release in accordance with~~Utilities could either submit data "scrubbed" of all PII and standardized based on the Commission's mandated risk mitigation measures~~.~~, or submit raw data which the repository would then "scrub." The repository would then electronically publish the data on an annual or other regularized basis, much like the U.S. Census Bureau releases its data for public consumption. Requesters would be required to utilize the posted data and would not be allowed to seek specific requests from either the regulated utilities or the central data repository.



This proposal is intended to apply only to Use Cases that seek data defined by geographic boundaries or with respect to other defined communities of interest.

[125] Although the proposal did include references to PPD, the Workgroup's discussion of the Energy Data Center concept focused exclusively on CEUD. Because Workgroup members did not discuss the advisability of including PPD in the centralized repository, no effort was undertaken to identify specific risk mitigation measures related to its inclusion.

Requests for an individual's CEUD/PPD, and requests for building-wide data, would continue to be directed to the utility rather than the centralized repository.

Because the concept was not introduced into the Workgroup's process until ~~its final meeting,~~fairly late in the process,[126] the formal discussion was brief and lacked necessary detail. At the Workgroup's request, the representative from the City of Minneapolis prepared and submitted a summary of the concept for the Workgroup's reaction, a copy of which is contained in Appendix __.

Following the Workgroup's final meeting, Xcel Energy organized a conference call to further discuss this proposal. Representatives from Xcel Energy, Centerpoint Energy, Dakota Electric, Minnesota Power, the Large Industrial Group, City of Minneapolis, Fresh Energy, and the Center for Energy and Environment participated in the discussion. Following a review of the proposal, Workgroup members expressed cautious interest in having non-building-specific data collected centrally by the state or another entity. Members recognized that the repository ~~would likely~~may reduce costs at the individual utility level by minimizing technology upgrades that might otherwise be necessary to meet any Commission-issued standards related to CEUD/PPD sharing. The Workgroup also noted that the proposal has the potential to significantly increase compliance with any mandated risk mitigation measures given that these standards would be applied at the repository and not by the staff of individual utilities.

In addition, some utilities suggested the data made public should be limited to zip code-level aggregations, rather than anything smaller. This concern did not seem to be based on any aggregation standard rationale, but rather a concern that utilities would be responsible for producing geographic aggregations (rather than the Data Center), which many suggested is beyond their current capacity. The participants acknowledge that the consideration of a possible Energy Data Center did not resolve any of the outstanding issues about the appropriate aggregation threshold for customer data to be considered safe from re-identification. Xcel Energy also expressed concern that the Workgroup had not adequately discussed program participation information as part of the use cases and that there was some concern about that being a data set published by the Energy Data Center without further discussion. ~~Some~~

Participants cautioned the Commission not to seek to duplicate the centralized energy data repository ~~recently announced by~~discussed as part of the California Public Utilities Commission proceeding on data access. Most importantly, the Commission should remain mindful that the California model is envisioned to respond to dynamic requests by constantly publishing CEUD based on requestor interest, while the proposed Minnesota model would publish, once annually, utility-submitted data based on predefined data sets. Given the very different legal and industry-based framework between the two states, participants urged the Commission not to assume that the California model could be duplicated in

[126] *See* Memoranda submitted by the City of Minneapolis (April 18, 2014 and May 5, 2014).

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Minnesota. Other concerns remain about the organization, costs and other details of the Energy Data Center, critical details which are beyond the scope of the Workgroup to develop given the limited timeframe for its work.

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X. Workgroup Recommendations

The Workgroup makes the following procedural ~~recommends~~recommendations intended to assist the Commission in pursuing this important effort in a manner that is best designed to achieve the energy efficiency goals of the state while protecting the privacy interests of Minnesotans.

A. Review Workgroup Participant's Written Submissions.

Participants in the Workgroup have worked diligently to share their expertise and experience during formal meetings and follow-up conferences, all in an effort to ensure that the Commission is provided the shared wisdom of each individual in the group. They have also contributed additional information, suggestions and valuable information for the Commission's review and consideration, all as found in written submissions attached, collectively, as Appendix __ to this Final Report.

