

Minnesota CHP Stakeholder Engagement

*Facilitating informed dialogue
for effective action planning*



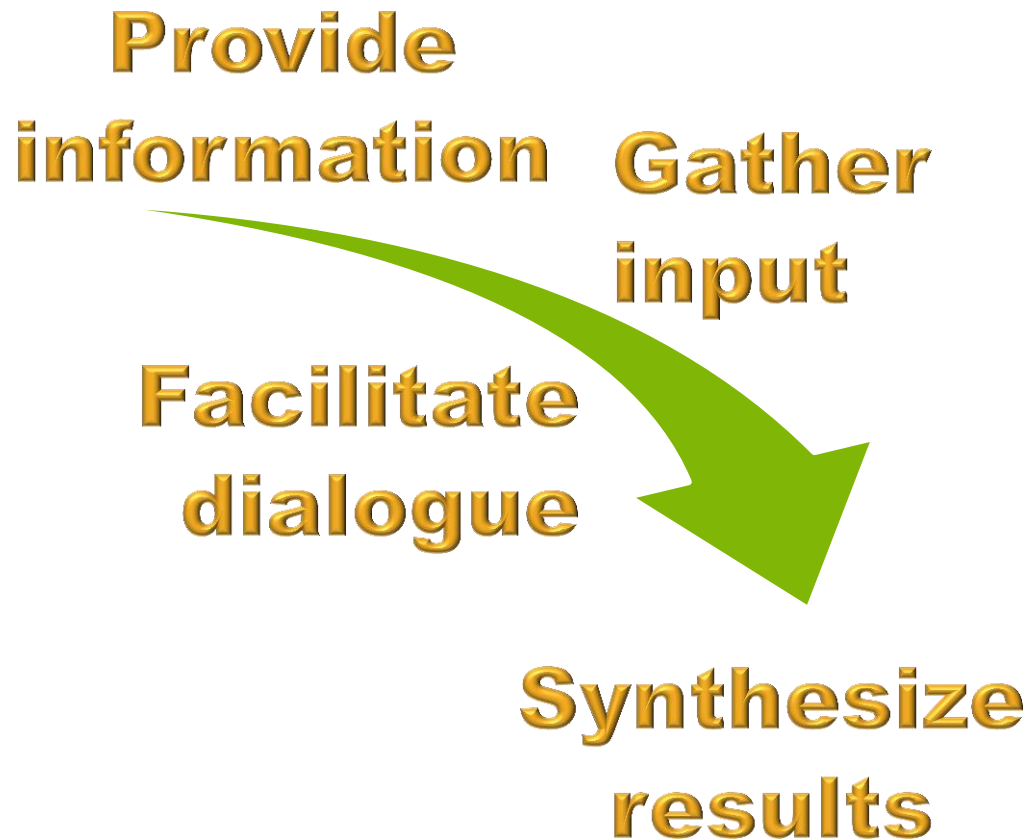
Minnesota CHP Stakeholder Meeting #4
Discussion and Synthesis of Major Themes
Oct. 15, 2014 | Wilder Center, St. Paul, Minn.

Under contract to
Minnesota Department of Commerce,
Division of Energy resources.
Project made possible by a grant
from the U.S. Department of Energy.

I. CHP Stakeholder Meeting #4

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Introduction; Process and Agenda; Review CHP Meeting #3 and Comment Period (Microgrid Institute)
- II. Discussion and Synthesis of Major Themes (*Part I*)
- III. Discussion and Synthesis of Major Themes (*Part II*)
- IV. Wrap-Up and Next Steps (Minnesota Department of Commerce)

CHP Meeting Process



Meeting #1 (9/03):
**CHP Baseline, Value Proposition,
and Path Forward**

Meeting #2 (9/24):
CHP U.S. Policy Context + Standby Rates

Public Comment Period #1
9/24 to 10/10

Meeting #3: (10/15):
**Stakeholder Panels:
CHP Economic Potential, Policy Options**

Meeting #4: (11/05):
Discussion and Synthesis of Major Themes

**Post-Engagement Survey,
Public Comment Period #2, and
CHP Action Plan**
DATES TBA

CHP Meeting #4 Agenda

Discussion and Synthesis of Major Themes

8:30 – 8:45: Introduction and Review
(Microgrid Institute)

8:45 – 10:45: Major Themes – Part I

1. *CHP Evaluation Criteria*
2. *Mapping CHP Opportunities*
3. *CHP Ownership Problems and Solutions*

10:45 – 11:00: Break

11:00 – 12:15: Major Themes – Part II

4. *Adapting CIP for Supply-Side Investments*
5. *Education and Training Needs and Options*

