

Flexibility Solutions in Distribution Systems: Perspective from an Ontario LDC

October 29, 2025

To: Energy Systems Integration Group (ESIG)

By: Umar Waqas, P.Eng, MBA – VP Grid Modernization

- About Me
- Corporate & Industry Background
- Electricity Forecast/Supply Mix
- DSO Readiness in Ontario
- Q/A

About Me



Umar Waqas, P.Eng, MBA
Vice President, Grid Modernization

Professional Snapshot

- *14+ years in Ontario's energy sector*
- *P.Eng. with expertise in power systems and operations*
- *Track record in grid modernization, utility integration, and digital transformation*
- *Skilled at connecting technical, operational, and strategic functions*
- *Chair of the GridSmartCity New Technology Committee*

Leadership Focus

- *Leading DSO readiness and utility modernization*
- *Driving collaboration across Engineering, Operations, and IT*
- *Engaging with industry, regulators, and system operators to shape the future grid*
- *Promoting a data-driven, customer-focused, and resilient energy model*

Interests

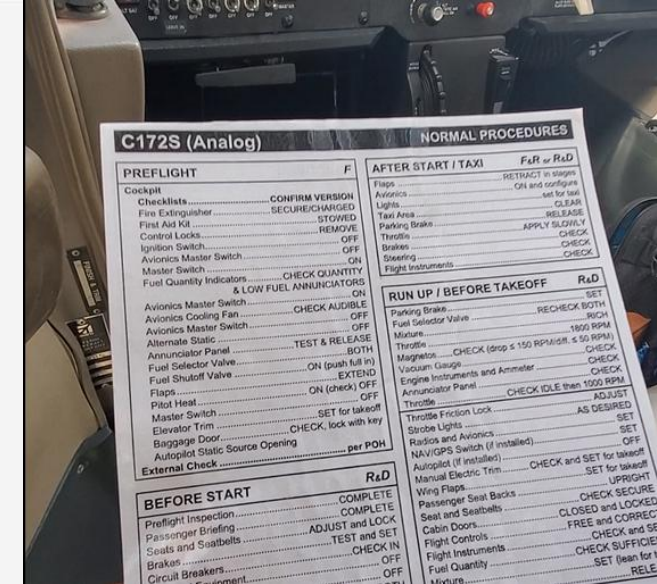
- *Private pilot, Jiu Jitsu , Reading, Travel*



- *Planning & preparedness*
- *Standard operating procedures*
- *Resource management*

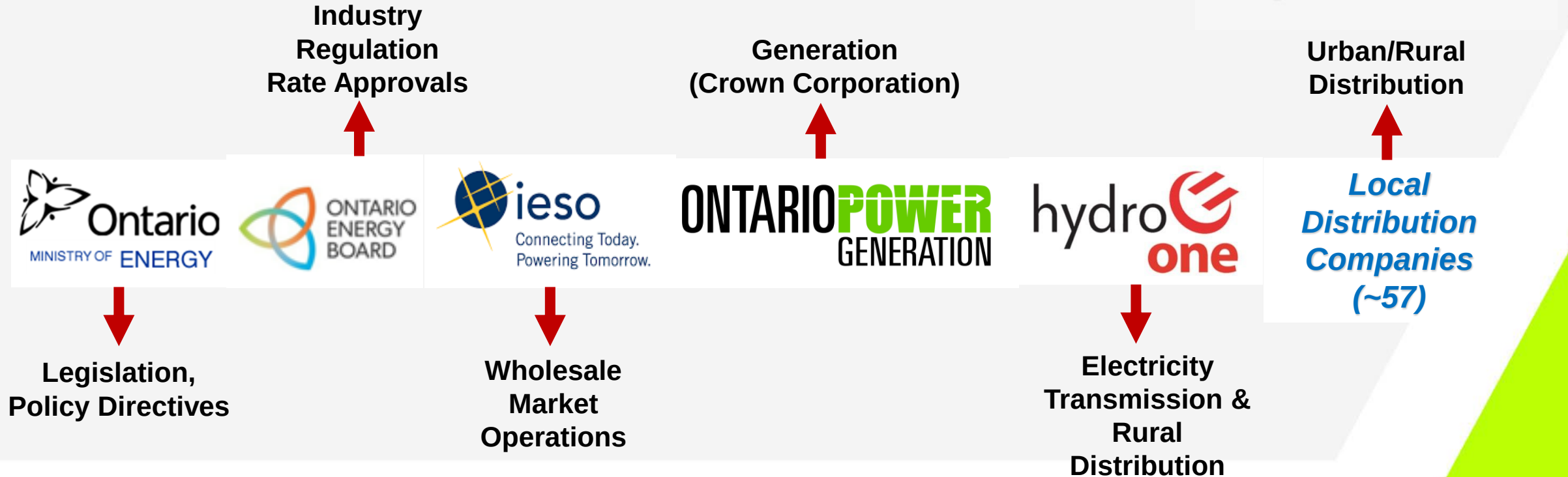
- *Proactive risk identification and mitigation*
- *Focus on human factors and accountability*
- *Continuous improvement*

