

Utility Infrastructure Efficiency Opportunities and Barriers

Stakeholder Meeting #1 (of 4) Summary Report

Convened July 28, 2017



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Background

The State of Minnesota requires electric and natural gas utilities to invest in energy efficiency by statute.¹ For over three decades, Minnesota utilities have developed Conservation Improvement Programs (CIP) to meet their efficiency requirements. Most utility CIPs have focused on demand-side efficiency by providing incentives to customers for installing more energy-efficient end-use equipment.

Utilities' CIP efforts have not significantly focused on improving the efficiency of Electric Utility Infrastructure (EUI), or supply-side, of the system even though EUI accounts for approximately 12-15% of total electric consumption. Minnesota statute explicitly allows EUI efficiency to count toward conservation goals, but the number of such projects in the state remains relatively small.² The reasons for this include technical uncertainty as well as numerous policy questions.

Meeting Purpose

On July 28 at the Wilder Center in St. Paul, the Department of Commerce and its project partners GDS Associates and Center for Energy and Environment hosted the first (of four) public stakeholder meetings exploring opportunities and barriers to utility infrastructure efficiency.

This first stakeholder meeting is part of a [U.S. Department of Energy funded project](#) aimed at clarifying the existing policy landscape concerning EUI efficiency and developing a roadmap to help drive future implementation. The project will include a series of four stakeholder meetings to spur discussions and solicit feedback from stakeholders on existing incentives and disincentives for utilities to achieve greater system-wide efficiency, regulatory and policy issues, as well as cost recovery mechanisms to fund EUI projects.

The topic of the first meeting was to broadly explore EUI technology applications, including presentations that demonstrate the potential of using CIP to drive EUI efficiency and the types of EUI technologies that can qualify. National expert Ron Schoff of Electric Power Research Institute (EPRI) spoke about experiences across the country with EUI efficiency projects. Lisa Severson from Minnkota Power Cooperative spoke about specific Minnesota projects that Minnkota has claimed efficiency credit for under the existing CIP framework.

After the experts spoke, the meeting continued with group discussions among stakeholders to assess their familiarity with EUI technologies, gauge their interest, and begin discussions about barriers to implementation. After summarizing the open discussion among stakeholders, there was a preview of the next stakeholder meeting, which will be held on October 20 and will focus on policy and process barriers to EUI efficiency projects and potential solutions to those barriers.

Resources from the first stakeholder meeting (including the presentation slide deck) can be accessed on the project website [here](#).

¹ Minnesota Statutes §216B.241, subd. 1c(b) establishes an annual savings goal of 1.5 percent of average retail sales for electric and natural gas utilities.

² Minnesota Statutes §216B.241 subd. 1c(d) allows a utility or association to claim energy savings resulting from EUI projects on top of a minimum energy savings goal of 1 percent from energy conservation improvements, provided the EUI projects result in energy efficiencies greater than what would occur through normal maintenance activity.

Meeting Notes

Section 1: EUI Introduction

MN Commerce Deputy Commissioner Bill Grant provided an introduction – majority of people in attendance are utility representatives with some advocacy group and consultants present as well.

GDS Associates' Travis Hinck explained that purpose of this stakeholder process is to kick off conversation on EUI technology, regulatory/policy, and financial questions and ultimately come to some sort of consensus or understanding of EUI opportunities and barriers in the state. Important to start conversations and discussion of policy issues so utilities have more tools to meet their goals post –“low-hanging fruit.”

- **Questions**
 - Does demand response fit in EUI?
 - Not necessarily – deploying demand response is related to EUI and can be planned for – but is not the same thing as EUI
 - Do EUI projects need to be cost-effective, and does EUI project spending qualify for cost-recovery / financial incentive?
 - COUs – question for the board
 - IOUs- probably have to be tested for cost-effectiveness
 - Commerce would like to start the discussion – but would likely treat supply side programs similar to DSM programs – thus yes they should be cost-effective
 - Currently, EUI projects do not apply for incentive mechanism
 - These questions will be addressed further in later meetings

Section 2: Current EUI Efforts in Minnesota

- Commerce added EUI prescriptive measures to TRM 2.1 to help utilities claim energy savings, which can be accessed [\[here\]](#).
- MN Supply-side Potential Study will help identify where there might be EUI efficiency opportunities in the state. Results will be available late 2017.
- EUI Stakeholder Process – to be completed late 2018
 - Understand EUI opportunities and recommend policy changes
 - End goal to create roadmap to drive EUI efficiency deployment
- **Questions**
 - Will the stakeholder process discuss EUI-related policies around the country?
 - Qualitatively there is not much policy around the country focused on driving EUI, but the project team is preparing a literature review of existing EUI efforts around the country that will be available to stakeholders when finalized.
 - Opportunity to engage in EUI potential study before it becomes final?
 - Yes, please contact [Travis Hinck \(GDS Associates\)](#) to connect to the process
 - Written comments period between meetings?