12:15 – 12:30 Wrap-up and Next Steps
(Minnesota Department of Commerce)

CHP Meeting #3 Review

MN CHP Stakeholder Meeting #3: (Oct. 15, 2014)

Meeting #3 Agenda

- Introduction: Jessica Burdette, Department of Commerce
- Meeting #2 Review: Michael Burr, Microgrid Institute
- Comment Period Summary: Michael Burr, Microgrid Institute

PANEL 1: CHP Market Potential

- *Marianne Bohren, Western Lake Superior Sanitary District*
- *Tim Gallagher, Minnesota Power*
- *Larry Schedin, LLS Resources and Minnesota Chamber of Commerce*
- *Sara Letourneau, BlueGreen Alliance*

PANEL 2: Policy Options

- *Nick Mark, CenterPoint Energy*
- *Bill Black, Minnesota Municipal Utilities Association*
- *Paul Lehman, Xcel Energy*
- *Ken Smith, District Energy St. Paul / Ever-Green Energy*
- *Sheldon Strom, Center for Energy and Environment*

Stakeholder Comments

Comment Period – Sept. 24 - Oct.10, 2014

Final Summary Report distributed Oct. 31, 2014

13 Stakeholder Comment Submissions Received

Utilities	Customers & Vendors	Advocacy Groups
<i>CenterPoint Energy</i>	<i>Cummins Power Generation</i>	<i>BlueGreen Alliance</i>
<i>Great River Energy</i>	<i>Vergent Power Solutions</i>	<i>Fresh Energy</i>
<i>Minnesota Power</i>	<i>Western Lake Superior</i>	<i>Great Plains Institute</i>
<i>Otter Tail Power</i>	<i>Sanitary District</i>	<i>Midwest Cogeneration Association</i>
<i>Xcel Energy</i>		<i>Minnesota Chamber of Commerce</i>

Comment Topic Categories

- **FVB Proposed Policy Options – CIP, RPS, APS, IRP**
- **Capital Costs and Utility Investment Prospects**
- **Economic Potential and Value Proposition**
- **Standby Rates**
- **Training and Education Needs**

II. Major Themes – Part I

1. CHP Evaluation Criteria

Considerations and approaches for fair, accurate, and comprehensive assessment and valuation of CHP attributes.

2. Mapping CHP Opportunities

Empirical study and granular analysis of opportunities for topping-cycle and bottoming-cycle CHP projects.

3. CHP Ownership Problems and Solutions

Issues and options involving utility resource planning, ratepayer risks, market power, and behind-the-meter operations.

1. CHP Evaluation Criteria

Considerations and approaches for fair, accurate, and comprehensive assessment and valuation of CHP attributes.

- *What existing methodologies or criteria provide examples to inform CHP evaluation approaches in Minnesota?*
- *What criteria should be included in evaluating CHP projects?*
- *How should CHP evaluation fit into Minnesota's other energy planning and evaluation processes?*

What existing methodologies or criteria provide examples to inform CHP evaluation approaches in Minnesota?

CHP evaluation models, criteria, programs, and studies for reference:

- U.S. DOE CHP and DG Deployment Resources
- Rutgers University Costs and Benefits of Combined Heat and Power (used by NJBPU in NJ Clean Energy Program)
- U.S. EPA CHP Partnership – CHP Project Development Handbook
- U.S. Dept. of Housing and Urban Development CHP Feasibility Screening Guide for Multifamily Housing
- NYSERDA CHP Acceleration Program
- University of Illinois at Chicago CHP Resource Guide
- Illinois Department of Commerce and Economic Opportunity (DCEO) Pilot CHP Program
- District Energy St. Paul “Energy Island” Study (including evaluation methodology and tools)

Green Banks *etc.*:

- Connecticut Green Bank
- Maryland Green Bank (in development)
- New York Green Bank
- New Jersey Resilience Bank

www.microgridinstitute.org > Resources tab

*What existing methodologies or criteria provide examples to inform
CHP evaluation approaches in Minnesota?*

Discussion notes TK ...

What criteria should be included in evaluating CHP projects?

Illinois DCEO pilot program example:

Cost-effectiveness test

Energy efficiency – calculation and measurement

Energy savings – calculation and attribution

- CHP capacity
- Operating hours
- Recoverable heat from CHP
- Electric efficiency
- Thermal utilization
- Displaced thermal efficiency
- Parasitic loads
- Installation cost (major equipment, engineering, design, construction, permitting, interconnection, other)
- Maintenance cost (estimated fixed and variable cost; estimated downtime; planned maintenance contract terms (5-year contract required))

What criteria should be included in evaluating CHP projects?