B. Examine CPUC Decision for Lessons Learned.

The California Public Utilities Commission commenced a rulemaking proceeding in late 2008 aimed at modernizing the state's electric grid by moving to Smart Grid technology.[~~71~~127] Nearly two years into this work, the CPUC began focusing on issues related to access to CEUD in light of the privacy expectations of utility customers. Five and a half years after the process originated, on May 5, 2014 the California Commission issued its *Decision Adopting Rules to Provide Access to Energy Usage and Usage-Related Data While Protecting Privacy of Personal Data.*[~~72~~128]

The Minnesota Workgroup met nine times over a period of nine months. Although the Workgroup participants are experts in their respective fields and worked diligently in pursuit of the Commission's charge, the time constraints within which the work was required did not allow for a sufficient review and consideration of the California work product. ~~Even~~ A summary review of the recent decision[~~73~~129] reveals valuable discussions about many of the same topics identified by the Workgroup as critical to the discussions in Minnesota. Even so, the Workgroup is cognizant of the fact that California's legal framework and ~~a~~ myriad ~~of~~ other components of its regulated energy industry vary significantly from Minnesota's. ~~In this context~~As such, the Workgroup recommends that the Commission keep these significant differences in mind as it closely ~~study~~studies the California ~~efforts~~effort as a means of avoiding identified pitfalls and building upon lessons learned.

[~~71~~127] cite to R08-12-009.

[~~72~~128] Cite to ecopy

[~~73~~129] See Appendix __.

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C. Confirm Jurisdiction.

Several Workgroup participants ~~included~~voiced continuing concerns about the Commission's authority to ~~pursue this effort absent additional statutory authority~~mandate CEUD release to non-jurisdictional third parties absent legislative or regulatory changes. The Workgroup recommends that this issue be addressed in order to protect the regulated utilities, customers, and data requestors, from liability based on challenges to the lawful authority supporting any mandates the Commission may enact.

D. Examine Ramifications of Authorities and Practices Related to Publication of the *Minnesota Utility Data Book*~~*I*~~

It is possible that the ~~aggregated~~ data already published in the *Minnesota Utility Data Book* will meet ~~some of the~~various data-driven needs represented in some of the identified Use Cases. Further examination of the publication processes, as they relate to the relevant issue of data aggregation ~~processes~~, and identification of any use limitations is necessary before the Workgroup can determine how, if at all, this existing data set can inform the questions posed by the Commission.

E. Continue Workgroup to Finish the Work

The Workgroup freely admits that it did not have time to engage in a sufficiently substantive discussion on several topics within its charge, including: a full discussion of the appropriate parameters for the release of PPD; redress for unauthorized disclosure; data retention expectations; audit/review processes; registration of requesters; and liability protections for utilities upon compliance with Commission directives. In general, the participants remain interested in continuing its work in support of the Commission's efforts related to the identification of appropriate balance between the policy-driven need for access to CEUD/PPD and the privacy expectations of utility consumers.

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Attachment B

(Memorandum dated July 29, 2014)

STOEL RIVES LLP
ATTORNEYS AT LAW

MEMORANDUM

July 29, 2014

TO: CEUD WORKGROUP

FROM: ANDREW P. MORATZKA, SARA E. BERGAN

RE: Comments on Draft Workgroup Report Prepared by the Administrative Law Judge: PUC Docket No. CI-12-1344

The Minnesota Large Industrial Group ("MLIG"), a continuing ad hoc consortium of large industrial end-users of electricity in Minnesota spanning multiple utilities and functioning to represent large industrial interests before regulatory and legislative bodies, submits the following thoughts in response to the Draft Report prepared by Judge Pust and circulated to the Workgroup on July 8, 2014 ("Draft Report").