- Yes, please free to reach out to [Adam Zoet \(MN Commerce\)](#) or [Travis Hinck \(GDS Associates\)](#) with any comments.
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Section 3: Ron Schoff, EPRI Presentation – EUI Projects Around the Country

- **Key takeaways**

- Power system transformation is happening and will continue – driven by tech and customers
 - Nat'l gas is low cost – wind and solar increasing production
 - Somewhat decarbonized system – decentralized
 - Less inefficiencies because less distance energy needs to travel
 - Opportunity to digitalize power system
- Lots of knowledge/technology that exists - not always transferable to all areas – cost-benefit analysis is important
- Utilities are concerned with safety reliability – and affordability
- Utilities tend to not replace technology if there is still life in the technology
- Awareness is key – measure problem and measure solutions
- Energy Storage – may be an important in EUI study

- **Questions**

- Does the modeling incorporate the distributed generation in the utilities to improve efficiency?
 - With this increase – whole new realm – need more research to address these changes in the most efficient way possible
 - As dynamics change in DG – there is more opportunities to address conservations
 - Need to look at the holistic system to understand the benefits of efficiency
- Australia's big battery – why was this created?
 - Blackouts – because error with wind turbine generations
 - Batteries will be important but are not the end all solution
 - Utilities are testing placing bigger batteries at the substation level
 - May enable efficiency – may not fit in EERS savings – provision that allows for load management in CIP and currently some products are counting toward EERS goals

Section 4: Lisa Severson, Minnkota Power Presentation – EUI Projects in MN

Key takeaways from implementing EUI projects in Minnesota

- Spending to implement EUI projects is not allowed to be counted in CIP spending requirements
- Communication is key with engineers and technical workers to come up with ideas

- Connect with Commerce’s CIP team to get approval or more clarifications for EUI projects
- Projects must be pre-approved by Commerce’s CIP team
 - Provide detailed information on the proposed EUI projects to Commerce CIP Staff
- Make sure the project is above and beyond normal maintenance and operations
- Overall, good experience and all projects have been approved

Questions

- How long is the approval process with Commerce?
 - Depends on the project – but generally a week to a month
 - More detail you give Commerce staff, the easier the process has been for Minnkota
- Are they required to provide M&V?
 - Yes – savings have changed with M&V
- 5 years of carry forward - do savings expire if 5 years of project have been implemented?
 - Commerce is working on writing a carry-forward policy guidance document that will be available later this year to address these types of questions.
- What is the main combination of factors that led to the projects?
 - It is a combination of factors and CIP savings are a factor – but cost-effectiveness and budgets are also considered
- What is HP turbine?
 - High and intermediate pressures – TAP settings are changing voltage on the lines

Section 5: Group Discussion

Table 1 Key Takeaways

- Financial piece of EUI biggest issue – budget for upgrading models, may not make sense to replace working equipment
 - Lack of incentive structure for Munis and Coops compared for IOUs
 - Case studies are important in showing how EUI projects have been implemented/justified.

Table 2 Key Takeaways

- Some of the ‘low-hanging fruit’ for EUI happen naturally
- As low-hanging DSM diminishing – EUI projects will become more important to meet EERS goals
- Challenges for operating in multiple states
- 1% threshold is a barrier
- Staffing challenges especially for smaller utilities – and priorities
- Some see EUI as a luxury item

- Longer carry-over period would be beneficial
- Financial incentives are a question
- Regulatory uncertainty - will the PUC regulate similarly to Commerce Department

Table 3 Key Takeaways

- Competing priorities – considerations on how you weigh opportunities – end of equipment life is an opportunity - ‘intervention points’ to increase efficiency

Table 4 Key Takeaways

- Doing a lot of EUI – not being claimed under CIP - only claim it under CIP if it is the primary driver of the project
- When are we not using the EUI? When would you not use most efficiency – if it is not reliable
- Standardization for safety

