

Minnesota CHP Stakeholder Engagement

*Facilitating informed dialogue
for effective action planning*



Minnesota CHP Stakeholder Meeting #1
CHP Baseline, Value Proposition, and Path Forward
Sept. 3, 2014 | Wilder Center, St. Paul, Minn.

Under contract to
Minnesota Department of Commerce,
Division of Energy resources.
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from the U.S. Department of Energy.

CHP Stakeholder Engagement

- I. Introduction to Microgrid Institute
- II. CHP Stakeholder Engagement
 - Strategy and agenda
- III. CHP Baseline & Value Proposition

I. Introduction to Microgrid Institute

Microgrid Institute is a collaborative organization that focuses on key factors affecting microgrids and distributed energy.

Our efforts address markets, regulation, financing, and project feasibility and development.

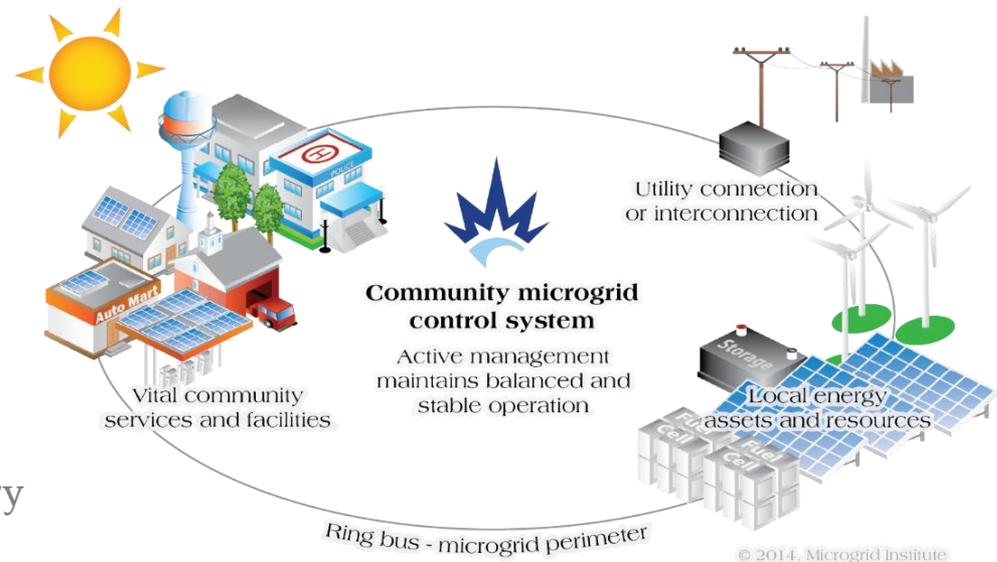
- Multidisciplinary collaboration with industry leaders
- Independent, objective thought leadership
- Studies, workshops, media, and development support



Programs and Initiatives

Microgrid Institute's thought leadership and collaborative projects address factors affecting microgrids and distributed energy technologies.

- **Resilient Communities Initiative**
- Integration Initiative
- **Finance Initiative**
- Education and Outreach
- *Microgrid Journal* publications
- Microgrid Wiki, Social Media
- **Microgrid Workshops, Webinars**
- Study and Analysis Programs
- **Development Support and Advisory Services**



Your facilitator



Michael Burr, Director, Microgrid Institute

- Founder and principal, *Burr Energy LLC*
- 25-year career in the energy and utility industry
- Former editor, *Public Utilities Fortnightly*, *Electric Light & Power*, and *Independent Energy*
- Focus on energy policy, law, finance, economics, and technology innovation
- Expertise in stakeholder outreach and engagement, workshop facilitation, and collaborative project management

Current and recent engagements

- New York PSC *Reforming the Energy Vision* project, Microgrid subgroup member
- Maryland Governor's "Resiliency through Microgrids" Task Force member
- Microgrid Institute Resilient Communities Initiative
- Microgrid Institute Integration Initiative
- Project manager and prime contractor, DOE FOA 997 proposal team
- Minnesota Department of Commerce, Division of Energy Resources
Minnesota Microgrids study, primary author and contractor
- 2014 *Fortnightly 40* Report on disruptive trends and utility shareholder performance