I. INTRODUCTION

MLIG appreciates the time and investment spent by Judge Pust and all parties in the CEUD Workgroup. Since early fall of last year, the meetings have helped define the potential opportunities and challenges of increased CEUD sharing in Minnesota. MLIG commends Judge Pust and her staff in assembling the Draft Report, a noble first effort in organizing the Workgroup's written submissions and oral comments over the last 10 months. MLIG nonetheless suggests a few edits, as contained in the attached redline, to more accurately reflect its specific comments and (hopefully) clarify a few items. This short memorandum encloses the

edits to provide a brief summary of MLIG's general and specific concerns. MLIG looks forward to reviewing the final report.

II. COMMENT ON REPORT THEMES

MLIG's comments focus on its concerns regarding the potential misuse of its members' energy data. We have illustrated these concerns throughout the proceeding and suspect our positions may not need additional detail. As such, we attempt to balance the need to refine and remind of the key concerns without belaboring the points.

To be sure, MLIG members exhibit starkly anomalous energy use, particularly in northern Minnesota where they are quite isolated. These operations are more susceptible to reverse engineering than most any other utility customer and there are relatively few such customers in the state. Furthermore, MLIG members generally represent long-standing natural resource industries that have been and remain important to Minnesota's economy. Because they are energy-intensive industries, their particularized energy use is a key - if not the key - ingredient to their costs of production. Thus, the CEUD in the hands of a competitor could spell disastrous consequences for any one of these enterprises. The harm would be hard to identify in even the most egregious of circumstances and even harder to seek redress for. Ultimately, redress for anticompetitive actions may be made even harder or more complicated by government intervention in this area. For these reasons, the MLIG has continued to urge parties to take a precautionary approach and avoid disclosure or aggregation of this data.

As a related matter, MLIG fails to understand why any of the participants in the process want the large industrial data. We understand that changes to whether industrial data is included in statistics year over year or not could present challenges to effective benchmarking or indicators efforts - if the data is present in a report one year but absent the next, it could be very disruptive to benchmarking efforts. But we fail to see what is truly lost in benchmarking efforts if the data remains consistently excluded year over year.

More to the point, truly large industrial users of energy are hardly capable of benchmarking because each enterprise is very unique. We stress once again that we understand parties may want to see increased efficiency among the most energy-intensive industries in the

State, but have repeatedly asked for what specific end do parties want to use data that is so unique and so sensitive to a particular mill, mine or plant. While energy intensive industries may be obvious targets for energy-efficiency goals, MLIG posits that for the same reason (their energy use is uniquely large) they are particularly ill-suited to benchmarking efforts. No party to this proceeding has introduced any evidence how one taconite mine could be benchmarked against another taconite mine, let alone how a mine could be benchmarked against a paper mill. Furthermore, MLIG understands the benchmarking efforts discussed in the Workgroup to be focused on absolute reduction in kWh (conservation) rather than per unit of production efficiency gains. MLIG members not only generally focus on the latter, their efforts include other forms of energy savings, including natural gas, diesel fuel, and steam.

Therefore, the inclusion of industrial data in any local or regional benchmarking efforts aimed at energy conservation may do little other than simply frustrate the process. In short, MLIG is wholly unclear how inclusion of industrial data supports any of the benchmarking efforts discussed by the group. Despite its efforts to draw out the interests associated with the MLIG data, there have been no clear answers. In light of what MLIG perceives of very real risks of sharing the data combined with an absence of clear reasons for using the data, MLIG objects to its disclosure aggregated or otherwise.

III. SUGGESTED EDITS AND EXPLANATION

Our intent with the redlined document was generally to offer specific alternative language particularly in places focused on thoughts, concerns or commentary raised by MLIG. In very few cases there are suggested editorial comments to add further context or add information that was missing or requested. Overall, our aim was to keep the redlines relatively minimal and offer them in discrete areas where so doing could save time over simply providing comments on our concerns. With that in mind, the following includes a short summary of our more substantial suggested revisions and reasons for them.

A. Overview. The suggested edits included in the overview section are simply intended to give the reader a little more context on why we are having these discussions on CEUD in Minnesota in particular. We also note that this could be enhanced by simply switching the order between the procedural section and the jurisdictional section. MLIG found the

procedural section very helpful and thorough background that could further set the stage for the rest of the report. This change would also have the effect of putting the jurisdictional analysis next to the state energy goals section which also seems like a helpful sequence.