Table 5 Key Takeaways

- There is more focus on DSM – but post LED bulbs – EUI will become more important
- How to promote EUI – keep 1.5% minimum – but allow additional savings for EUI savings or eliminate the 1% threshold to claim EUI savings

Table 6 Key Takeaways

- Organizational communications –
 - Many different stakeholders - have more aligning objectives than what we are aware of
 - Insuring reliability – efficiency may be lower down
 - Intervention points – next increment of efficiency
- Interplay of demand side and resource side – are their disincentives or incentives that can be addressed with policy
- Utility goes in for certificate of need – how are demand side resources looked at to replace generation type projects
- Market transformations through decision making in engineering and design community

Summary of Attendee Survey Responses

Meeting attendees were asked to fill out a short survey discussing their organization’s familiarity with EUI technology and to identify possible barriers to future implementation. The survey was meant to help bridge the topic of the current meeting with the topic for next stakeholder meeting on policy issues. It was also meant to begin discussions that will hopefully lead to consensus solutions to overcoming barriers.

Some barriers raised by stakeholders were not on the survey list. The one that got the most discussion is the fact that 1% of utilities’ CIP savings must be achieved through demand-side conservation before EUI project savings can count toward meeting the remaining 0.5% of utilities’ energy savings goals. Utilities are concerned that redirecting any CIP effort toward EUI would cost them their ability to meet demand-side goals, and prevent them from meeting their goals entirely. The other barrier specifically raised by stakeholders is the lack of incentive dollars for EUI projects. Both of these issues may have potential policy solutions or workarounds that will be a topic focus at stakeholder meeting #2 (policy issues) and meeting #3 (financial incentives/disincentives).

A third additional barrier identified is that the planning horizon for major EUI projects does not fit into the typical CIP planning horizon. There may be ways to bridge the gap between them by focusing on updating parts of the infrastructure planning process to include conservation considerations without expecting wholesale redesigning of the infrastructure system.

Of the pre-identified barriers, the one ranked as the most difficult is the lack of standardized savings metrics. This barrier was anticipated by Commerce and a TRM measure development project was completed in 2016 targeted at reducing the barrier. The existence of those TRM measures may need to be more widely promoted to make utilities aware of them or the measures could be improved to better serve utilities’ needs (note- GDS Associates authored this report and developed the TRM measures). The project team also intends to create a summary document of EUI TRM measures that will be posted to the project website [\[here\]](#).

The following table summarizes the responses to a request to numerically rank the importance of pre-identified barriers (4 being an extreme barrier and 1 being not a barrier at all). Note: that the survey is not statistically robust, this was meant to be a preliminary gauge of stakeholders’ first impressions.

Barrier	Average Rank
There is a lack of standardized savings metrics in evaluating infrastructure projects	3.3
The business case for infrastructure efficiency projects is weak without additional justification	3.2
Capital infrastructure projects are budgeted and accounted for differently from CIP DSM projects	3.1
System efficiency is a lower priority for utilities compared to reliability and rates	3.0
Unclear baseline standards against which to measure savings from infrastructure projects	3.0
CIP reporting for infrastructure efficiency projects is too difficult	2.3
Utilities can meet CIP requirements with DSM programs alone	2.2

Utilities already have a workable cost recovery mechanism for infrastructure projects	2.2
Utilities lack awareness of infrastructure projects that increase system efficiency	2.1

Next Steps: Preliminary Agenda for Meeting #2

Stakeholder meeting #2 for this project will be on October 20, 2017. The meeting will focus on exploring policy issues surrounding EUI implementation, identifying potential solutions, and beginning to form a consensus on how to move forward with the roadmap for EUI implementation in Minnesota.

Speakers will include a national policy expert and local utility representatives. The national expert will discuss how policies around the country currently shape EUI planning and what they see coming in the years to come. Local experts will talk about how utilities in the state currently plan for infrastructure upgrades or changes, and areas where process improvements might be implemented.

A significant portion of the meeting will be devoted to group discussions. We hope to encourage stakeholders to help identify ways to incorporate efficiency into the EUI planning process and possible policy changes that could help spur greater implementation.

A formal announcement with the meeting agenda and registration info will be distributed to stakeholders who have signed up to receive email updates about this project. To learn more about this project, and to sign up for periodic study updates, please visit the project website at: <https://www.mncee.org/mnsupplystudy/home/>