II. CHP Engagement Strategy & Agenda



Microgrid Institute Minnesota CHP Stakeholder Engagement Projects

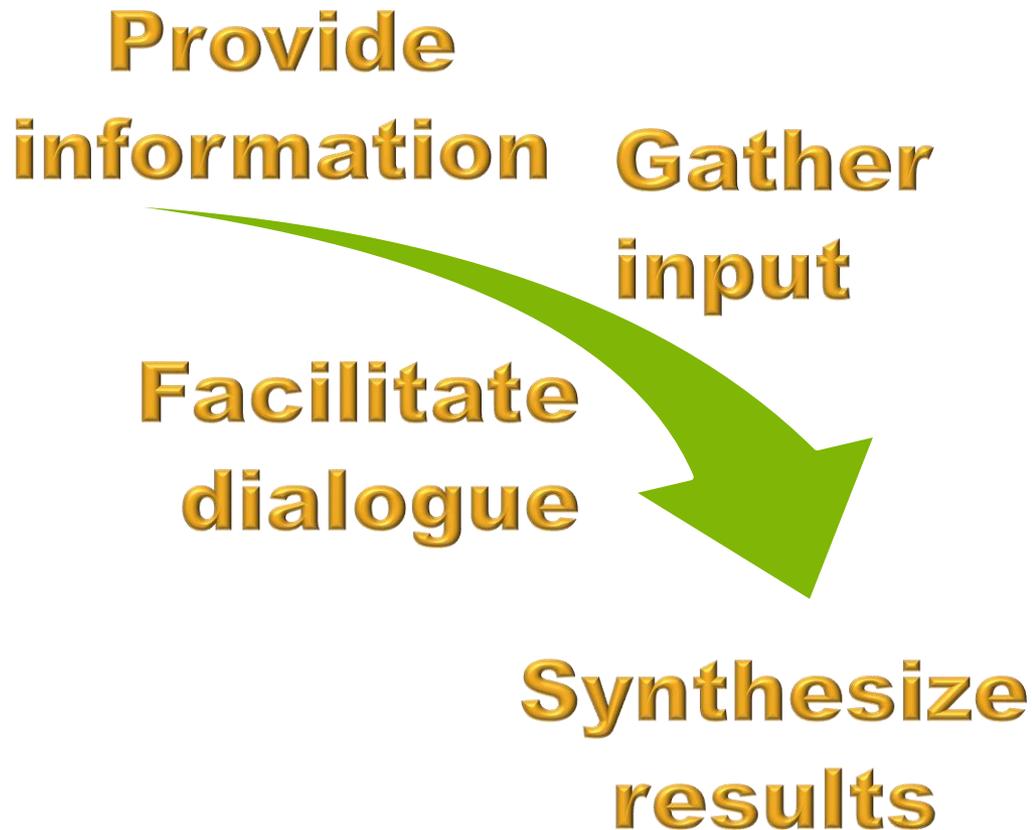
A. CHP Stakeholder Meeting Facilitation

- Arrange and manage meetings on CHP policy, potential, and paths forward
- Stakeholder outreach and support
- Facilitate discussion
- Synthesize, analyze, and report meeting outcomes
- Gather input for CHP Education & Training Plan

B. CHP Stakeholder Surveys

- Develop and administer pre-engagement survey
- Compile, analyze, and report results
- Stakeholder outreach and support
- Develop and administer post-engagement survey
- Compile, analyze, and report results

CHP Meeting Process



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

#2 (9/24):
CHP Standby Rates and Net Metering

#3: (10/15):
Stakeholder Presentations and Path Forward

#4: (11/05):
Education and Training Needs, Synthesis
of Information, Next Steps

Agenda, Goals, and Methodology

Meeting #1 Working Agenda:

CHP Baseline, Value Proposition, and Path Forward

Agenda

- 8:30 - 8:45 Introduction (MGI & Commerce)
- 8:45 - 9:00 CHP baseline and value proposition (MGI)
- 9:00 - 9:45 CHP introduction and status (FVB Energy)
- 9:45 - 10:00 Moderated Q&A
- 10:00 - 10:15 BREAK
- 10:15 - 11:00 CHP policy options and analysis (FVB Energy)
- 11:00 - 11:15 Moderated Q&A
- 11:15 - 11:45 CHP policy recommendations (FVB Energy)
- 11:45 - 12:15 Moderated discussion
- 12:15 - 12:30 Conclusion and housekeeping

