

Energy Modelling Initiative — Initiative de modélisation énergétique

Bringing the Tools to Support Canada's Energy Transition — Outiller le Canada pour réussir la transition

The Long-Term Plan

The National Forum

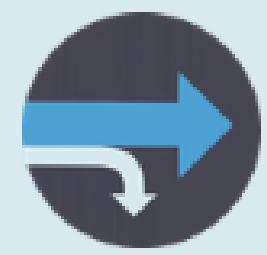
Montréal, 17-18 December 2019

<http://emi-ime.ca>



Canada



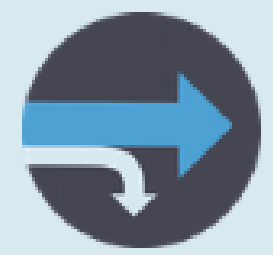


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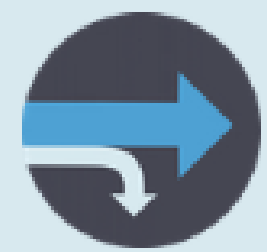
Opening remarks

- Moe Esfahlani, EMI



Day 2:

- Overview of results from the Inventory Survey
- Presentations of Selected Projects
- Second Summary of Workshop Outcomes (Modellers)
- Breakout 2: Towards a Shared Platform



Inventory: Survey Design & Structure

1. Basic (personal) Information

- *Title, Name*
- *Position, Department, Organization*
- *Contacts, References*
- *Geographic location*
- *Organization Type*
- *Sector*
- *Bio*
- *Modeller/User/Both/Else*

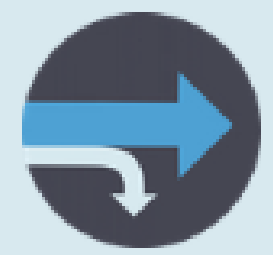
2. Model Information

- *Sector(s):*
- *Reference(s):*
- *Principal developer*
- *Type/category:*
- *Application/User:*
- *Physical scale:*
- *Temporal scale:*
- *Key inputs:*
- *Key outputs*

3. Usage Information

- *Using external models?*
- *Purpose of usage?*
- *What policies assessed?*
- *Models used:*
 - *Name*
 - *Type*
 - *Sector*
 - *Reference docs*
 - *Outputs used*

Survey Designed to Capture up to 3 models per participant (developer and/or user)