B. Authority. We suggest edits to this section to better represent MLIG's key concerns relating to the jurisdiction of the Commission. As a threshold matter, we appreciate the inclusion of both MLIG and Xcel Energy's comments on this point as attachments to the report. While we may not all come to the same conclusion, part of the problem has been a lack of clarity over what actions the Commission might take to encourage greater CEUD sharing. Depending on what actions the particular party has in mind or is addressing, the jurisdictional analysis may differ. This issue appears to be present in the Draft Report, as the primary statutory authority cited in the section is focused on the roles and duties of utilities, as opposed to the authority of the Commission. This likely reflects the genesis of this inquiry being responsive to a filing by Xcel Energy as opposed to something on the Commission's own motion. This is not to say the cited statutes do not affect potential actions the Commission may take related to CEUD, but MLIG would generally like to encourage a more thorough analysis on this issue and as the potential actions become more clear.

Lastly MLIG is concerned that the Draft Report is biased toward an assumption of general authority, without taking a more exacting look at what actions there might be very clear authority for and what actions might involve less certain authority. MLIG does not assert that the Commission lacks any authority in the CEUD space, but rather wants to be clear on the authority for specific actions particularly as they involve third-parties not otherwise subject to Commission jurisdiction. MLIG appreciates Xcel's attempt to carefully delineate what actions might be very clearly within the Commission's jurisdiction and what actions might require further legislative action or clarification. MLIG also appreciates Xcel's continued caution against relying on other states' actions without a thorough comparison or understanding of the similarities and differences between each state's public utility regulatory framework. MLIG also raised this concern in its last memorandum.

In addition to revising language paraphrasing MLIG concerns about jurisdiction, we also attempted to clarify the discussion of risks to industrial consumers in this section.

C. Process. MLIG appreciates the time spent summarizing the steps taken even to arrive at the Commission's June 17, 2013, Order establishing the three workgroups. Because this discussion is quite thorough, MLIG respectfully asks if it might be useful to list the issues the Commission requested the workgroup address in that order.

D. Energy Goals. MLIG recommends a minor change to the discussion of the Minneapolis ordinance so as to avoid the possible misinterpretation that the city ordinance is aimed at industrial buildings.

E. Cost Recovery. MLIG offers a few specific edits to clarify its position on cost recovery, as detailed in its memorandum. MLIG also inserts a question as to whether or not the demand for CEUD is a State-wide issue or Xcel Energy issue. Having data from other utilities on the number of requests may be helpful in this regard.

F. Use Cases. Given its detailed comments on the subject to date, it is probably clear that MLIG objects to disclosure of its CEUD in certain geographically defined areas and in the context of research. But, in an abundance of caution, MLIG offers a few specific edits in an attempt to particularly define concerns and areas of agreement.

G. Reducing Disclosure Risks. Here we attempted to clarify that MLIG does not necessarily object to one aggregation threshold over another, but is generally concerned about reverse-engineering under virtually any standard in light of the conspicuousness and sensitivity of its members' data. As it has stated before, MLIG strongly recommends that any aggregation standard include an appropriate industrial data exemption to avoid unintended and potentially severe consequences.

At risk of belaboring the point, MLIG would be remiss in not reiterating its concern over the use of the aggregation table cited in a City of Minneapolis memo that has been repeatedly circulated within the group. As a standalone table with no further clarification of what the thresholds listed pertain to or not, MLIG believes the table to be very misleading. It is our understanding that several of the listed standards include industrial or manufacturing exemptions from the standard.

H. Proposals. Although MLIG and others have provided some initial thoughts on the proposals listed at the end of the report, we do not propose changes or modifications other than to respectfully note and emphasize that there is no evidence in the record upon which the Commission can adopt the 15/15 rule, 4/0 rule, or any other aggregation standard. Furthermore, the concepts of a study and energy data center, while potentially valuable, simply came up far too late in the process and thus did not receive adequate discussion or attention.