- *Leveraging technology for real-time awareness*
- *Compliance and Public Trust*
- *Data driven decision making*



Industry at a Glance

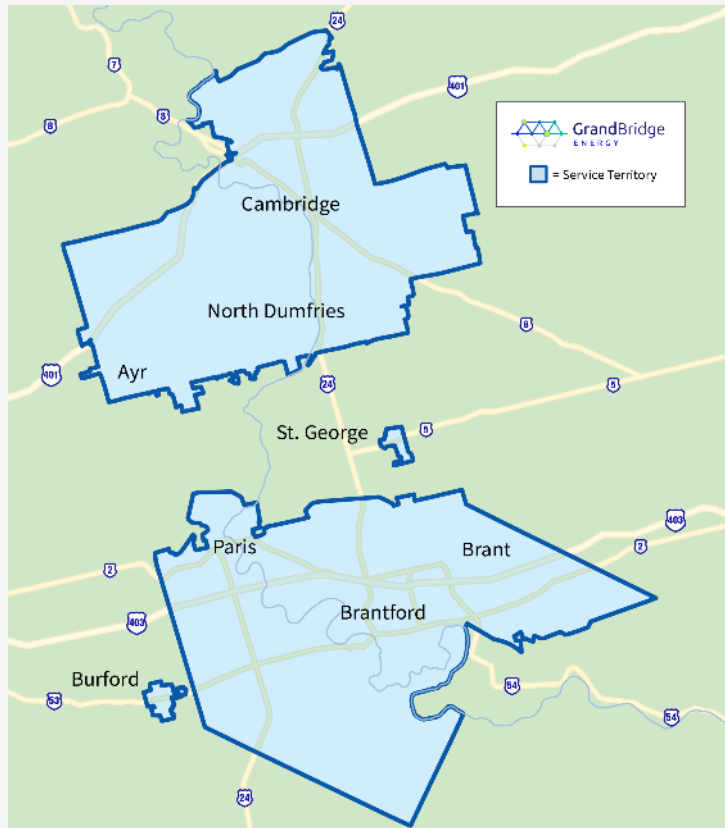
Ontario's Electricity Market Structure



The above figure is for illustration purposes only. Not all organizations that operate in Ontario's electricity sector are shown.



Company Facts



The **8th largest**
electricity distributor
in Ontario.

