

Strawman Proposal: Defining “Normal Maintenance” and CIP Review/Approval Process for Electric Utility Infrastructure Efficiency Projects

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Background

Minnesota statute §216B.241 subd. 1c (d) allows utilities to include energy savings from electric utility infrastructure (EUI) projects toward their Conservation Improvement Program (CIP) goals, provided the projects achieve greater efficiency than would otherwise be implemented in the course of “normal maintenance” activity. However, determining what should be considered “normal maintenance” is not clearly distinguished by the statute, resulting in uncertain savings calculations and making it difficult for utilities to assess the value of infrastructure efficiency options.

The Minnesota Department of Commerce (Commerce) received funding from the U.S. Department of Energy (DOE) to conduct an EUI stakeholder process to better understand existing state policies concerning EUI, examine incentives/disincentives to improving EUI efficiency, and recommend policy changes or clarifications to leverage EUI efficiency to help meet Minnesota’s efficiency goals. Stakeholders participating in the DOE project specifically raised the problem of defining “normal maintenance” as an important barrier to implementation of EUI efficiency projects.

Consequently, in an attempt to help clarify this statutory language and lower the barrier to implementation of EUI efficiency projects, the following Strawman Proposal outlines a proposed definition of “normal maintenance,” and a proposed step-by-step process that could help standardize how EUI projects are reviewed and approved for CIP energy savings credit.

This Strawman Proposal is meant to guide utilities’ interpretation of “normal maintenance” and to determine appropriate baseline conditions for CIP purposes. However, the ultimate determination of specific baseline conditions that should be used to calculate CIP energy savings credit for a given project must ultimately be reviewed and approved by Commerce.¹ **This is NOT final, approved CIP policy guidance – this is a proposal for discussion and feedback.**

Applying the Definition of Normal Maintenance

The following definition of “normal maintenance” is meant to 1) establish a threshold for screening EUI efficiency projects that are eligible versus ineligible for CIP credit, and 2) determine an appropriate energy use baseline to be used for energy savings calculations. Once “normal maintenance” is defined for a facility or equipment, actions that result in efficiency greater than that threshold are considered “beyond normal maintenance” and are eligible to claim CIP credit. Conversely, actions that meet the definition of “normal maintenance” are not eligible for CIP credit.

¹ This guidance applies only to defining normal maintenance for CIP purposes. Other factors may play a role in determining a project’s eligibility to claim CIP energy savings credit, but are not considered here.

This guidance should not be expected to guarantee a defense of a chosen baseline or CIP eligibility without approval from Commerce.

Defining Normal Maintenance

“Normal maintenance” will be defined differently for projects depending on specific equipment or facility under consideration and the specific proposed efficiency improvements. Due to the wide variety of EUI equipment or facilities that could possibly claim conservation credit, the definition of “normal maintenance” is impossible to definitively prescribe for all use cases in advance. Therefore, this definition should be thought of as a guideline for improving understanding of “normal maintenance” for EUI efficiency purposes. It is highly recommended to submit all projects to Commerce for review early in the planning process to ensure the proposed normal maintenance definition is appropriate for the specific project.

For CIP purposes, normal maintenance is defined as actions that do not change or alter the fundamental design or nature of the affected facility² or equipment, and meet at least one of the following criteria:

Modifying existing equipment or facility

- Actions required to allow the facility or equipment to operate as designed.
- Actions recommended by the equipment manufacturer as maintenance.
- Actions actually performed periodically on the facility or equipment with historical documentation of the actions for at least three maintenance cycles.
- Actions called for under an established maintenance protocol. Protocol must be documented and have been in effect for at least one quarter of the expected lifetime of the equipment prior to the efficiency project.
- Actions that meet the definition of maintenance as prescribed in the applicable Technical Reference Manual EUI measure.³

Replacing equipment

- Actions to install new equipment that meets efficiency requirements of current applicable codes or standards
- Actions to replace equipment according to an established internal protocol. Protocol must be documented and have been in effect for at least one quarter of the expected lifetime of the equipment prior to the efficiency project.
- Actions to replace equipment following a historical pattern of similar replacements.
- Actions that meet the definition of the baseline case for equipment replacement as prescribed in the applicable Technical Reference Manual EUI measure.