IV. CONCLUSION

The Workgroup recommendations at the end of the report should underscore the fact that more work needs to be done by the Commission and stakeholders before CEUD standards are set. We look forward to reviewing the final report.

Attachment C

(Comment dated April 4, 2014)

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April 4, 2014

VIA E-FILING

Dr. Burl W. Haar
Public Utilities Commission
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St. Paul, MN 55101

Re: In the Matter of a Commission Inquiry into Privacy Policies of Rate-Regulated Energy Utilities
Docket No. E, G-999/CI-12-1344

Dear Dr. Haar:

Pursuant to a request from Administrative Law Judge Tammy Pust, please find enclosed for filing the Minnesota Large Industrial Group's Response to comments provided by LHB, Inc. and the City of Minneapolis regarding customer energy usage data.

Very truly yours,

Stoel Rives LLP

/s/ Andrew P. Moratzka

Andrew P. Moratzka

APM:kap
Enclosure

cc: Service List

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STATE OF MINNESOTA
BEFORE THE
PUBLIC UTILITIES COMMISSION

In the Matter of a Commission Inquiry into Privacy Policies of Rate-Regulated Energy Utilities	PUC Docket No. E, G-999/CI-12-1344 **MLIG RESPONSE TO LHB, INC. AND CITY OF MINNEAPOLIS COMMENTS**

The Minnesota Large Industrial Group ("MLIG"), a continuing ad hoc consortium of large industrial end-users of electricity in Minnesota spanning multiple utilities and functioning to represent large industrial interests before regulatory and legislative bodies, submits the following thoughts in response to the e-mail from LHB, Inc. on behalf of the City of Minneapolis and the memorandum circulated by the City of Minneapolis in preparation for the March 21, 2014 meeting.

I. BACKGROUND AND INTRODUCTION

MLIG greatly appreciates the thought put into the workgroup participants' filings and proposals in using customer energy usage data ("CEUD") to forward energy goals. But our concerns about the risks to large industrial customers remain. These concerns are amplified by claims from workgroup participants that MLIG's CEUD is already public and/or there is little to no risk in making it public. MLIG believes that it is virtually impossible to guarantee a risk-free approach to data sharing. Therefore, MLIG respectfully requests that workgroup participants consider proceeding with caution - particularly initially.

To that end, MLIG wishes to provide some additional thoughts or insights into the e-mail from LHB, Inc. dated March 20, 2014 (the "LHB E-mail") and examples brought forth by the City of Minneapolis in its memo (the "Minneapolis Memo"). In certain instances, MLIG is not entirely sure what specific lessons are to be drawn from the examples.

With respect to the LHB E-mail, the author provides little to no context or background regarding the Urban Land Institute's Minnesota Regional Indicators Initiative ("ULI Initiative"). The purpose of the LHB E-mail is therefore not entirely clear. Furthermore, there are objections

from customers whose CEUD appears to have been unwittingly included in the ULI Initiative's work.

With respect to the Minneapolis Memo, MLIG assumes the inclusion of the utility programs in Table 1 is offered as support for its assertion that "the experience of other utilities across the country that currently provide aggregated data to third parties has not to date demonstrated significant risk." While MLIG has not exhaustively reviewed each aggregation threshold cited in the Minneapolis Memo,[1] it has attempted to find more information on some of the programs to better understand the context. A quick review suggests that the risks to customers, and industrial customers in particular, was not often lost on the parties implementing the aggregation thresholds or policies. Instead of standing for the proposition that the risks are not present or are overblown, they may instead illuminate potential avenues to guard against the risks presented. MLIG addresses some of the key factors in the utility programs included in Table 1 of the Minneapolis Memo that should be considered.

II. ADDITIONAL CONTEXT AND ANALYSIS

A. The LHB E-mail Should Not Be Viewed as a Justification for City-Wide CEUD Aggregation

The LHB E-mail asserts "In the case of a 4/0 policy (versus 15/15 currently being applied by Xcel, there is absolutely no way that an individual company's data could be extracted or deduced. The example in Table 1 submitted by [MLIG] is not applicable to the data we are receiving." These statements are troubling for two reasons.