636 km²

Service Territory

115,000

**Customers
(Business and
Residential)**

191

Employees

33,058

Poles

2,425

km of Lines

14,605

Transformers

2024

Corporate Responsibility Report



OUR ROADMAP TO A **SUSTAINABLE FUTURE**



GrandBridge
ENERGY

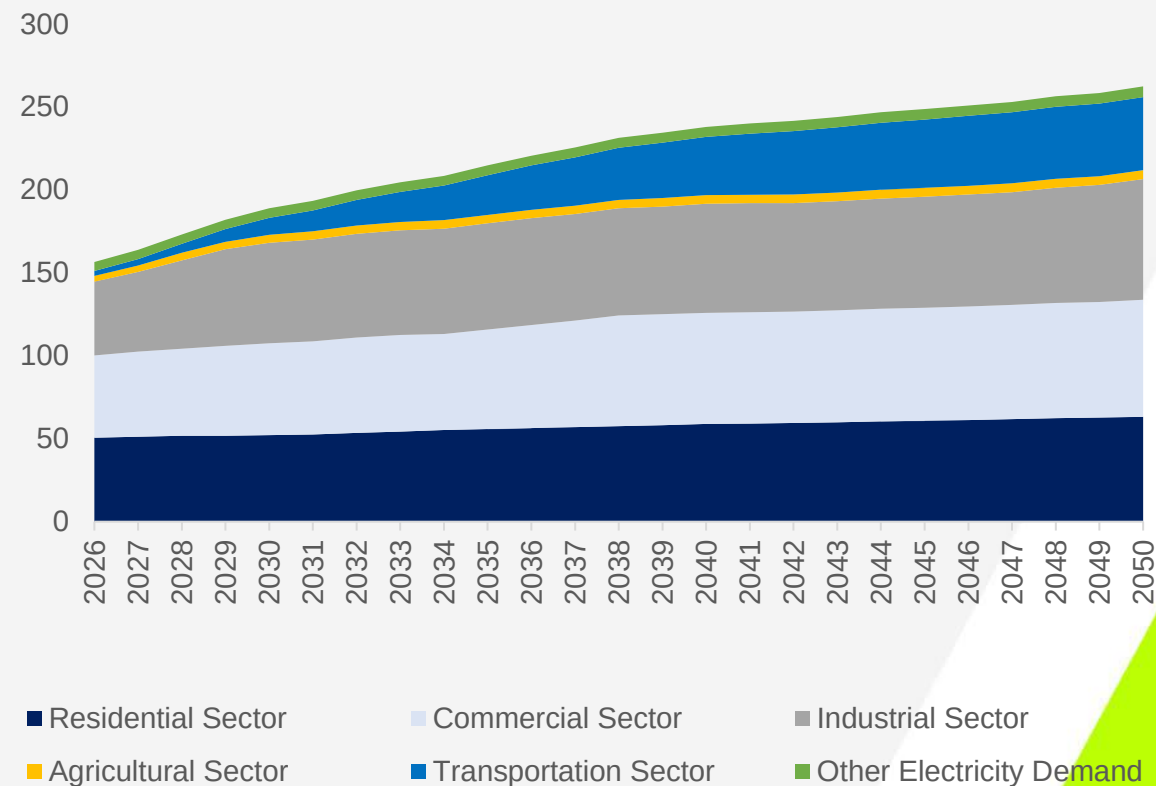


Electricity Forecasts

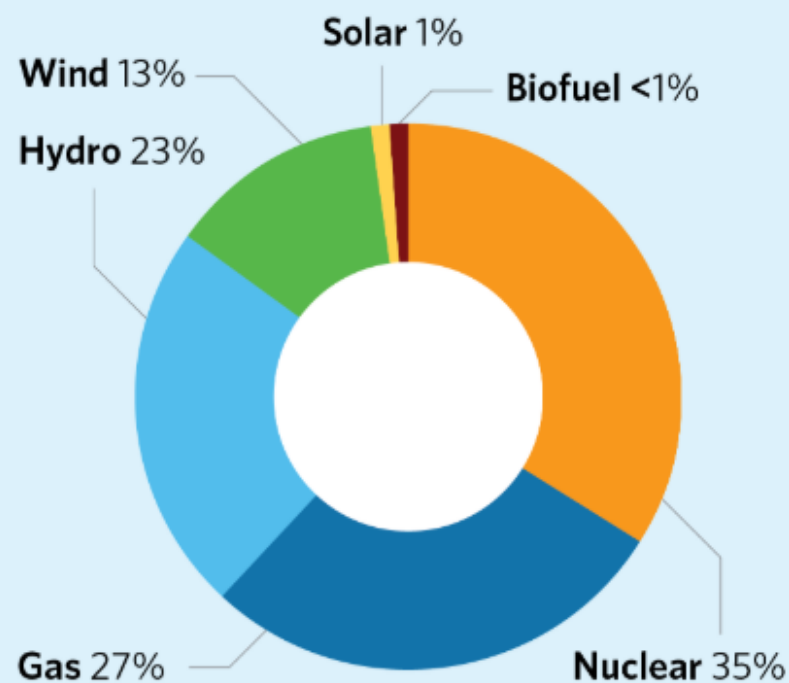
Ontario's Changing Electricity Landscape

- Ontario is entering a period of accelerating electricity demand.
- The 2025 forecast projects 75% growth by 2050, up from 60% in the previous outlook.
- Demand is expected to grow at a 2.2% compound annual rate, requiring an additional 12 TWh by 2035.
- Industrial expansion and the rapid rise of data centers are key drivers.
- By 2030, Ontario will become a dual-peaking system, with summer and winter peaks reaching similar levels due to greenhouse lighting and EV charging.