² Language from a 1991 court case concerning the definition of maintenance for New Source Review purposes. Seventh Circuit of Appeals WEPCo vs. Reilly.

³ TRM 2.2 can be accessed here: <http://mn.gov/commerce-stat/pdfs/mn-trm-v2.2.pdf>

Establishing a Baseline for Energy Savings Estimation

Once “normal maintenance” is defined for a facility or equipment, actions that result in efficiency greater than that threshold are considered “beyond normal maintenance” and are eligible to claim CIP credit. To establish a baseline for estimating energy savings, a proposed EUI efficiency project should be compared to the scenario defined as “normal maintenance” to calculate conservation credit, where the savings are calculated by determining the difference between the two scenarios.

The methodology used to compare the scenarios to calculate savings will depend on the type of project proposed. For example, several types of EUI projects can use methodologies defined in the Minnesota Technical Reference Manual.⁴ For projects where more than one of the preceding descriptions apply, the description that produces the most efficient baseline (and highest threshold for eligibility) should be used for CIP purposes.

In all cases, the baseline used for energy savings calculations is ultimately subject to approval by Commerce. Applying the “normal maintenance” guidance to determine baseline conditions means that in many cases existing equipment in the existing condition does not constitute the appropriate baseline for calculating CIP energy savings.

Additional Guidance

If “normal maintenance” activity is still not clearly understood using the guidance definition above, conservation calculations can use the original design specifications of the equipment as the baseline. In this case, even if the equipment has degraded to be inefficient, improvements only count that increase efficiency beyond the equipment’s originally-designed operating conditions. This strategy depends on a clearly defined original design when the equipment was installed or most recently upgraded. This method should only be used in cases where:

1. Normal maintenance is not reasonably defined per the above guidance
2. The original design conditions are obviously identifiable

Special Generation Case

If a proposed action triggers a New Source Review (NSR) for an existing facility, the upgrades can be claimed toward CIP energy savings goals because they have already been deemed beyond the course of normal maintenance under the broader definition of maintenance used by the EPA for NSR purposes.

⁴ “Minnesota TRM Webpage”: <https://mn.gov/commerce/industries/energy/utilities/cip/technical-reference-manual/>

Proposed EUI Project Review and Approval Process

For a proposed EUI efficiency project, “normal maintenance” activity must be well understood to establish an eligibility threshold and to define baseline conditions to calculate energy savings. The following process is recommended for utilities to establish and use an appropriate definition of “normal maintenance” for a proposed EUI project, and the type of EUI project information that utilities should submit to Commerce for review and approval. It is recommended that the utilities communicate with Commerce’s CIP Staff during this review/approval process to help ensure that the proposed EUI project will be eligible for CIP credit.

Step 1 – Develop EUI Project Outline

Develop a narrative summary description of the EUI project that addresses:

- *Who*: The name of the utility that intends to claim energy savings from the EUI project.
- *What*: A general description of the EUI efficiency project and the existing equipment that it is modifying or replacing.
- *Where*: The location of the EUI project.
- *Why*: How the EUI project will save energy.
- *When*: The general schedule for implementation, including which year the utility intends to claim the resulting CIP savings for.
- *How*: How the baseline consumption and efficient equipment consumption will be tracked and measured.

Step 2 – Define Normal Maintenance for the Existing Equipment

Referencing [the guidance above](#), develop a summary description of “normal maintenance” action(s) for the existing equipment.

Step 3 – Define *Beyond* Normal Maintenance for the Proposed EUI Efficiency Project

Develop a summary justification about how the proposed EUI efficiency project would exceed the defined “normal maintenance” actions for the system or facility, and include a description of the proposed baseline for calculating the EUI project’s energy savings.