Goals

- Inform stakeholders re: current opportunities and policies
- Ensure common understanding of issues and options
- Gather stakeholder input to guide policy planning and development

Methodology

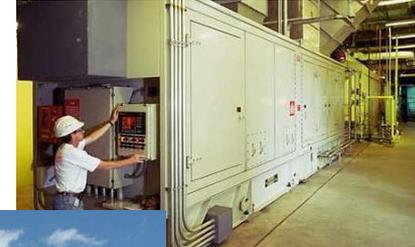
- Formal presentations on CHP issues and options
- Moderated Q&A and discussion
- Synthesize, analyze, and report outcomes

III. CHP Baseline & Value Proposition

What is CHP?

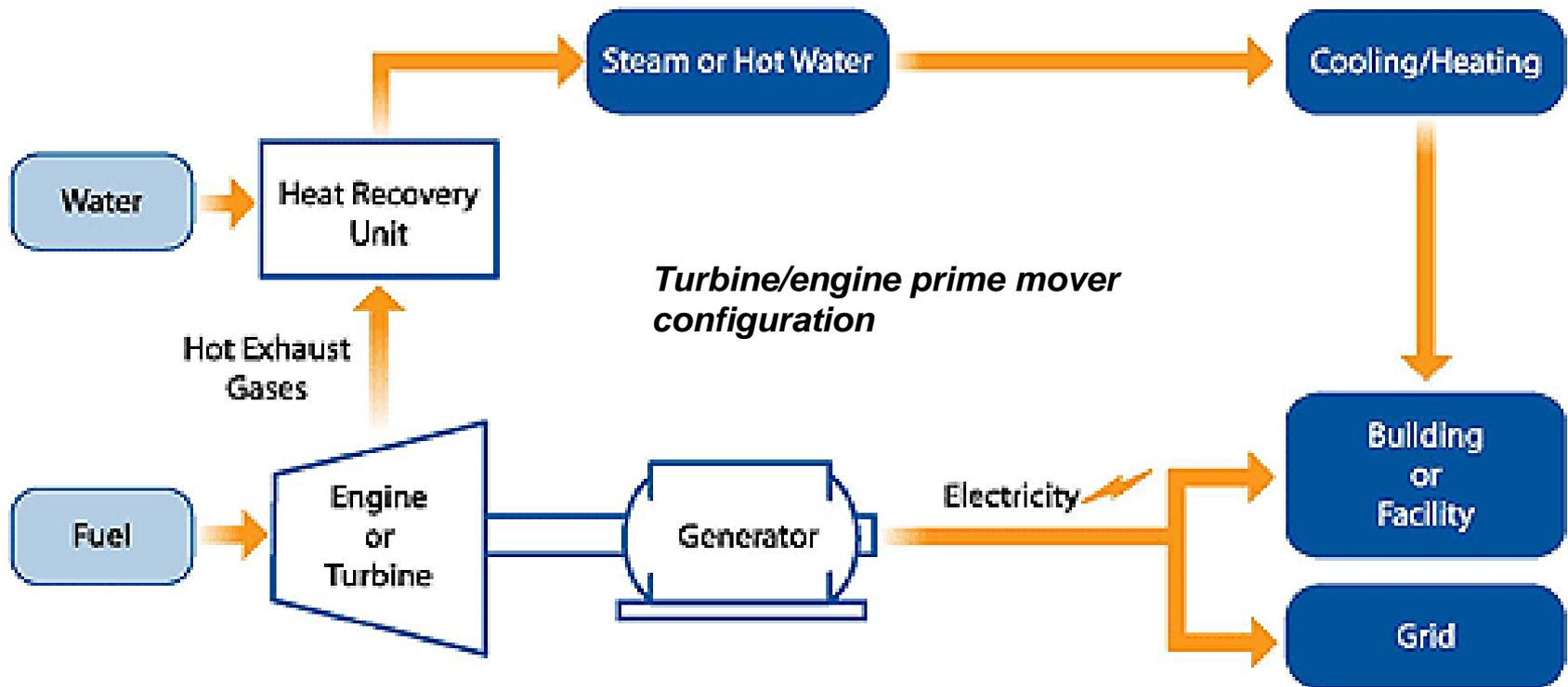
Simultaneous production of electricity and useful thermal energy from a single fuel source.