First, at least two industrial customers within the cities covered by the ULI Initiative were unaware their CEUD was shared. The ULI Initiative appears to cover cities that are within the seven-county metro area, as well as Rochester and Duluth.[2] Two members of MLIG are located within cities that are part of the ULI Initiative. Neither member was aware of the ULI Initiative or provided consent to its CEUD information being shared to the ULI Initiative. Absent a better

[1] For a more thorough review, it would be helpful to have citations or detail on the programs referenced. Utilities may have multiple programs that vary in content depending on the jurisdiction being served.

[2] http://regionalindicatorsmn.uli.org/energy-chart.

understanding of what information was shared and how that information is protected, these members strenuously object to the production.

Second, because the majority of MLIG members are located in smaller towns and cities that are not part of the ULI Initiative, Table 1 in MLIG's prior memo remains very relevant to the issues being addressed by the workgroup. And how the 4/0 policy could be applied in a small town to protect industrial customers who view their CUED as proprietary is not clear from the LHB E-mail. For these reasons, MLIG respectfully urges caution in assuming city-wide data aggregation is sufficient to protect all customers based on the LHB E-mail.

B. The Minneapolis Memo Fails To Adequately Describe Programs in Other Jurisdictions

1. Voluntary Programs vs. Mandatory Programs

First and foremost, there is a very big difference between programs where data disclosure is mandated or required in some way, and those where it is optional, opt-in or voluntary. In the examples listed in Table 1 of the Minneapolis Memo, Puget, Avista and Seattle City Light may all be subject to reporting requirements set in place by the City of Seattle and discussed in Section 2 below. Independently, however, each may also allow voluntary programs for energy benchmarking. Puget Sound Energy MyData allows customers to request whole building energy use data from PSE, but consent is required if there are 4 or fewer tenants in the building.[3] Avista's Automated Benchmarking Service also works with Energy Star's Portfolio Manager ("Portfolio Manager") to allow building owners to assess building performance. It is not, however, clear that the service is even available to buildings used for industrial purposes.[4] Nevertheless and in both cases, the programs are voluntary.

In the case of ComEd (operating in IL), the utility offers an Energy Usage Data tool (integrated with Portfolio Manager like many others). The tool allows building owners or property managers to retrieve aggregated energy usage data for multi-tenant, commercial,

[3] *See* https://pse.com/accountsandservices/YourProperty/Pages/Automated-Benchmarking.aspx.
[4] *See* http://www.avistautilities.com/business/benchmarking/pages/default.aspx.

residential and industrial buildings. Parties elect to enroll in the program by completing and signing an enrollment form.[5] The program also appears to be a voluntary.

2. Manufacturing and Industrial Exemptions

As mentioned above, three of the examples are utilities operating in the Seattle area that are subject to Seattle's Energy Benchmarking and Reporting Program (Ordinance 123226 and 123993).[6] Avista Utilities, Seattle City Light and Puget Sound all operate in Washington and are likely subject to city code. In general, the program requires owners of non-residential and multifamily buildings (20,000 sf or larger) in the City of Seattle to track energy performance annually and report to the City. The policy was developed to support the City's Climate Action Plan. While the second Ordinance makes clear on its face that it does not apply to buildings used primarily for industrial manufacturing purposes,[7] the first is interpreted by the Director of the Department of Planning and Development to exempt "buildings used primarily for manufacturing or industrial purposes."[8] Thus Seattle's Energy Benchmarking and Reporting Program for buildings has carefully created an exemption aimed at industrial and manufacturing customers - something that is not clear by the inclusion of the Avista, Seattle City Light and Puget Sound examples in Table 1 of the Minneapolis Memo.

Similarly, the City of Austin implemented an energy conservation and disclosure ordinance that affects Austin Energy.[9] The local law requires building owners to determine and

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[5] *See* https://www.comed.com/business-savings/energy-tools/Pages/energy-usage-data.aspx.