Discussion notes TK ...

How should CHP evaluation fit into Minnesota's other energy planning and evaluation processes?

Discussion notes TK ...

2. Mapping CHP Opportunities

Empirical study and granular analysis of opportunities for topping-cycle and bottoming-cycle CHP projects.

- *What primary goals and objectives would be served by additional efforts to map CHP potential in Minnesota?*
- *What kind of information should be studied? What details should be provided?*
- *How should market study efforts interact with and support long-range planning re: integrated district heating and cooling and other local energy and economic development initiatives, etc.?*

What primary goals and objectives would be served by additional efforts to map CHP potential in Minnesota?

Discussion notes TK ...

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What details should be provided?

Discussion notes TK ...

How should market study efforts interact with and support long-range planning re: integrated district heating and cooling and other local energy and economic development initiatives, etc.?

Discussion notes TK ...

3. CHP Ownership Problems and Solutions

Issues and options involving utility resource planning, ratepayer risks, market power, and behind-the-meter operations.

- *What regulatory or legal issues affect utilities' ability to finance, own, and operate CHP projects?*
- *What regulatory or legal issues affect the ability of third parties and customers to finance, own, and operate CHP projects?*
- *How can Minnesota best address these issues to facilitate CHP financing and deployment?*

*What regulatory or legal issues affect **utilities**' ability to finance, own, and operate CHP projects?*

Discussion notes TK ...

*What regulatory or legal issues affect the ability of **third parties and customers** to finance, own, and operate CHP projects?*

Discussion notes TK ...

*How can Minnesota best address these issues to facilitate
CHP financing and deployment?*

Discussion notes TK ...

III. Major Themes – Part II

4. Adapting CIP for Supply-Side Investments

Establishing and clarifying CHP provisions in Minnesota's Conservation Improvement Program (CIP).

5. Education and Training Needs and Options

Prioritizing knowledge gaps and defining options for CHP education and training.

4. Adapting CIP for Supply-Side Investments

Establishing and clarifying CHP provisions in Minnesota's Conservation Improvement Program (CIP).

- *How can CHP projects serve CIP goals under current policies?*
- *What CIP changes would most effectively support CHP without disadvantaging demand-side efficiency improvements?*
- *How should supply-side CIP provisions interact with the Utility Infrastructure Improvement program?*

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Discussion notes TK ...

What CIP changes would most effectively support CHP without disadvantaging demand-side efficiency improvements?

Discussion notes TK ...

How should supply-side CIP provisions interact with the Utility Infrastructure Improvement program?

Discussion notes TK ...

5. Education and Training Needs and Options

Prioritizing knowledge gaps and defining options for CHP education and training.

- *What are the most important gaps in CHP knowledge, capabilities, and education resources?*
- *What kinds of education and outreach resources would most effectively fill those gaps?*
- *What examples can inform Minnesota's effort to ensure effective CHP education and training resources are available to support the State's policy goals?*

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and education resources?*

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What examples can inform Minnesota's effort to ensure effective CHP education and training resources are available to support the State's policy goals?

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FVB Energy Proposed CHP Policy Options

Policy Option Group 1: Separate new CHP tier in natural gas utility CIP, providing incentives to customers or third parties

Option 1.1. Capital incentives (\$100 per 1000 Btu/hr thermal output)

Option 1.2. Operating incentives (\$0.75 per MMBtu)

Option 1.3. Both capital and operating incentives

Policy Option Group 2: Separate new CHP tier in electric utility CIP, providing incentives to customers or third parties

Option 2.1. Capital incentives (\$500 per kW)

Option 2.2. Operating incentives (\$10 per MWh)

Option 2.3. Both capital and operating incentives

Policy Option Group 3: Separate new CHP tier is established in either gas utility (Option 3.1) or electric utility (Option 3.2) CIP

Operating incentives for customer- or third party-owned CHP

CIP credit for utilities equivalent to the operating incentive that would be provided to others

Utilities encouraged to use their low weighted average cost of capital to fund CHP systems

Policy Option 4: Specific carve-out for bioenergy CHP in either existing or expanded RPS

1.5% by 2030 for IOUs

0.6% by 2030 munis and coops

Policy Option Group 5: Alternative Portfolio Standard (APS) requiring electric utilities to obtain a given % of sales from CHP (regardless of fuel) by a given year

Option 1.1. Capital incentives (\$100 per 1000 Btu/hr thermal output)

Option 1.2. Operating incentives (\$0.75 per MMBtu)

Option 1.3. Both capital and operating incentives

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