Energy Modeling Initiative National Forum

Outcomes from the Central Workshop





Workshop Overview

- The workshop was divided into three sessions: Presentations & Panel 1 - Model Users, Presentations & Panel 2 - Modellers, Case Study and Collaborative Analysis.
- Throughout these sessions, the needs of various stakeholders were identified and opportunities and challenges emerged.







Model Users

Model users from various sectors highlighted the following needs / concerns:

- Granularity a modelling platform should transcend interconnections from system operator to local distribution company to consumer.
- Consultation & Coordination users want to be consulted and involved in model development.
- Regional Variability model users cited the challenge of capturing interests and achieving consistency across local and regional levels given the strong differences that exist.







Modellers

Modellers highlighted the following needs / concerns:

- Data Availability & Privacy modellers expressed a need to obtain credible data to validate their models and expressed desire to share data if IP of individual researchers could be protected.
- Consumer Behaviour discussion focused on how modelling could be applied to explore the links and gaps between adoption of innovations in energy services and sustainability transitions.
- Incorporating Economics modellers discussed the economic impacts of energy choices and how these can / cannot be accounted for in current models.









Takeaways From Collaborative Analysis

When presented with an energy system challenge, modellers and model users arrived at some high-level takeaways:

- Energy modelling faces challenges surrounding incorporating consumer behaviour and social acceptance.
- Modelling must take a true interdisciplinary approach and incorporate policy and regulatory effects, environmental impacts, and economics.
- To build better models, an integrated system modelling approach is required. While, models are required at a system level, they will need to be fed by more granular data (time and space).







Takeaways From Collaborative Analysis

The following models / tools were identified as being able to potentially address the system challenge:

- Load curve models
- Peak load analysis
- Life cycle assessments (LCAs)
- Forecast / Scenario models
- Risk analysis
- Technical feasibility
- Parametric modelling approaches
- Agent-based models
- Daisy-chaining existing models
- Optimization models
- Commodity pricing / carbon markets







Workshop Synthesis

From the presentations, panel discussions, and case study, key opportunities and challenges emerged.

Opportunities for the development of a national modelling platform include:

- Data storage and sharing amongst modellers and model users.
- Expedited model development and provide validation for models in existence.
- Connections amongst the modelling community allowing for increased collaboration and coordination.
- Access to expertise and answers for model users and policy makers.





Workshop Synthesis

Challenges surrounding the development of a national modelling platform include:

- Intellectual property, privacy, and lack of clarity on existing privacy policies in the region.
- Concerns over how one platform could consider their individual needs due to vast differences between and within regions and industries
- Difficulties in modeling a dynamic, fast changing sector with a lack history for uptake and adoption.
- Common modelling vocabulary, clear explanations and interpretations of their modelling results.











Closing Remarks

- This workshop was a successful and productive start that opened the discussion on the mobilization of Canadian modelling expertise.
- Participants from various backgrounds were supportive of the big picture objective to convene the modelling community and develop a national modelling platform to enable collaboration and access to common data and tools.
- The key takeaway from this workshop is an understanding that the modelling community is vast and that the stakeholders involved have diverse needs and concerns.
- To move this initiative forward in the most productive way, inclusive representation from industry, government, consulting, and academia, across all regions is necessary.
- Researchers in various fields such as energy economics, consumer behaviour, technology development, and others with expertise on the variables that the models depend on should also be included.



