IRP Technical Working Group

Meeting #10

ENBRIDGE

August 23, 2022

Derating Factor Clarification

In addressing the action item from the July 19th TWG to confirm whether the derating factor covers forecast uncertainty regarding customer uptake; or is it covering error variability in the amount of peak demand reduction or both, below is the excerpt from the ICF report referring to the derating factor:

"The level of uncertainty related to the impact of DSM programs on peak hour demand has a significant impact on the ability of a utility to rely on DSM as an alternative to new facilities. To ensure, with sufficient reliability for planning purposes, that the impact of the DSM program on peak period demand is sufficient to reduce a facility investment, the DSM program needs to be designed to achieve greater peak period savings than the facility investment it replaces. For example, a portfolio of DSM programs might have peak period impacts with a standard deviation of 10% around the expected impact. For the DSM program to meet the required peak period load reduction 95% of the time, it would need to be sized to meet 116% of the required capacity. The same program would need to be sized at 121% of the required capacity to meet requirements 98% of the time." (page 47-48)

Whether it's called a derating factor or an IRPA oversubscription (how it was also referred to in the decision), it captures the same goal of accounting for uncertainty of peak impacts requiring additional IRPA uptake therefore confirming that the factor accounts for both.

IRP Pilots

IRP Pilot Objectives

- As per the IRP Decision “The pilots are seen as an effective approach to understand and evaluate how IRP can be implemented to avoid, delay or reduce facility projects” and “Enbridge Gas is encouraged to use the IRP pilot projects as a testing ground for an enhanced DCF+ test…”
- Through discussions with the IRP TWG, pilot’s objective is to improve understanding of how to design, deploy and evaluate IRPAs that cost effectively delay or avoid the need for future infrastructure spending

IRP Pilots Proposal

Proposing two pilots (with focus on ETEE):

- Single project IRP Pilot – focus on addressing one need within a system with ETEE (& supply side for bridging)
- Portfolio IRP Pilot- focus on a geographical area and addressing multiple needs over the next 10 years using a suite of IRP alternatives *(For discussion: Demand Response)*

Key Objectives for ETEE:

- Understand how ETEE measures impact peak hour demands and understand how to design, deploy and evaluate an ETEE program.
- In addition, develop a cost recovery & incentive mechanism for ETEE and O&M based supply-side IRPAs

IRP Pilots Selection Process

General criteria used to select pilot projects and areas:

- Pass the IRP Binary Screening
- Be tied to an existing system need and identified in EGI's 10-year Asset Management Plan
- Have the potential for good data collection and ability to measure impact of IRPAs
- Act as a proof-of-concept project with good potential for scalability & transferrable learnings
- *Note: Although cost effectiveness will be an important criteria to achieve, there is the potential that the alternative may not be the most cost-effective solution when compared to the baseline facility solution*

These considerations formed the basis of the evaluation matrix in which pilot options were scored against.

Evaluation Matrix
System configuration
Balanced customer mix & potential for scalability
Peak hourly flow data collection potential
Feasibility of supply-side IRPA implementation in the short-term
Feasibility for ETEE

Overview of System Reinforcements Plans

- Multiple factors are incorporated into the system reinforcement plans
  - Sources of information that help to establish the timing, location and loads on the system include operational input, energy transition assumptions, input from regions/districts, developer plans, municipal zone plans.
  - Customer additions are governed by macro-level corporate econometric forecast
  - Blanket locations may be used in the absence of other information if needed to match the customer addition forecast
- Hydraulic models are run with the above inputs and reinforcement projects are identified in the year prior to the system constraint being exceeded
- Annual simulation & verification of hydraulic models using pressure and flow measurement is completed to ensure the model is reliable in estimating general demand on the system
  - Actual field data (i.e. via ERX/pressure recorder) is requested to verify model results for systems nearing constraints (i.e. min system pressures)
- Reinforcement projects are reviewed, and timing/scope are reassessed as forecast data is replaced with actuals

Glossary of Terms

- AMP – Asset Management Plan
- BU – Bare and Unprotected (steel)
- ERT (Encoder Receiver Transmitter) - Interval measurement device
  - Installed at customer meter to collect hourly/daily interval data
- ERX – Electronic Pressure Recorder
  - Installed on systems for pressure collection purposes (typically on low points)
- ETEE – Enhanced Targeted Energy Efficiency
- IT – Interruptible (contract rate)
- LP – Low pressure (systems)
- MOP – Maximum Operating Pressure
- PE – Plastic
- S – Steel
- VSM – Vintage Steel Mains