Inventory: Response Statistics

Total Responses: **101**

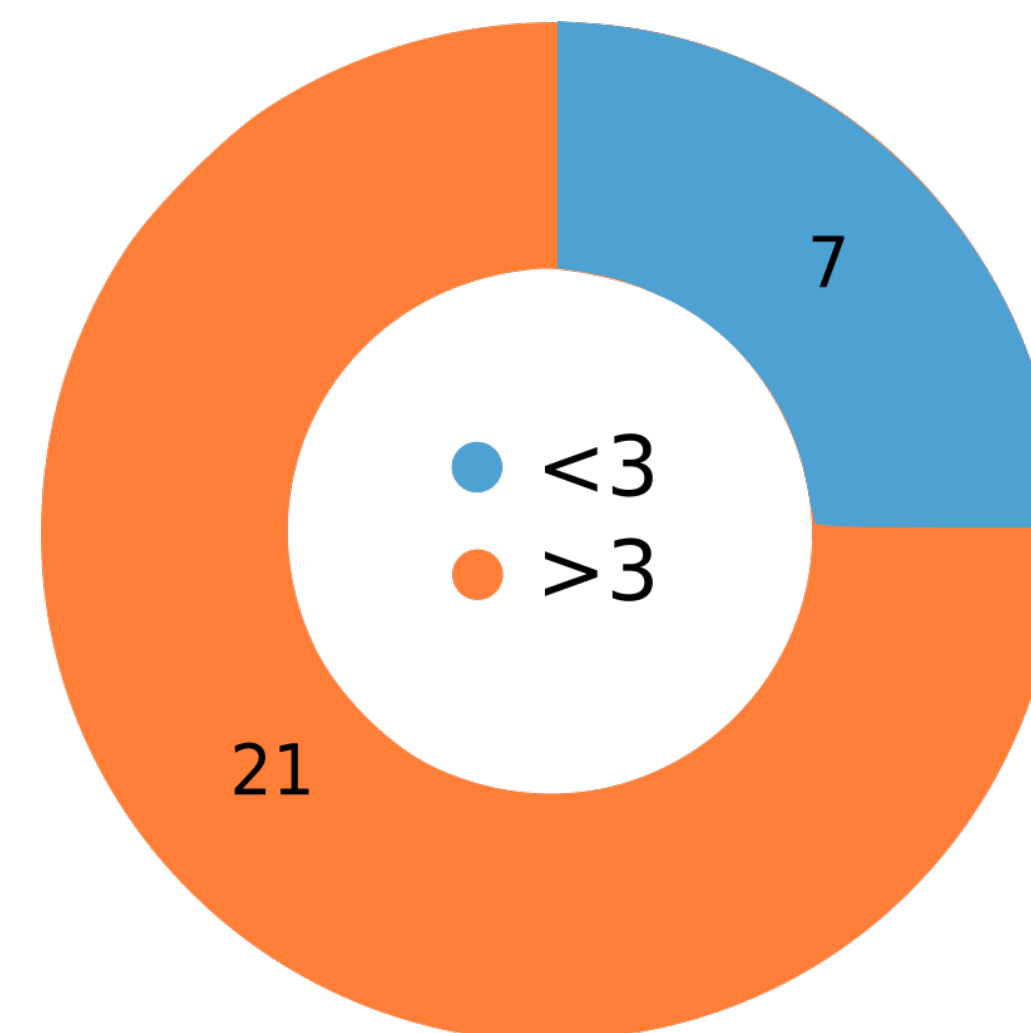
Completion rate: **76%**

Typical time: **12 minutes**

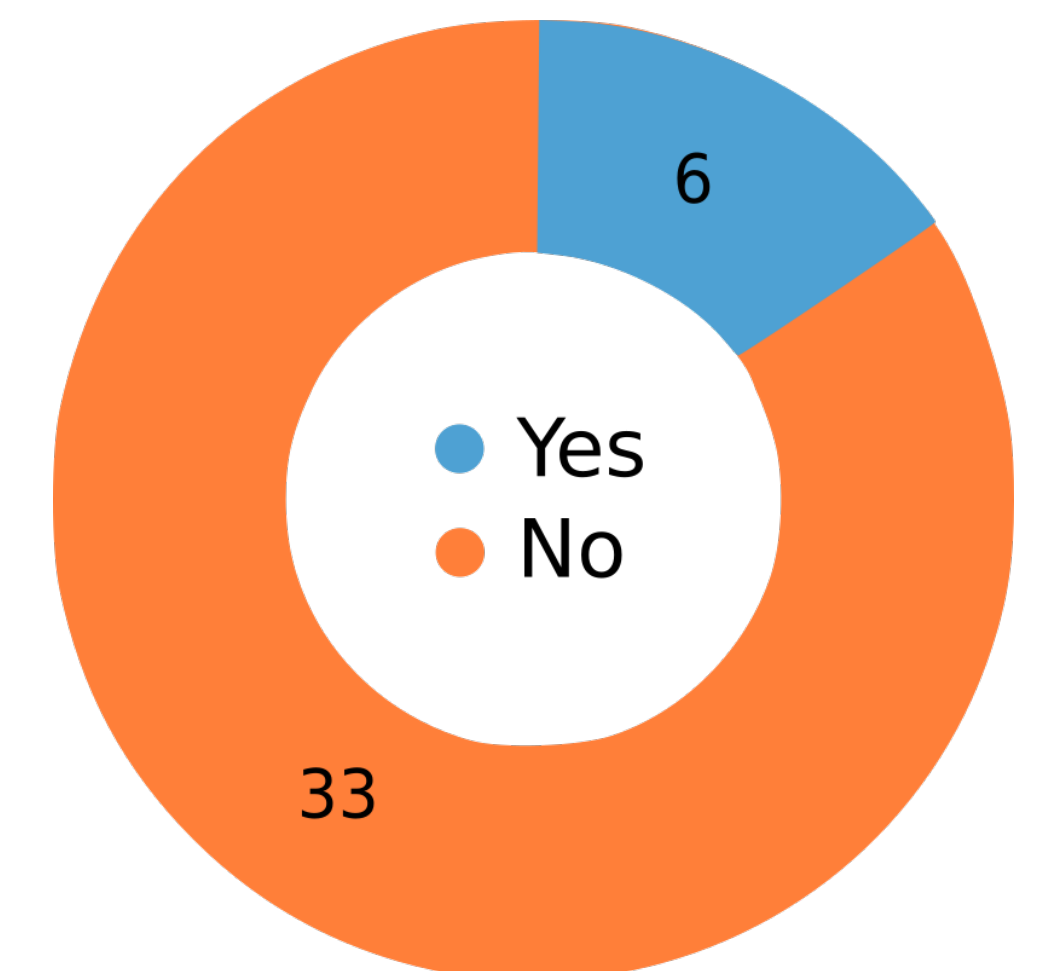
Models: **71**

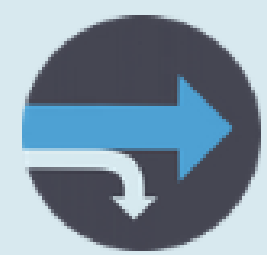
Users profiles: **45**

How many models per respondent (if more than 1):