Forecasted Electricity Demand by Sector (TWh)



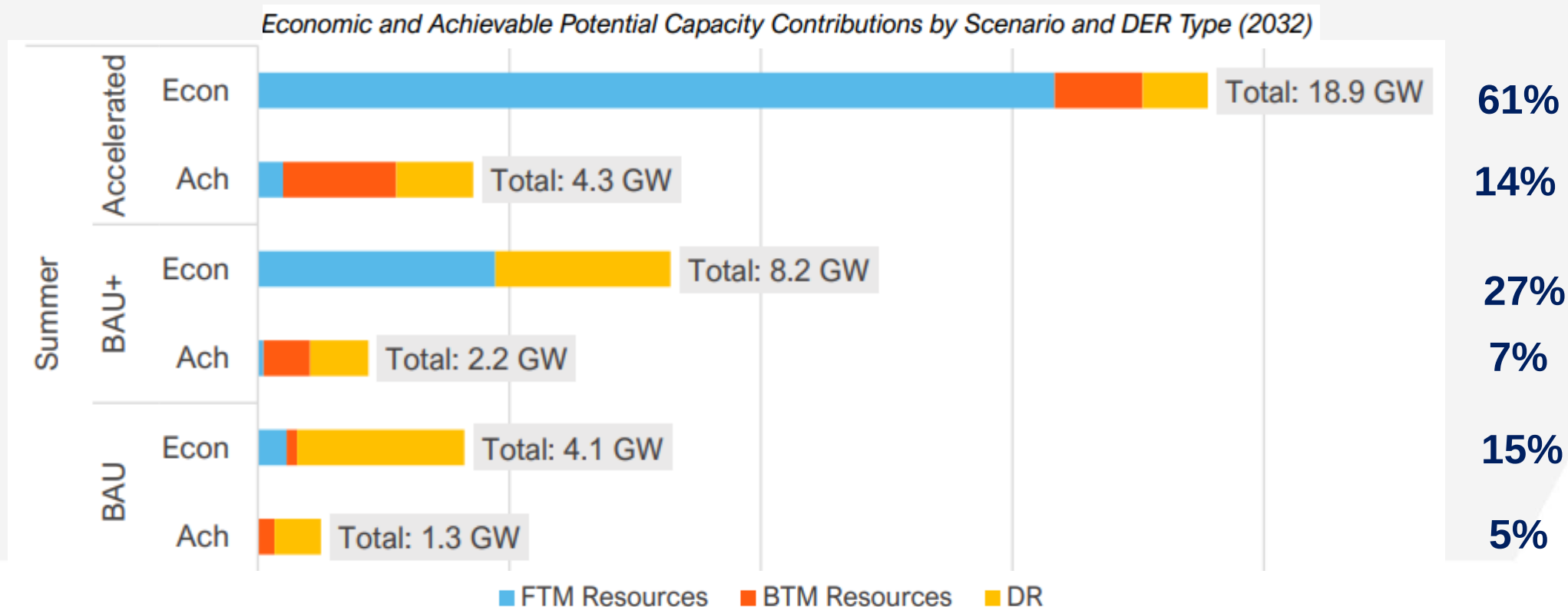
Province's Supply Resource Mix



Nuclear	13,214 MW or 35%
Gas/Oil	10,471 MW or 27%
Hydro	8,862 MW or 23%
Wind	4,943 MW or 13%
Solar	478 MW or 1%
Biofuel	296 MW or <1%

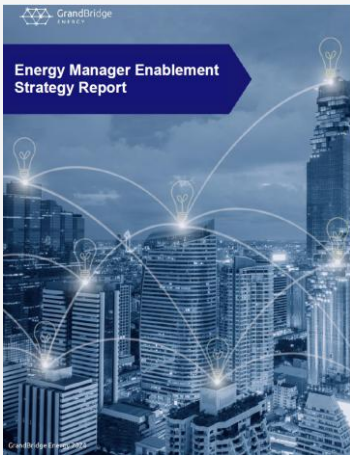
Transmission-Connected Capacity as of September 23, 2024 ([Source: Reliability Outlook](#))

Distribution Energy Resources (DER) Potential Study Results



Acronyms: **Econ:** Economic Potential, **Ach:** Achievable Potential,
FTM: Front of Meter, **BTM:** Behind the Meter, **DR:** Demand Response

Where we are at today with DSO's



Internal Only



GridSmartCity® Launches Industry-Leading DSO Strategy | GridSmartCity

Engage  with Us
S'engager  avec nous

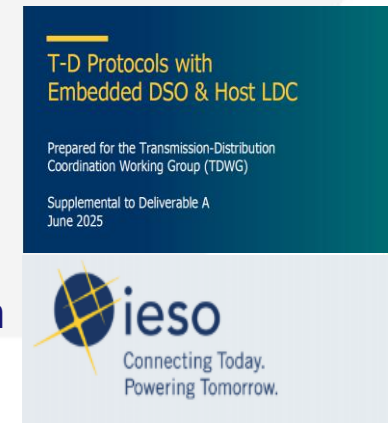


Distribution System Operator Capabilities | Engage with Us



OEA DSO Study Dec 13 2023 FINAL.pdf

- ✓ GrandBridge Energy advancing internal DSO readiness strategy
- ✓ GridSmartCity Consortium Collaboration on DSO enablement initiatives
- ✓ Ontario Energy Board reviewing regulatory/policy changes
- ✓ Ontario Energy Association published insights on DER adoption and utility evolution
- ✓ Independent Electricity System Operator developing coordination protocols for DER integration