- Integrated energy system, adaptable to suit the needs of energy end users.
- Thermal output typically used for heating, cooling, and industrial processes.
- Capable of using a variety of fuels, including natural gas, waste, biogas, petroleum, coal, etc.



Top: Bristol Myers Squibb CHP system (NREL); Left: District Energy St. Paul; Bottom: Biomass CHP plant (Urbas)

Typical CHP system



Source: U.S. EPA Combined Heat and Power Partnership

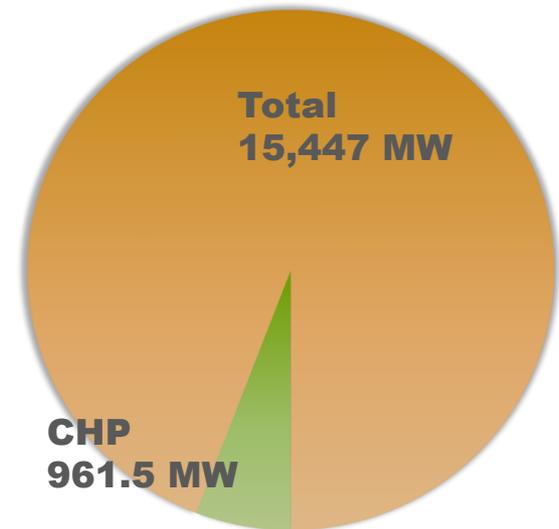
CHP Baseline

CHP already is important to Minnesota

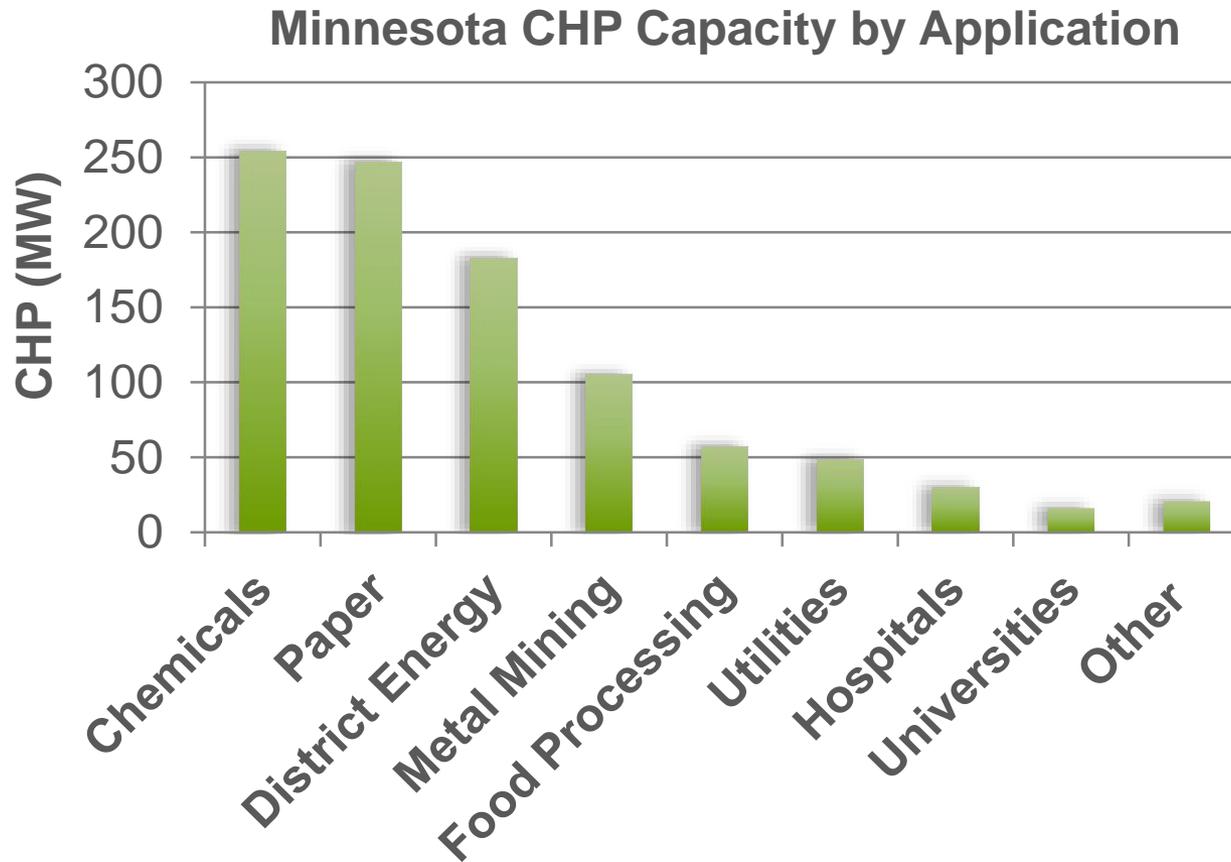
Minnesota's current installed CHP is slightly above the national average, slightly below some other states in Great Lakes region