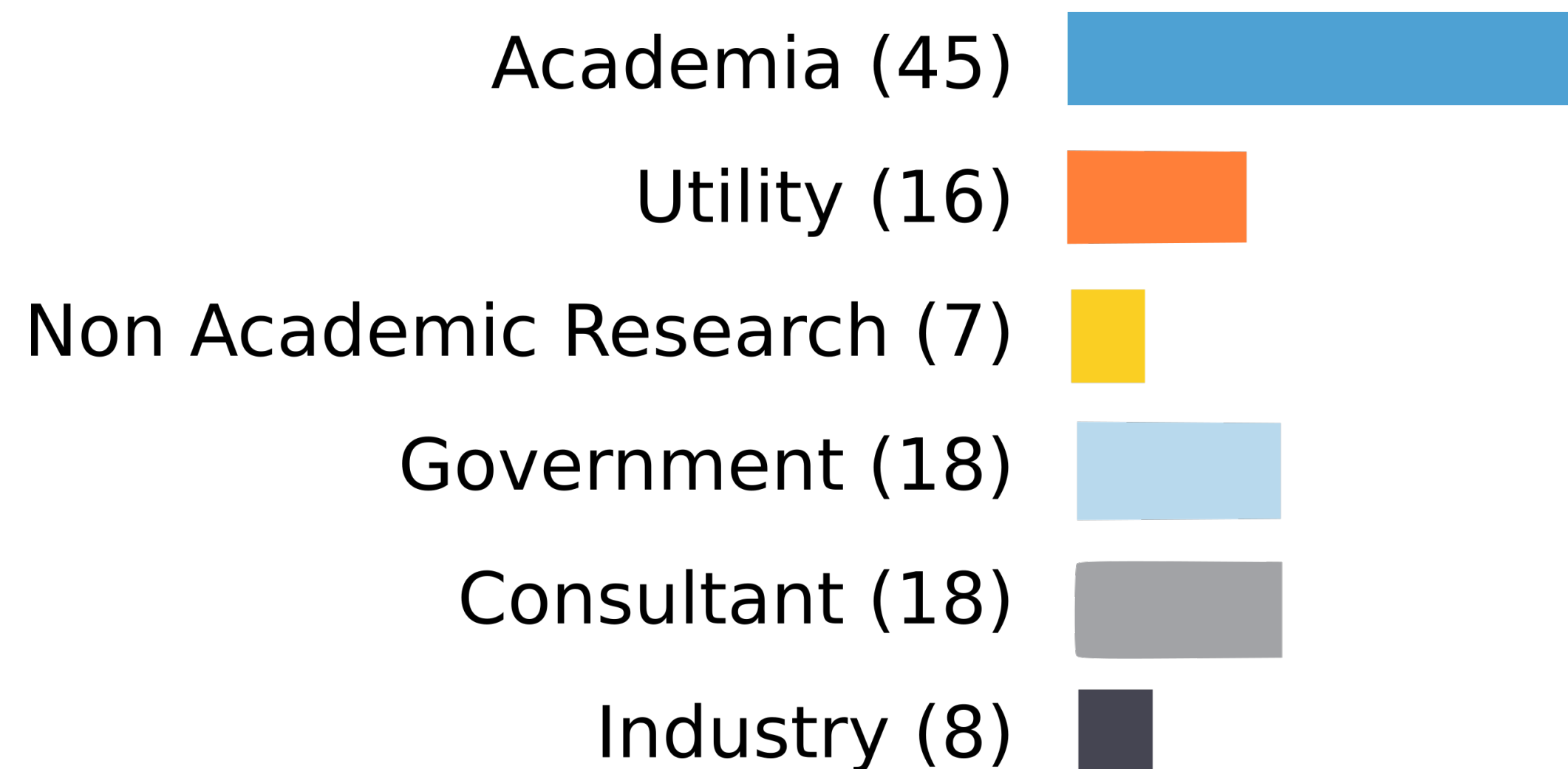
Modellers using others' models:



