



The Role of Energy Modelling in Shaping Responsive Energy Policies

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Hub

About the EMH

Mission

Our mission is to support **timely, evidence-based policymaking** toward a net-zero economy at all levels of government, by bringing together public policy and energy modelling communities as well as **facilitating access to energy modelling expertise and tooling**.

Convening

Capacity
building

Models
& Data

Rapid
Response
Service



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FOUNDING INSTITUTIONS:



University
of Victoria

Institute for Integrated
Energy Systems



School of
Public Policy



WITH THE FINANCIAL SUPPORT OF:



Natural Resources
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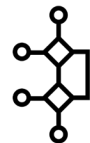
Canada

The Role of Energy Modelling in Policy Development/Assessment

Energy modelling involves sophisticated tools that **simulate the dynamics of energy systems**, using data to forecast outcomes and assess policy impacts.



These models are crucial for policymakers, providing the **foresight** needed to devise strategies that are both sustainable and economically viable. They help us understand **potential future scenarios**, enabling proactive rather than reactive decision-making.



Given the rapid advancements in technology and shifts in global energy demands, **adaptability in energy modelling** is essential. This allows us to continuously refine policies to align with emerging realities.



Data collection

Scenario simulation

Result analysis

Policy Formulation/
Assessment



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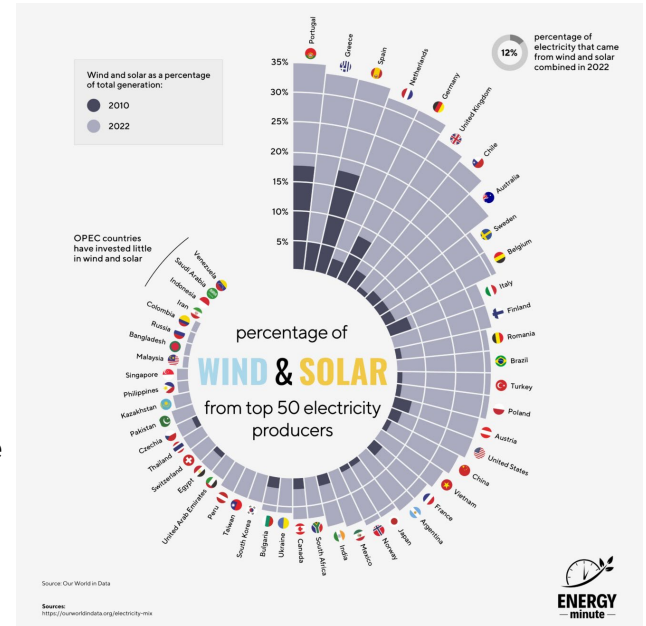
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Navigating Challenges: The Impact of Technological Changes

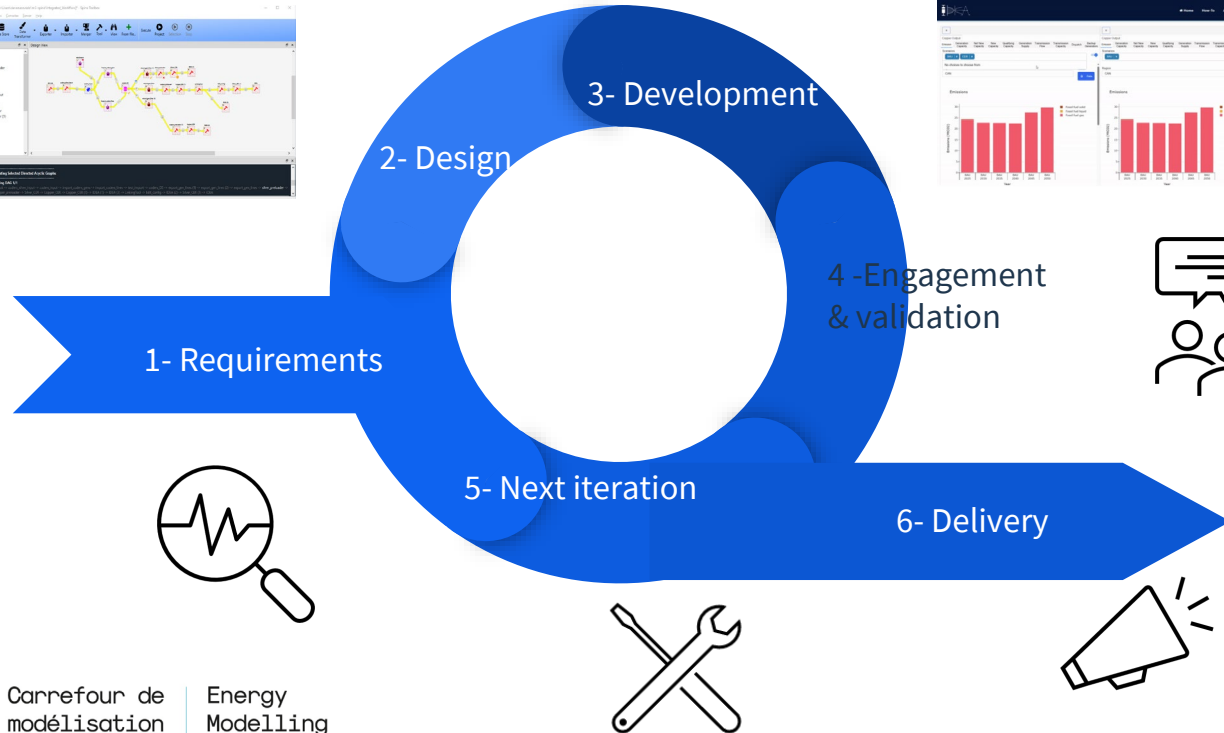
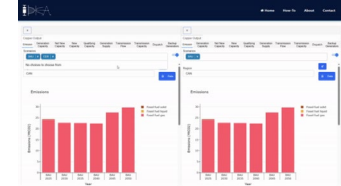
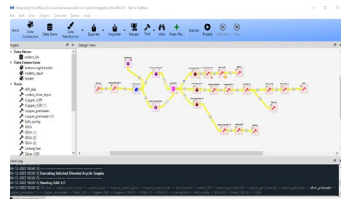
Rapid Technological Advancements: The energy sector is experiencing unprecedented technological growth—renewable energy tech, smart grids, and AI-driven energy management systems are transforming how we produce, manage, and consume energy.

