TaNDM – Tract and Neighbourhood Data Modelling

Developing building energy and emissions inventories

Steering Committee - Terms of Reference

Natural Resources Canada's Canadian Energy End-use Mapping Project and the province of British Columbia seek to demonstrate the Tract and Neighbourhood Data Modelling (TaNDM) method of developing building energy and emissions inventories for the purpose of building stock energy model validation and municipal inventory development. To solicit input from relevant utility, provincial, municipal stakeholders, supported by contractors, NRCan's CanmetENERGY-Ottawa (CE-O) is convening the TaNDM Steering Committee.

The TaNDM project was a research initiative that ran from 2010 through 2013 aiming to improve the structure, level of geography and quality of the Community Energy and Emissions Inventories (CEEI) reports with a focus on energy and emissions in buildings. The TaNDM method, is a bottom-up spatial method to link parcel, building type and measured utility data at a low level of geography and aggregate it by building type to census tract and municipal scale geographies, ensuring the aggregation meets a privacy threshold. The Intellectual Property for the method is retained by NRCan and cross-licensed to the Province of British Columbia via the Ministry of Environment Climate Change Secretariat.

TaNDM is being re-initiated by NRCan's CE-O in conjunction with the Canadian Energy End-use Mapping (CEE Map) project. This project is developing an online building energy end-use and efficiency opportunities map with associated data, best practices and standards to accelerate the uptake of building energy retrofits and the transition to a low carbon economy. TaNDM is of interest to NRCan CE-O and CEE Map as the method potentially enables access to utility data for building stock energy model validation and calibration.

Purpose

The purpose of the TaNDM Steering committee is to help ensure the TaNDM demonstration is effectively carried out. The committee will provide oversight to the process such that the method is practical to implement and resulting data is relevant for stakeholders and follows security and privacy requirements. Anticipated benefits to the province of BC including supporting existing BC buildings-related initiatives such as **Clean BC**, **Better Buildings Strategy** and an anticipated Alterations Code. There is an increasing need for data that accurately captures the value of policies, programs and investments. Planners need data at finer spatial resolutions to take to councils to justify evidence base policy and monitor and capture the impacts and value of policies programs and investments. This can provide the justification to recalibrate policies and programs based on quantitative evidence. Anticipated benefits for Fortis include support of strategic objectives and goals including **FortisBC's 30by30 target** and geographic support for municipal **FortisBC's Climate Action Partners.**

A co-benefit is that members will gain knowledge of the method and its implementation.

Specific duties of the Steering committee will include:

- Participation in monthly one-hour meetings, any necessary side-meetings and one workshop
- Reviewing memos, data attribute lists, workflows, conceptual models and other materials related to the method
- Reviewing the agenda, attendees list and meeting materials in advance of the workshop
- Reviewing reports and providing feedback on the data outputs of the method
- Supporting any follow-on communications of TaNDM results

Scope

We recognize that a there are many potential applications for measured electricity and natural gas data by building type at the municipal scale. The scope of the current project includes its use for verification of building stock energy models and use in the creation of energy and emissions inventories for buildings for municipalities. Based on consultation with committee members, changes to the building categories and the BCA Building Information Report are being requested that will support the calculation of Energy Use Intensity (EUI) and Greenhouse Gas intensity (GHGi) which can serve the needs of a broad range of actors.

Membership

Category	Individual	Organization
Utility	Jaime-Ann Leu	FortisBC
	James Allen	
	Matthew Wood	
Provincial Government	Ken Porter	Ministry of Environment – Climate Change Secretariat
	Robyn Hutchings	
	Elizabeth Lytviak	
	Gurdeep Singh	GeoBC
	John Antill	
	Scott Williams	Building Safety and Standards Branch
	Nairn Albrecht	Energy Mines and Low Carbon Innovation
	Katherine Muncaster	
Federal Government	Jessica Webster	NRCan - CanmetENERGY-Ottawa
	Meli Stylianou	
	Joe Wang	NRCan - Office of Energy Efficiency – Demand and Policy Analysis Division
Property Assessment	Tamara Sears	BC Assessment
Municipal government	Chris Ray	City of Kelowna
Consultants	Brett Korteling	Sustainability Solutions Group
	Yuill Herbert	Sustainability Solutions Group
	Aaron Licker	Licker Geospatial

Participation and Contributions

Funding for the proposed Canmet R&D activities has been secured. No cash is envisioned changing hands. Steering Committee members will be expected to spend about 10 days over the course of the term of the Steering Committee, reviewing documents and participating in meetings.

Solution Design, Demonstration and Follow-on Work

The process will see the steering committee step through the components of the method relating to buildings and energy data, its integration and aggregation, including the scripts. These components will be revisited and potentially updated to accommodate new requirements. After the workflow, scripts and data products are determined and feasibility and applicability is established, FortisBC will have a go-no go decision point at which it will approve the implementation of the method and carrying out the demonstration or not. Should the revision and demonstration of the method be deemed a success and all parties are in consensus, NRCan's intent is to assign an appropriate Open Government license to the method and publish the method, scripts and results of the demonstration through appropriate channels such as GitHub and peer-reviewed journal articles. Steering Committee members would then have the option to communicate the results of the initiative, and further demonstrate and deploy the revised TaNDM method in other jurisdictions.

Meetings

The Steering Committee will commence in March 2022 and run until March 2023. Meetings will be held remotely on the fourth Wednesday of the month for one hour from 11 to noon Pacific, 2 to 3 pm Eastern.

The November 2022 meeting will focus on confirmation of the revised method should be anticipated to be longer in a workshop format. It may be convened remotely or in person.

Additional ad-hoc meetings may be held at the discretion of the Working Group. Recommendations will be based on consensus. An agenda will be provided in advance of each meeting and a document outlining key actions and recommendations will be distributed following each meeting.

Contact

Please contact Jessica Webster with any comments or questions:

Jessica Webster
Energy Planning Analyst, Buildings and Renewables Group
CanmetENERGY, Natural Resources Canada
jessica.webster@nrcan-rncan.gc.ca | ☎ 343-571-9889