[6] All ordinances and related rules are available on the City of Seattle website: http://www.seattle.gov/environment/buildings-and-energy/energy-benchmarking-and-reporting/why-benchmarking-is-required---about-the-law.

[7] City of Seattle Ordinance Number 123993, Section 1, D ("This Chapter shall not apply to buildings used primarily for industrial manufacturing purposes.")

[8] See Section D of Director's Rule 6-2011, published on December 5, 2011 and effective May 21, 2012 ("The following building types are exempt from all benchmarking, disclosure and reporting requirements: . . .(d) Buildings used primarily for manufacturing or industrial purposes, as demonstrated by submitting one of the following: a) A valid Certificate of Occupancy or construction permit documenting that at least 50% of the building is classified under the current Seattle Building Code as Factory Industrial Group F. This includes buildings used for assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair or processing operations. B) DPD's self-certification exemption form, in which the building owner has verified that: neither they nor DPD staff have been able to locate a Certificate of Occupancy for their building; and their building meets the definition of a Factory Industrial Group F building as classified in the Seattle Building Code.")

[9] City of Austin, Ordinance No. 20110421-002, amending Chapter 6-7 of the City Code Relating to Energy Conservation Audit and Disclosure Requirements (effective May 2, 2011). *See* Chapter 6-7 of the City of Austin Municipal Code, *available at* http://www.austintexas.gov/resident/city-code.

submit an energy benchmark rating for their facilities. Like others it relies on the EPA's Portfolio Manager tracking tool and the information that is made publicly available is the self-rated energy benchmarking rating. And like other examples, it includes an exemption for those that may have particularly significant energy usage. The ordinance applies to all commercial buildings located within the City of Austin boundaries that are served by Austin Energy with the following exception. Manufacturing buildings that have a use that "has met all requirements of a State of Texas sales tax exemption for manufacturing, processing, or fabricating tangible personal property for sale and the utility account holder has qualified for a Predominant Use Exemption for the Utility account(s) of the entire commercial facility."[10]

In other cases, such an exemption is not so clear. New York City has also enacted local energy and sustainability benchmarking laws.[11] Local Law 84 requires owners of large buildings (over 50,000 sf) to annually measure their energy consumption through the EPA's Portfolio Manager. The City publishes an annual covered buildings list and it appears as though there is no clear exemption for industrial or manufacturing uses. Building owners must submit data online annually to the City through the Portfolio Manager or potentially face fines.

In the case of ConEd (operating in NY), the utility will make aggregated energy use information available for the purposes of complying with NYC Local Law(s) 84[12] and 87, but only to the customer's Authorized Representative. The utility will not release the information without a completed and signed authorization form that specifically identifies the customer's Authorized Representative. Once executed, the Authorized Representative can access aggregated energy use data until the Authorization is revoked in writing by the customer.

3. Experience Remains Relatively Slight

In many cases, experience managing the data is not long-lived. Even in the case of Washington DC, which implemented a benchmarking law in 2007, reporting for private buildings began less than a year ago. In Washington DC, buildings over 50,000 sf are subject to

[10] *See*, http://www.austinenergy.com/wps/portal/ae/Programs/ECAD-Ordinance/for-commercial-buildings/.
[11] New York City Local Law(s) 84 and 87.
[12] *See*, http://www.nyc.gov/html/gbee/html/plan/ll84.shtml.

annual reporting requirements.[13] PepCo supports this law by allowing customers to complete a Building Electricity Consumption Data Request Form and providing aggregated data. Private buildings only began reporting in April of 2013.

Likewise the City also included a couple of examples of online energy usage data comparison tools. MLIG notes that the Gainsville Green program is still in its beta form, with data still being uploaded and tested. In the case of Madison Gas and Electric, the program only applies to residential customers. Thus it is not clear what either example provides in terms of context for disclosure of industrial customer data.