Step 4 – Submit Initial Proposed EUI Project Information to Commerce

Submit the Project Outline, Normal Maintenance Description, and Beyond Normal Maintenance Justification (i.e. outlined in Steps 1-3) to Commerce CIP Staff for their preliminary review.

Commerce CIP Staff will proceed to:

1. Determine whether the description of “normal maintenance” is accurate and appropriate for the proposed project.
2. Verify whether the proposed EUI project description would be considered “beyond normal maintenance.”
3. Send an email response to the utility summarizing Staff’s initial findings and recommendations, including whether or not to proceed to Steps 5-6 of the EUI project review/approval process.

Step 5 – Determine Proposed Energy Savings Methodology

Develop a proposed CIP energy savings calculation methodology. The methodology should reference the applicable TRM measure or describe a model that will be used to calculate savings.

The efficient case in the model/algorithm should describe expected operating conditions after implementing the proposed EUI project.

The baseline case in the model/algorithm should describe operating conditions in the defined normal maintenance case (this may or may not correspond to the actual existing conditions of the system/facility). Documentation to justify the chosen baseline case should include the following, if available:

- Standing maintenance protocol
- Manufacturer recommended maintenance guidelines
- Historic documentation of periodic actions performed at the site or on the equipment
- Any applicable codes or standards
- Historic documentation of similar projects
- Description what would occur at the site in the absence of the proposed project

Step 6 – Estimate EUI Energy Savings

Using the TRM or appropriate modeling tools, estimate the energy savings of the proposed EUI project.

Submit the estimated energy savings to Commerce along with the methodology details from Step 5 to Commerce CIP Staff for review.

Commerce CIP Staff will proceed to:

1. Determine whether the proposed savings calculation methodology is appropriate, or if modifications are needed.
2. Review the energy savings calculations and project documentation for accuracy.
3. Send an email response to the utility summarizing Staff's findings and recommendations, including whether or not to proceed to Step 7 of the EUI project review/approval process.

Step 7 – Implement EUI Project and Claim CIP Credit

Once the proposed project is complete, submit final project documentation to Commerce, including the savings methodology, description of the chosen baseline, measured data, and calculated energy savings.

Commerce Staff will then proceed to:

1. Review the final project documentation.
2. Submit an emailed response with final approval, approval with modifications, or disapproval of the EUI energy savings for CIP credit.

EUI Project Examples

Proposed Project	Existing Conditions	Normal Maintenance	Conservation Eligible
Replace a coal fired generation plant with a wind farm	Coal plant	Not applicable in this case. Projects that change a generation facility's nameplate capacity, fuel type, or technology are not considered maintenance (changes the fundamental design of the facility)	The project may or may not be eligible, but "normal maintenance" is not a relevant concept (in this particular case, fuel switching must be considered)
Gas generation facility - replace furnace heat transfer surfaces, replace filters and re-optimize combustion settings	Periodically replace filters and re-optimize combustion settings per manufacturer recommendations	Periodically replace filters and re-optimize combustion settings per manufacturer recommendations	The marginal savings from replacing the heat transfer surfaces is eligible, but improvements from filter and combustion optimization are not
Inspect all transmission transformer bushings and replace failed ones	Bushing inspections performed every 10 years despite manufacture recommending every 5 years	Assume failed bushings are replaced every 5 years	Develop a method of prorating savings by adjusting the failure rate to reflect an assumed maintenance baseline
Add waste heat recovery to a substation	Substation site with no waste heat recovery	Not applicable in this case. Adding a new process is not considered maintenance	Actual conservation achieved compared to the existing conditions is eligible (requires approved calculation methodology)
Accelerate maintenance cycle at a generation facility from 12 months to 6 - achieve efficiency improvements more frequently	Complete a site-specific maintenance protocol every 12 months for the last 10 years	Assume continuation of historical completion of maintenance protocol every 12 months at the site	Marginal improvements achieved by more frequent maintenance are eligible. Requires documentation showing historical practices and newly adopted ones