Minnesota CHP capacity

- **961.5 MW of operating CHP**
- 52 sites
- **83% in large systems (>20 MW)**
 - Biggest sites: chemicals and paper processing



CHP Baseline



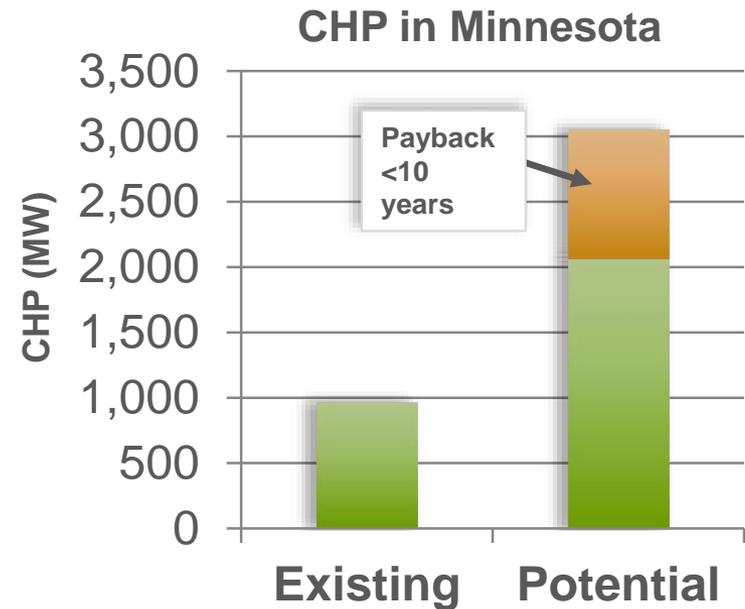
CHP Value Proposition

CHP saves energy, emissions, and money

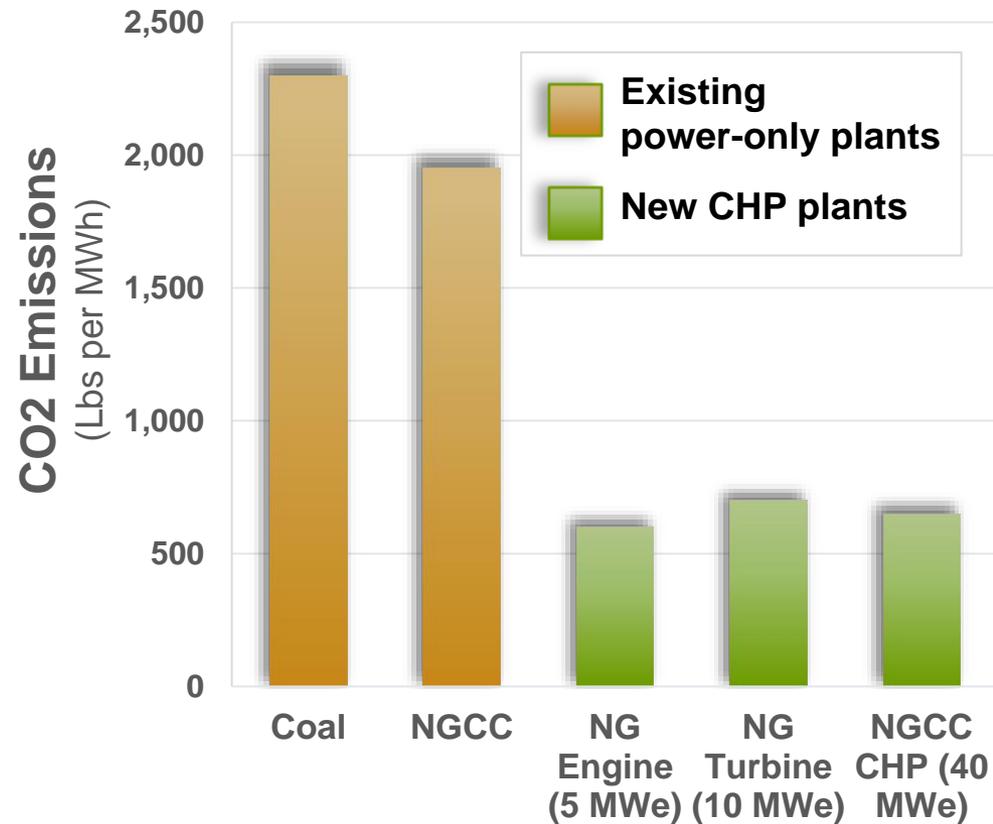
Combining electricity and thermal energy generation into a single process can save up to 35 percent of the energy required to perform these tasks separately.