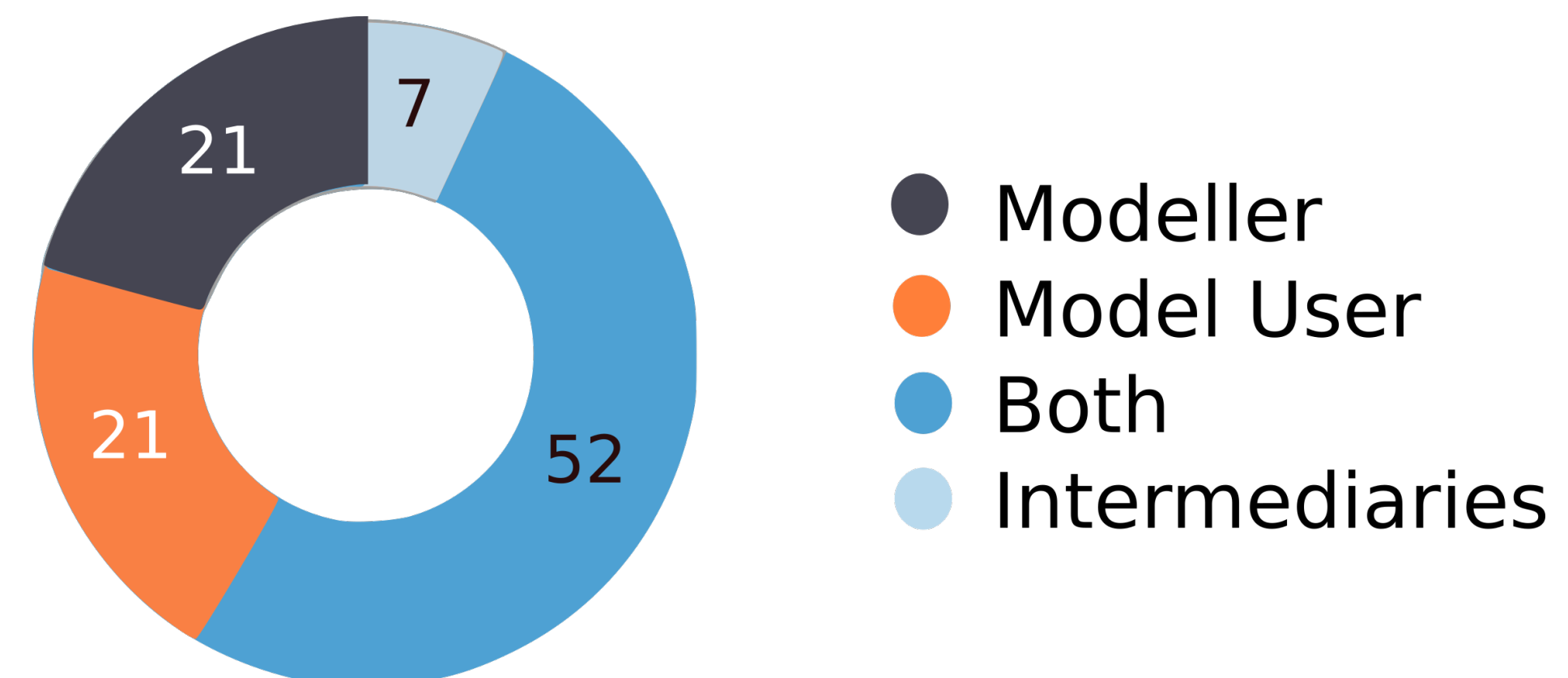


Inventory: Overview of Personal Inputs

Type of Organizations:



Capacities of participation:





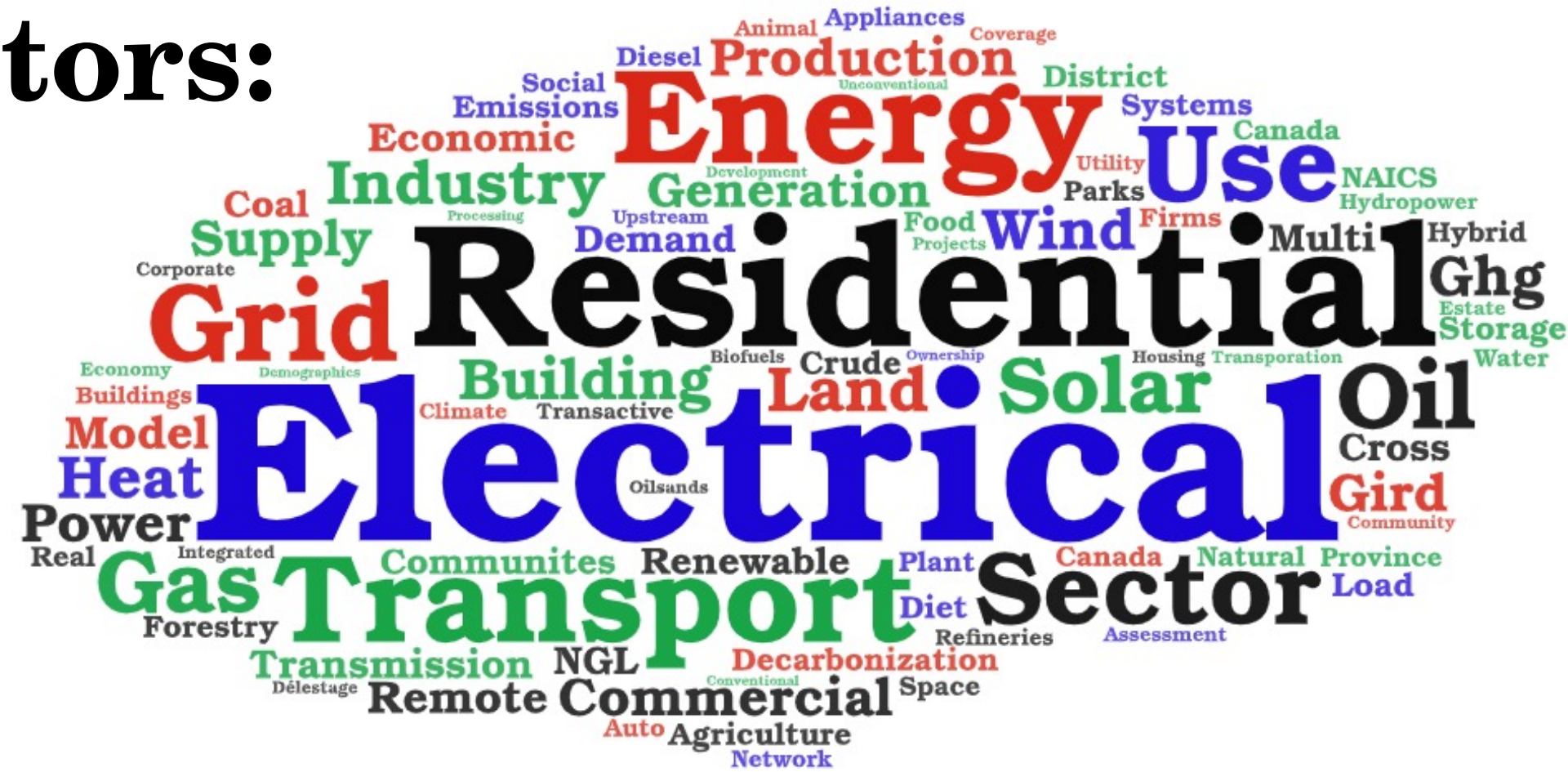
Sectors:



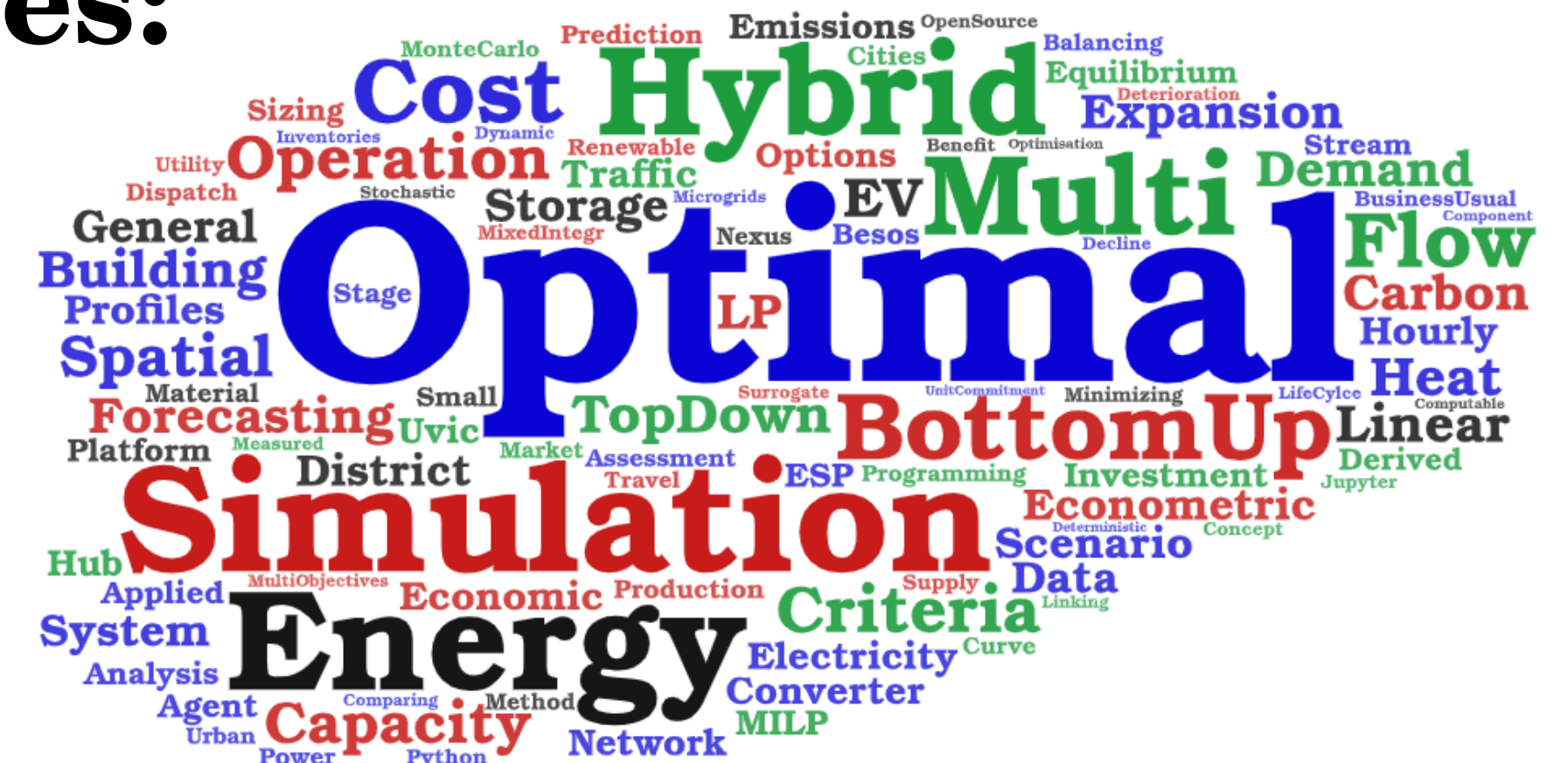


Inventory: Overview of Model Information

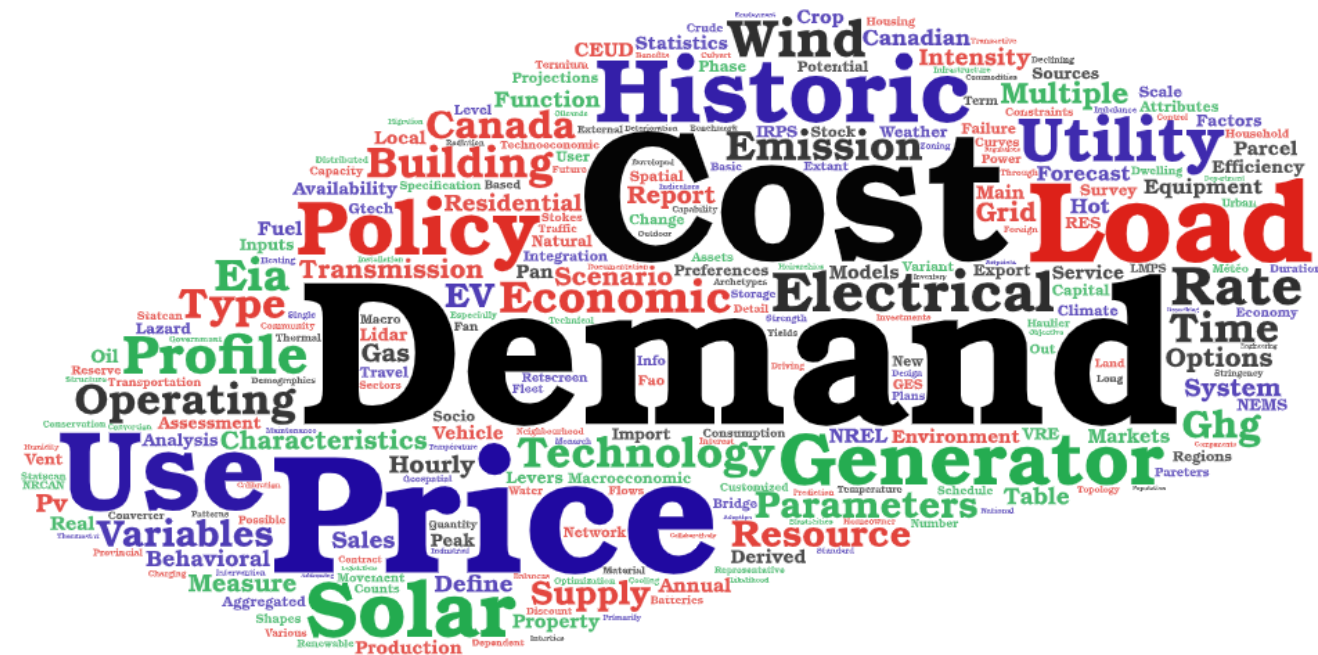
Sectors:



Types:



Inputs:



Outputs:

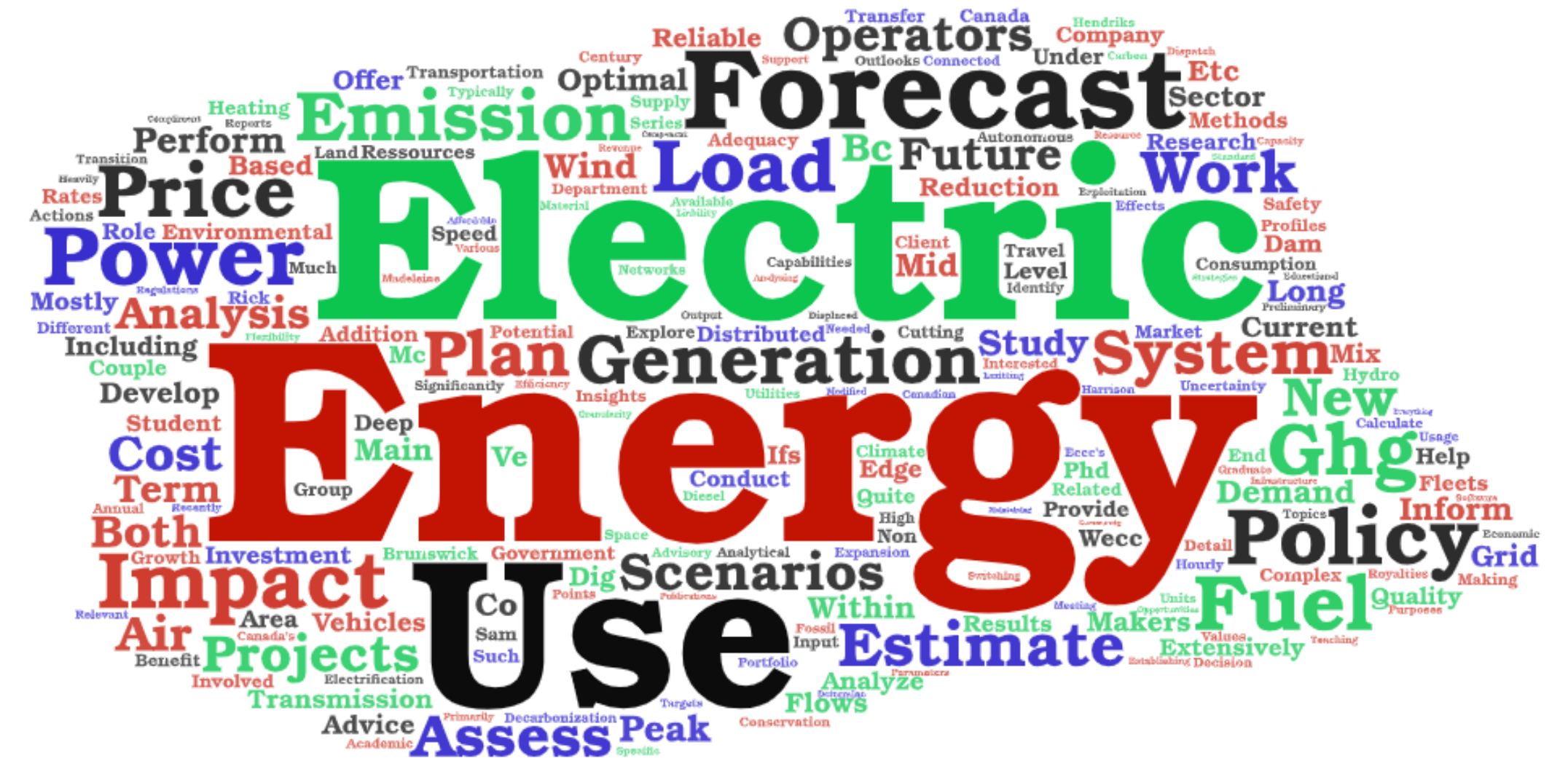


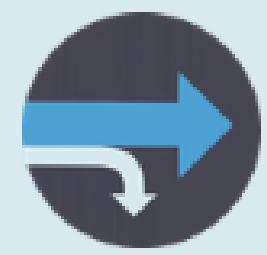


Inventory 5: Overview of User Information

Purpose of Usage:

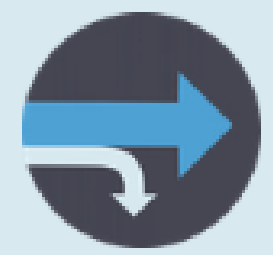
Policy Assessment:





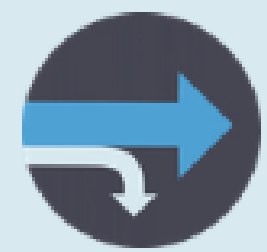
Inventory 6: Examples

- **Electricity (20):** IESD, CREST, OEMS, Electricity optimal generation planning, TANDM, etc.
- **Grid (17):** Navigator, Transactive Energy, Monarch, SILVER, Crystal super Grid; Thermal energy storage in microgrid, etc.
- **Emission (11):** CIMS, Posterity Group Navigator, Energy 2020, TEP, NATEM, CESAR Hydrogen Economy, etc.