4. EIA Data

The Minneapolis Memo states "Each year, in hundreds of instances, utilities provide to EIA total annual consumption data for customer classes that include only one customer. In these cases, the reported electricity sales in MWhs identifies total consumption of one individual customer in that year."[14] It is not clear to MLIG that the information provided is, in fact, total consumption. MLIG can only address Minnesota, in which two examples are worth noting. First, there is at least one unregulated utility where the information is not total consumption. Instead, it is the portion of electric consumption that is self-generated by an industrial customer. The remainder is purchased from the investor owned utility. Second, it is not clear how any customer can qualify as an industrial customer if that customer consumes 10 MWh or less in a given year. Perhaps here too the data only represents a portion of the total consumption. MLIG assumes this to be the case given the $1,200/MWh apparently paid by one industrial customer.

III. CONCLUSION

MLIG hopes that the concerns and examples provided give some insight into what states or utilities that have moved forward earlier in time have done. In drawing any conclusions from them, however, it is important to keep in mind that some are voluntary in nature, many have not had much time reporting and handling the data (so as to better confirm that risks or problems will not be encountered), and many have included specific exemptions for buildings that are primarily

[13] *See* Title V of The Green Building Act of 2006 (D.C. Law 16-234, D.C. Official Code § 6-1451.01 et seq.)(effective Mar. 8, 2007).

[14] Minneapolis Memo, pg. 7.

used for industrial or manufacturing purposes. For these reasons, MLIG urges workgroup participants to consider proceeding with caution. MLIG looks forward to continued dialogue regarding CEUD production and protections for industrial customers.

Date: April 4, 2014

Respectfully submitted,

/s/ Andrew P. Moratzka

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CERTIFICATE OF SERVICE

I, Andrew P. Moratzka, hereby certify that I have this day, served a true and correct copy of the following documents to all persons at the addresses indicated below or on the attached list by electronic filing, electronic mail, courier, interoffice mail or by depositing the same enveloped with postage paid in the United States Mail at Minneapolis, Minnesota.

MLIG RESPONSE TO LHB, INC. AND CITY OF MINNEAPOLIS COMMENTS

In the Matter of a Commission Inquiry into Privacy Policies of Rate Regulated Energy Utilities
Docket No. E, G-999/CI-12-1344

Dated this 4th day of April, 2014.

/s/Andrew P. Moratzka
Andrew P. Moratzka

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Ron	Spangler, Jr.	rlspangler@otpco.com	Otter Tail Power Company	215 So. Cascade St. PO Box 496 Fergus Falls, MN 565380496	Electronic Service	No	SPL_SL_12-1344_Interested Parties
Cary	Stephenson	cStephenson@otpco.com	Otter Tail Power Company	215 South Cascade Street Fergus Falls, MN 56537	Electronic Service	No	SPL_SL_12-1344_Interested Parties
SaGonna	Thompson	Regulatory.Records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7 Minneapolis, MN 554011993	Electronic Service	No	SPL_SL_12-1344_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Jason	Topp	jason.topp@centurylink.com	CenturyLink	200 S 5th St Ste 2200 Minneapolis, MN 55402	Electronic Service	No	SPL_SL_12-1344_Interested Parties
Gregory	Walters	gjwalters@minnesotaenergyresources.com	Minnesota Energy Resources Corporation	3460 Technology Dr. NW Rochester, MN 55901	Electronic Service	No	SPL_SL_12-1344_Interested Parties
Patricia	Whitney	N/A	St. Paul Assn of Responsible Landlords	2197 Silver Lake Road NW New Brighton, MN 55112	Paper Service	No	SPL_SL_12-1344_Interested Parties
Elizabeth	Wilson	N/A	Humphrey School of Public Affairs	130 Humphrey School 301 19th Ave. S Minneapolis, MN 55455	Paper Service	No	SPL_SL_12-1344_Interested Parties
Josh	Winters	N/A	MPIRG	2722 University Ave SE Minneapolis, MN 55414	Paper Service	No	SPL_SL_12-1344_Interested Parties
Robyn	Woeste	robynwoeste@alliantenergy.com	Interstate Power and Light Company	200 First St SE Cedar Rapids, IA 52401	Electronic Service	No	SPL_SL_12-1344_Interested Parties