

Feedback Form

Draft Assumptions for the 2026 eDSM Achievable Potential Study– April 22, 2026

Feedback Provided by:

Name: Gordon Bourque

Title: Vice President Market Development

Organization: Thermacity Energy

Email: [REDACTED]

Date: May 7th, 2026

To promote transparency, feedback submitted will be posted on the [2026 Provincial eDSM Achievable Potential Study](#) engagement page unless otherwise requested by the sender.

Following the April 22nd engagement session on modelling and assumptions for the Achievable Potential Study, the Independent Electricity System Operator (IESO) is seeking feedback from stakeholders on input assumptions. The webinar presentation, recording, and draft measure input assumption files can be accessed from the [engagement web page](#).

Please submit feedback to engagement@ieso.ca by May 7, 2026. If you wish to provide confidential feedback, please submit marked "Confidential". Otherwise, to promote transparency, feedback that is not marked "Confidential" will be posted on the engagement webpage.

Draft measure inputs assumptions

Please provide comments in the “Stakeholder Feedback” column of the Demand Response, BTM Solar Storage, and Thermal Energy Storage input assumptions workbooks.

Broader development and trends relevant to potential modelling

Topic	Feedback
Beyond feedback shared in the Input Assumptions spreadsheets, do you have any input on broader developments and trends that may impact eDSM achievable potential, such as technology cost trajectories or expected impacts of recent regulatory changes concerning DER interconnection.	No comment.

Macro input assumptions

Topic	Feedback
Do you have any feedback on the proposed approach for the escalated avoided capacity costs for scenario 4 i.e. +50% adder to the 2026 APO avoided capacity costs	No Comment.

General Comments/Feedback

Thermacity Energy (TCE) appreciates the opportunity to provide comments and additional information in support of the eDSM Achievable Potential Study. We support and recognize the broader purpose of IESO’s efforts in quantifying the role demand side resources can play in meeting Ontario’s growing electricity demand while focusing on system reliability and affordability.

Background

TCE is commercializing large scale adoption of seasonal borehole thermal energy storage for use in large commercial, MURB, retail and institutional facilities. Our thermal storage solution also increases the efficiency of thermal energy networks (TENS) and district energy systems by storing waste

energy at the time of generation for use when there is thermal demand. The seasonal storage solution decouples thermal demand from thermal production delivering measurable demand side management potential.

Technology

Borehole Thermal Energy Storage (BTES) is a seasonal thermal energy storage technology that stores heat (or cold) underground for later use.

It works by circulating a fluid through arrays of vertical boreholes drilled into soil or bedrock. During times of high grid availability, heat is generated typically by air source heat pump during the summer with very high COPs and cold is generated during the winter with dry coolers using fan and pump energy only at exceptionally high COPs. The thermal energy is injected into the ground. Months later, the stored heat or cold is extracted to supply buildings or district heating systems / thermal energy networks often with the help of heat pumps.

Key characteristics:

- Stores thermal energy, not electricity
- Typically used for seasonal storage (weeks to months)
- Most effective at community, campus, or district scale and buildings >100,000 ft²
- Long asset life (often 40–50+ years) with low operating costs
- Can be installed under an existing building in a parking garage

BTES is not constrained by climate or geology in Ontario. Its deployment challenge is institutional and financial, not technical. Where long-term heating and cooling ownership exists—campuses, hospitals, municipalities, Indigenous communities—BTES represents a low-risk, high-impact decarbonization asset that complements Ontario’s clean electricity grid.

Grid Benefits

1. Reduces Peak Demand

Ontario is transitioning to a dual-peaking system, with winter peaks increasingly driven by space-heating electrification. BTES supplies heat directly during cold periods, reducing or eliminating the need for electric heating at peak hours. This lowers system peak demand exactly when capacity constraints are most severe.

2. Mitigates Electrification Risk

Heat pump adoption introduces significant uncertainty into winter load forecasts. By decoupling heat delivery from real-time electricity use, BTES reduces the sensitivity of peak demand to cold snaps, backup heating behavior, and adoption rates—improving planning reliability for the IESO.

3. Enables Long-Duration Load Shifting

BTES shifts electricity use from high-stress winter periods to lower-stress summer or off-peak periods by storing thermal energy seasonally. This provides weeks-to-months of demand flexibility—far longer than batteries or conventional demand response.

4. Defers Transmission and Distribution Upgrades

By lowering coincident peak demand at the feeder, substation, and regional level, BTES helps:

- Allow electrification of grid constrained buildings
- Defer new substations and feeder upgrades
- Improve utilization of existing grid assets
- Reduce capital spending that would otherwise be driven by a few extreme winter hours

This aligns directly with Ontario's Non-Wires Alternatives (NWA) planning objectives.

5. Complements Clean Electricity and Storage

BTES absorbs surplus low-carbon electricity (e.g., summer nuclear, wind, solar) and converts it into stored heat, reducing curtailment and the need to overbuild electrical storage or peaking generation for rare winter events.

6. Improves Grid Resilience

Stored thermal energy remains available during grid stress or outages (with minimal power for pumps), reducing forced load shedding risk during extreme cold and heat while improving resilience for critical facilities and districts.

Gap in Current eDSM and Planning Treatment

Current modelling and procurement frameworks tend to emphasize:

- Generation resources
- Battery storage (short-duration)
- Event-based demand response

BTES does not fit neatly into these categories, and as a result:

- Its capacity value is not explicitly captured
- Its risk-reduction benefits are not reflected in forecast margins
- Its long asset life (40–50+ years) is undervalued relative to short-lived resources

This creates a structural bias toward supply-side and short-duration solutions for meeting winter and summer peaks.

Summary

In Ontario, BTES functions as a long-duration, demand-side capacity resource. It reduces winter and summer peaks, lowers electrification risk, defers costly grid upgrades, and supports a reliable transition to low-carbon heating and cooling—making it a powerful complement to generation, batteries, and traditional demand response in IESO planning.

Recommendation

The IESO should consider the following actions within the eDSM process and related planning work:

Create a demand-side thermal storage category in modelling frameworks that captures:

- Peak demand reduction
- Duration of impact
- Seasonal shifting capability

Explicitly test BTES scenarios in:

- Winter and summer peak sensitivity analyses
- Electrification uncertainty scenarios
- Regional IRRP and NWA evaluations

Recognize BTES as a capacity-supporting asset, even where it is not dispatchable through energy or operating reserve markets.

Coordinate heat-electricity planning assumptions, particularly in areas with:

- Large commercial buildings
- District energy systems
- Large campuses and institutions
- New master-planned developments