- **Cost (21); Optimization (24);** etc.



Inventory 7: Next Steps

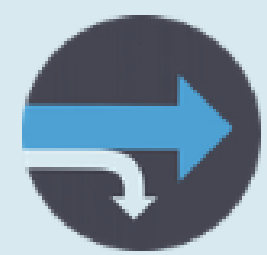
- Your inputs!
- Send reminders and share with new contacts.
- Follow-up with participants to refine inputs (particularly, concerning application)
- Follow-up with those who have more than 3 models.
- Create a structure and user interface for inquires.
- Make available!



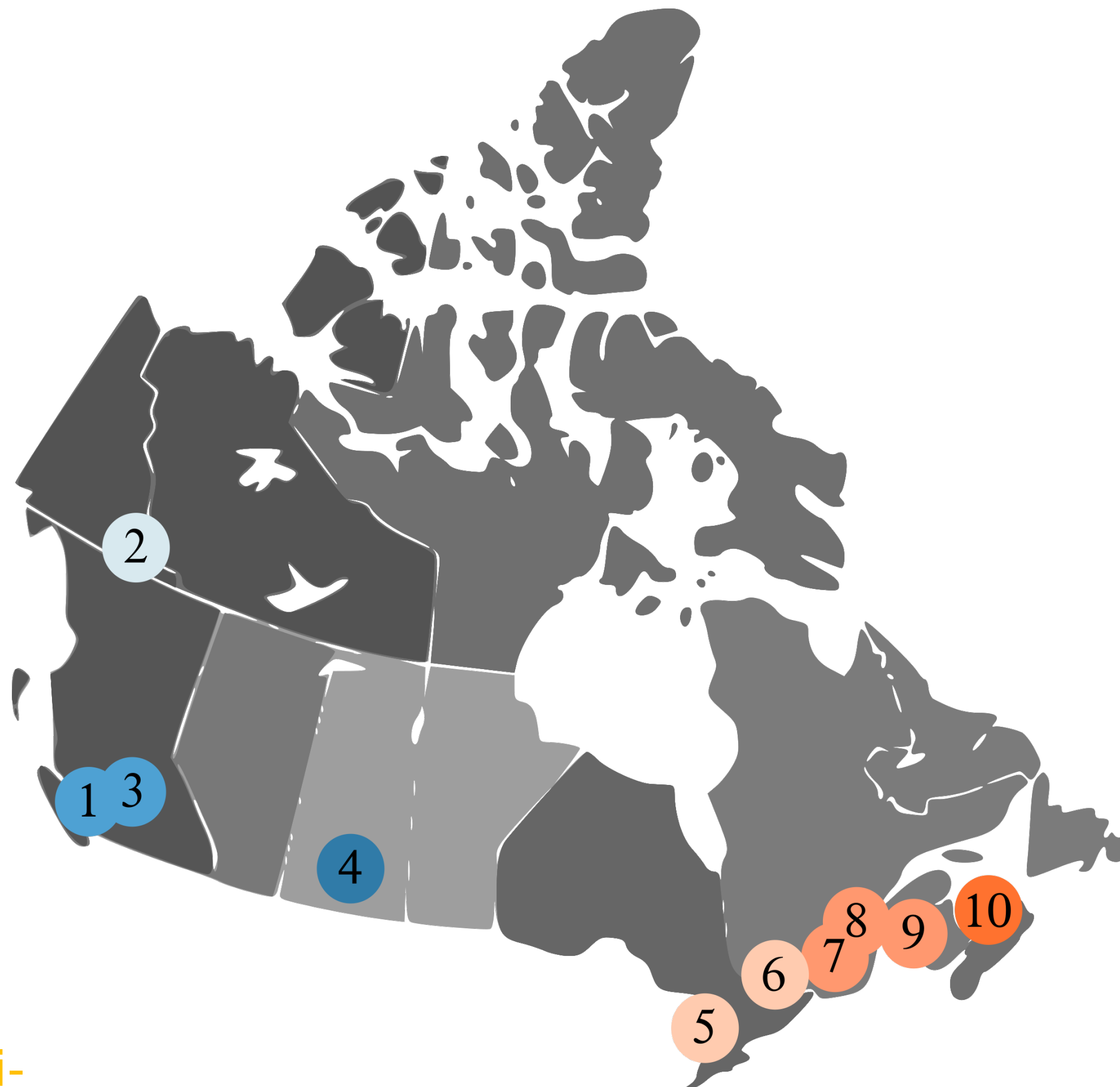
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Project Presentations