New CHP potential today

- 3,049 MW of new technical potential
- 984 MW with payback <10 years



CHP Value Proposition



Survey Results

CHP stakeholder pre-engagement survey

(Microgrid Institute, August 2014)

45 respondents

online survey, valid contact info required

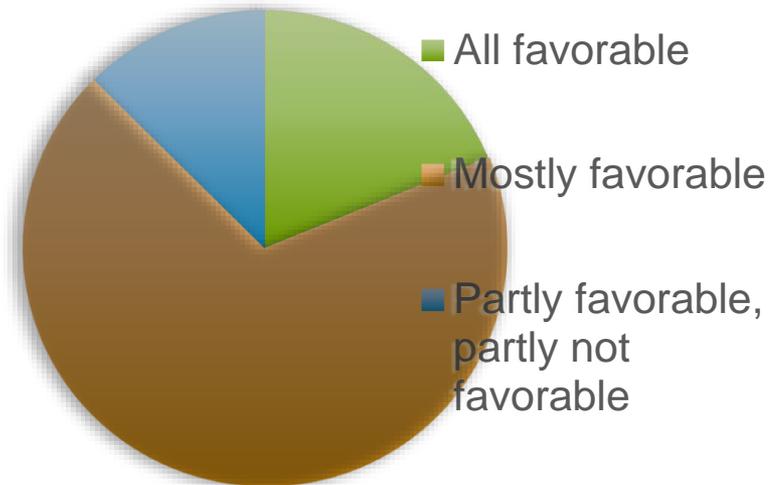
15 planning or considering new CHP

anywhere, not just MN

5 new CHP systems under construction

plus 2 in engineering

Survey:
**'My organization's direct experience
with CHP has been:'**

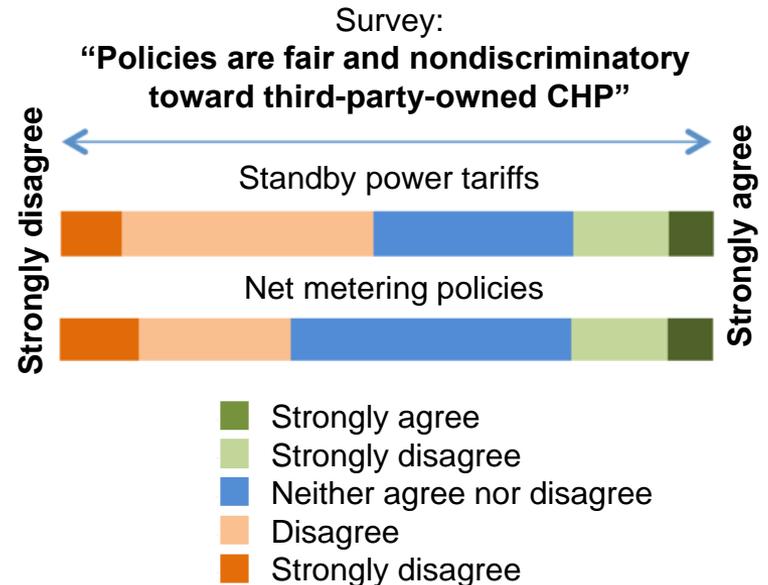


Survey Results *(continued)*

Standby power tariffs and net metering are not considered fair toward third-party-owned CHP

49% of respondents “disagree” or “strongly disagree” that standby rates are fair and nondiscriminatory toward third-party owned CHP