Impact on Modelling Techniques: These innovations, while beneficial, introduce complexity into our modelling efforts. Existing models, often designed for more stable technological environments, must now adapt to accommodate fast-evolving technologies and unpredictable energy landscapes.

Challenges for Modellers: The primary challenge for modellers is the integration of new technologies into existing frameworks. There's also the need to forecast the impacts of these technologies on energy markets and regulations, which is no small feat given their novel and rapidly changing nature.



Adapting to the Terrain: Flexibility of Models



Building Bridges: Stakeholder Engagement

1

Importance of Diverse Perspectives

Diverse input ensures our models reflect the multifaceted nature of society and the energy market, leading to more comprehensive and realistic outcomes.

2

Engagement Strategies

Workshops, public consultations, and collaborative platforms.

3

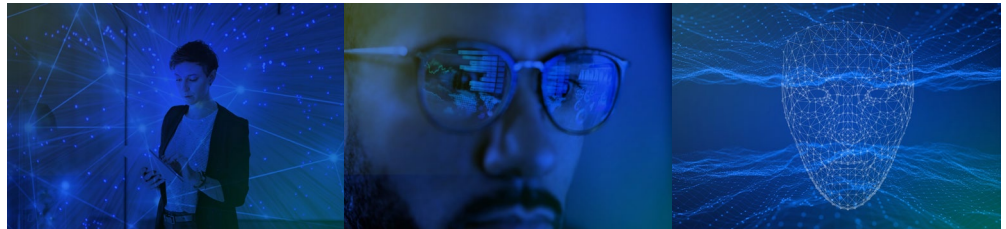
Benefits of Broad Stakeholder Involvement

Engaging stakeholders not only improves the accuracy and relevance of our models, but also enhances policy acceptance and compliance, as stakeholders are more likely to support policies they helped shape



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Foundation of Trust: Transparency in Data and Modelling



Findable

Easily discoverable by both humans and computers. This involves having detailed and **accurate metadata**, clear identifiers, and registration in searchable resources.



Accessible

Should be accessible with well-defined access conditions (open where possible). Accessibility also means that the models and datasets should be **understandable and usable** by intended users.



Interoperable

Models should be designed to interoperate with other models and data systems, using **shared formats, vocabularies**, and infrastructures to allow data to be integrated from various sources and by different users.



Reusable

Energy models and datasets should be reusable under clearly defined conditions, ensuring they are **well-documented**, and maintained with clear and accessible metadata, including information about their provenance and instructions.

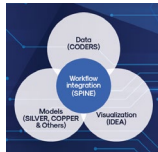


Case Studies: Open Insights initiative

Advancing accessible and transparent modeling for Canadians

Platform

A one-stop platform for accessing data (CODERS), models, visualizations (IDEA), and workflows, featuring a common format for inputs/outputs across all models to ensure adaptability to specific policy questions and easy integration of new models.



SESIT Group



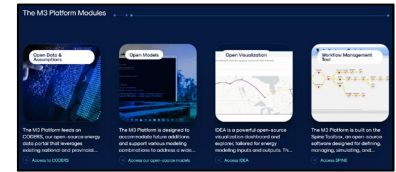
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cme-emh.ca/en/open-insights

Data & Models

A suite of 8 provincial-scale energy and economic modular models employing diverse methodologies for comprehensive impact assessments.



Stakeholders engagement

We have implemented a Technical Advisory Committee (TAC) for expert insights, are engaging in continuous testing and comparison, and have deployed a task force dedicated to collaborative and rapid policy assessments.

Vision Forward: Future Trends in Energy Modelling

Accessibility and Modularity



Enhancement Through AI



Incorporation of Uncertainties



Shorter Feedback Loops



Multidisciplinary and Multi-sectorial Approaches



Increased Granularity and Connectivity



Purpose-Driven Modeling



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Thank you!



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