Overview of Projects

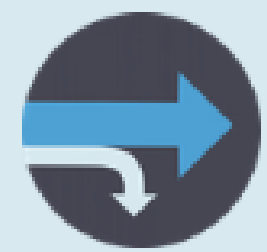


Funded projects

	Organization	Project
1	Simon Fraser University, Canadian Energy & Emissions Data Centre	Interactions of policies acting at the local, regional, and National scales for Canada's Energy transition
2	Polytechnique Montreal, CIRAIG	Near real-time modelling and smart management of electricity consumption
3	Univeristy of Prince Edward Island, NREL & City of Charlottetown	Open and Accessible Renewable Electricity System Modelling for Prince Edward Island
4	Yukon College	Modelling of remote diesel-based power systems and equipment in the Canadian Territories
5	UQÀM, Joint Clean Climate Transport Research Partnership	Modeling Increased Electric Vehicle Charging Demand on Greenhouse Gas Emissions in Quebec and Ontario
6	University of Waterloo, Qualsys Engco Inc.	A Cluster-Based load Model for a Resilient and Sustainable Community
7	University of Victoria	Examining the contribution of hydroelectric renewal and greenfield development to grid decarbonization: An enhanced capacity expansion model
8	University of New Brunswick	Smart Microgrid Solutions to Reducing Fossil Fuels Dependence in Canada's Rural and Remote Communities
9	University of Regina, Saskatchewan Ministry of Environment	Management of Canada's energy transition and associated risks through optimized CGE approach
10	Whatif? Technologies, Sustainability Solutions Group	CityInSight — Spatially resolved modelling of energy and emissions in Canadian municipalities

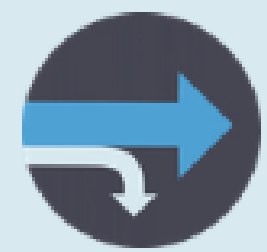
Unfundable projects

Organization	Project
Institut de recherche d'Hydro-Quebec	An open source Energy Transition Tool For Canada Energy Sectors toward Deep Decarbonisation Pathway Projects (DDPP)
Environment and Climate Change Canada	Economics and Emissions Reduction Potential of using the Pumped Water Storage (PWS) versus Battery Energy Storage Systems (BESS) in Canada
National Energy Board	Hourly Electricity Projections from <i>Canada's Energy Future 2019</i>



Project Presentations – Round 1

1. *Interactions of policies acting at the local, regional, and national scales for Canada's Energy transition* – Simon Fraser University, Canadian Energy & Emissions Data Centre
2. *Management of Canada's energy transition and associated risks through optimized CGE approach* – URegina, SK Ministry of Environment
3. *An Energy Transition Tool for Canada Energy Sectors toward Deep Decarbonisation Pathway Projects (DDPP)* – Hydro-Québec Research Institute (IREQ)
4. *Examining the contribution of hydroelectric renewal and greenfield development to grid decarbonization: An enhanced capacity expansion model* – Uvictoria, Utoronto
5. *Pumped Hydro Storage (PHS) and Battery Energy Storage Systems (BESS): An Assessment of Energy 2020 Initial Response and Identification of Possible Improvements* – Environment and Climate Change Canada
6. *Hourly Electricity Projections from Canada's Energy Future 2019* – Canada Energy Regulator



Project Presentations – Round 2

7. *Modeling Increased Electric Vehicle Charging Demand on Greenhouse Gas Emissions in Quebec and Ontario – UQAM, Joint Clean Climate Transport Research Partnership*
8. *CityInSight – Spatially resolved modelling of energy and emissions in Canadian municipalities – Whatif? Technologies, Sustainability Solutions Group*
9. *A Cluster-Based load Model for a Resilient and Sustainable Community – Uwaterloo, Qualsys Engco Inc.*
10. *Smart Microgrid Solutions to Reducing Fossil Fuels Dependence in Canada's Rural and Remote Communities – U New Brunswick*
11. *Northern Energy Innovation Energy Modelling – Yukon College*
12. *Near real-time modelling and smart Management of electricity consumption – Polytechnique Montreal, CIRAIG*