35% of respondents “disagree” or “strongly disagree” that net metering policies are fair toward third-party owned CHP



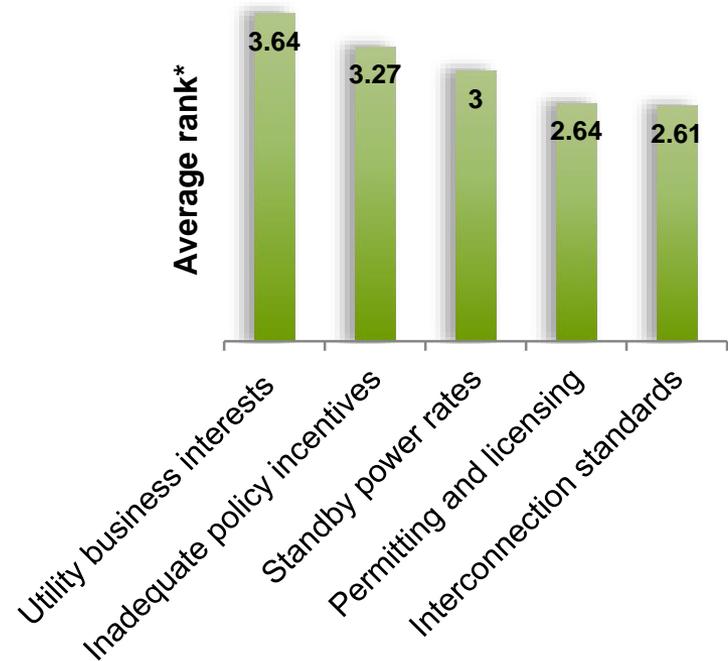
Survey Results *(continued)*

Utility strategy/business conflicts are seen as hindrances to CHP

63% of respondents rank utility business interests as #1 or #2 most important policy impediment to **third-party owned CHP**

53% of respondents rank utility business interests as #1 or #2 most important policy impediment to **utility-owned CHP**

Survey:
“Rank issues in terms of how substantially they hinder CHP deployment by customers and third parties:”



*Average weighted ranking. See survey report for details.

Survey Results *(continued)*

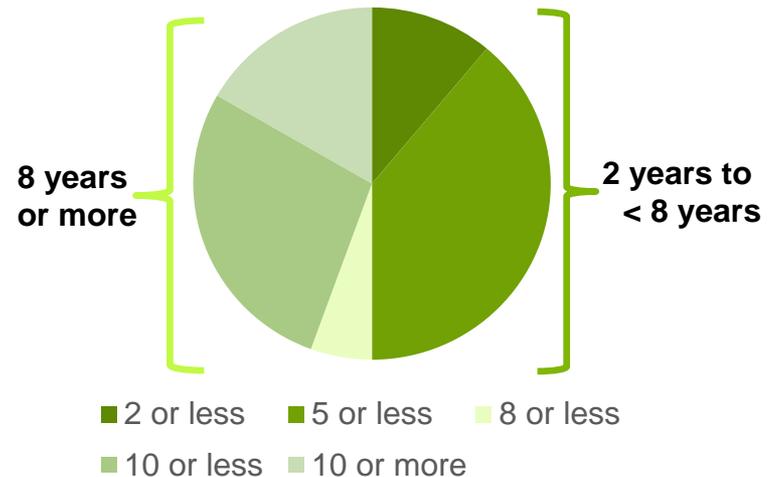
CHP economics are considered mixed for commercial financing

56% of respondents can accept payback in 8+ years

46% indicate payback periods are too long

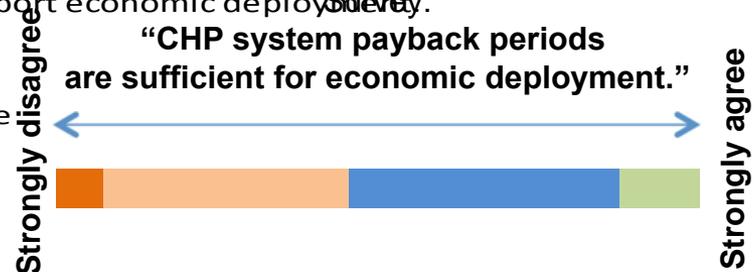
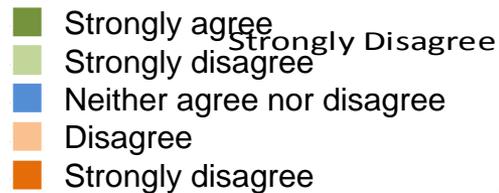
—
(i.e., they “disagree” or “strongly disagree” that payback times are sufficient for economic deployment)

Survey:
“For CHP investments, my organization requires a payback period of:”



Commercial financing allows CHP system payback periods that generally are sufficient to support economic deployment.

Survey:
“CHP system payback periods are sufficient for economic deployment.”



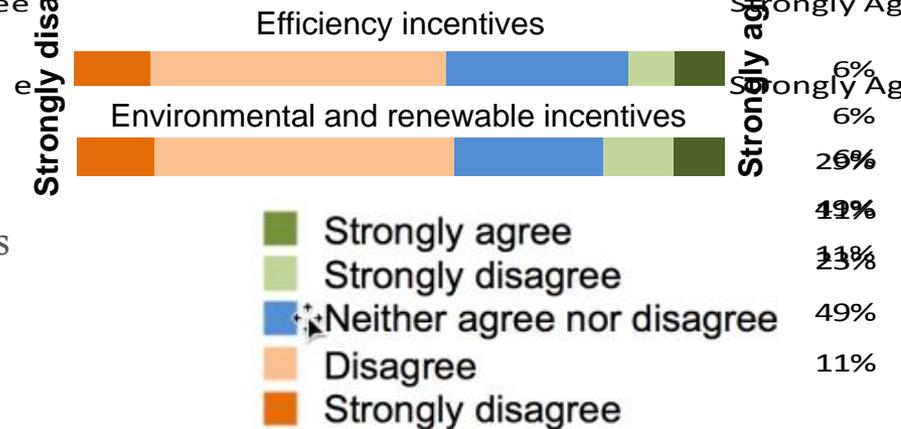
Survey Results *(continued)*

Existing incentive programs are viewed as inadequate to support CHP financing in Minnesota

60% “disagree” or “strongly disagree” that incentives for renewable energy, efficiency, and environmental performance are adequate.

Uncertainty about using CHP to meet CIP goals ranked as the #2 most substantial policy hindrance to CHP deployment by utilities.

Survey: **“These incentive programs adequately support commercial financing for CHP systems.”**
 Survey: **“Environmental and renewable energy incentives adequately support commercial financing for CHP systems.”**



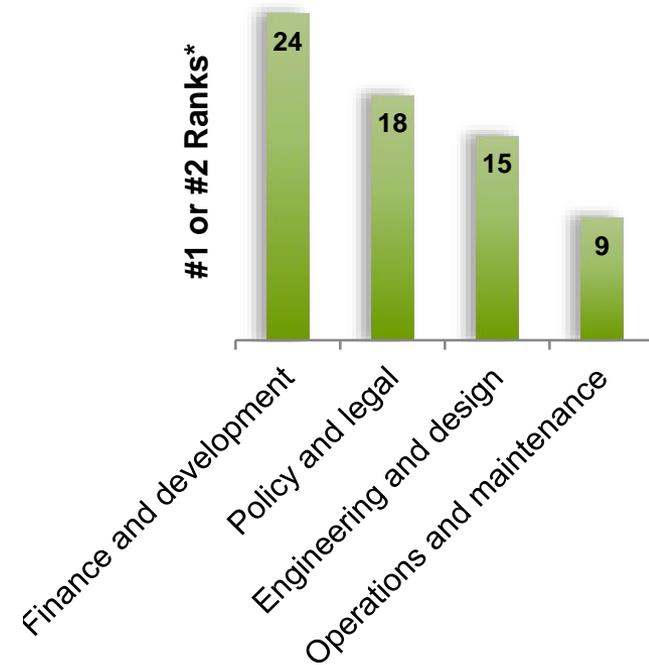
Survey Results *(continued)*

The biggest gaps in knowledge and talent involve business, finance, and legal expertise

66% of respondents rank strategic understanding #1 or #2 greatest tech/op hindrances to CHP deployment

Finance/development and legal/policy issues rank as most important education and training needs (60% selected either answer as #1 or #2)

Survey:
“Rank areas of Education and Training in terms of urgent need to support CHP deployment:”



*Combined number of respondents who ranked answer as either #1 or #2. See survey report for details.

Contact us



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