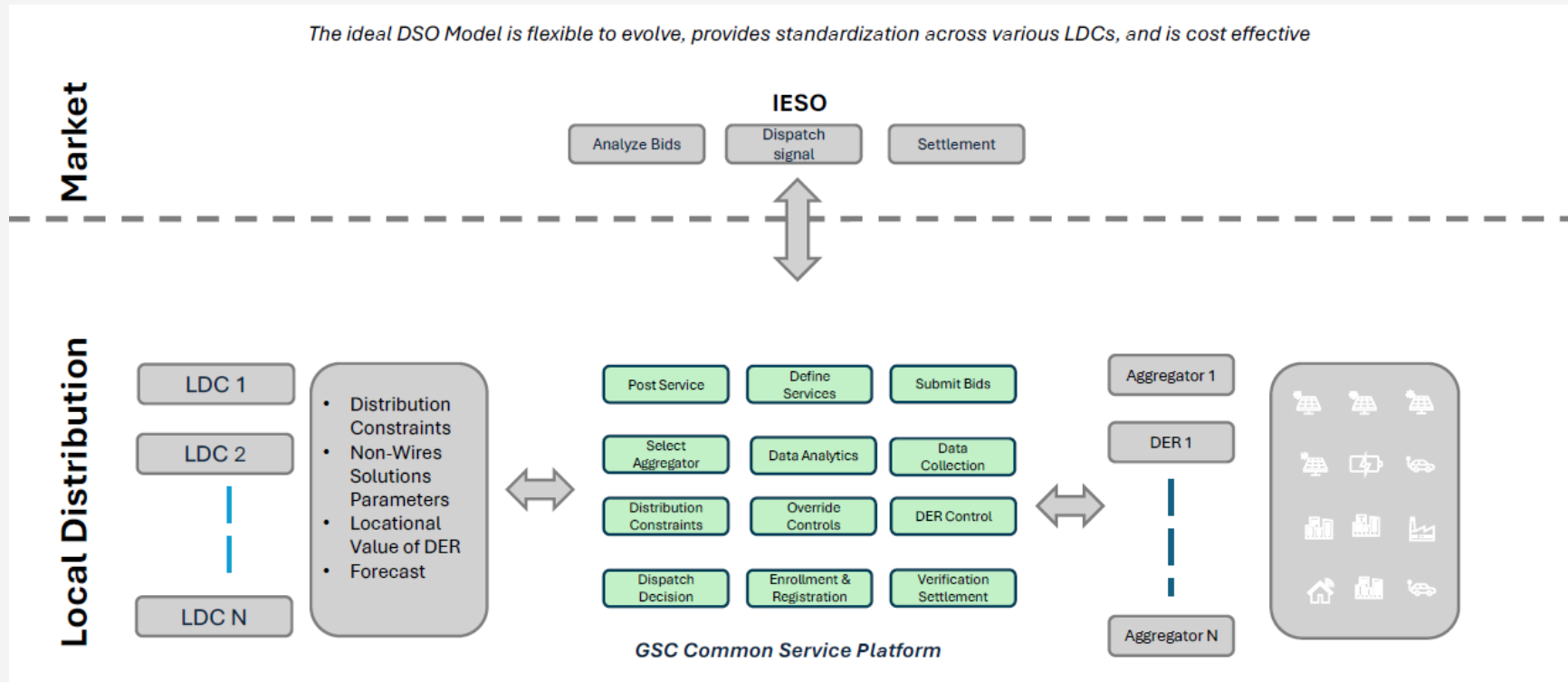
Collaboration Key to DSO Deployment



- ✓ 18 LDC partners serving 1 million customers across 65 communities
- ✓ \$3.5B in collective assets
- ✓ Proven record of collaboration and shared innovation
- ✓ Focused on efficiency, grid modernization, and DER enablement
- ✓ Combines local ownership with shared scale and expertise

GridSmartCity Consortium

Common Service Platform



Our Own Digital Grid Transformation Journey

Foundational Grid Investments for Situational Awareness, Control, and Engagement



Survalent ADMS



GIS Upgrade



Next Generation Metering (AMI 2.0)

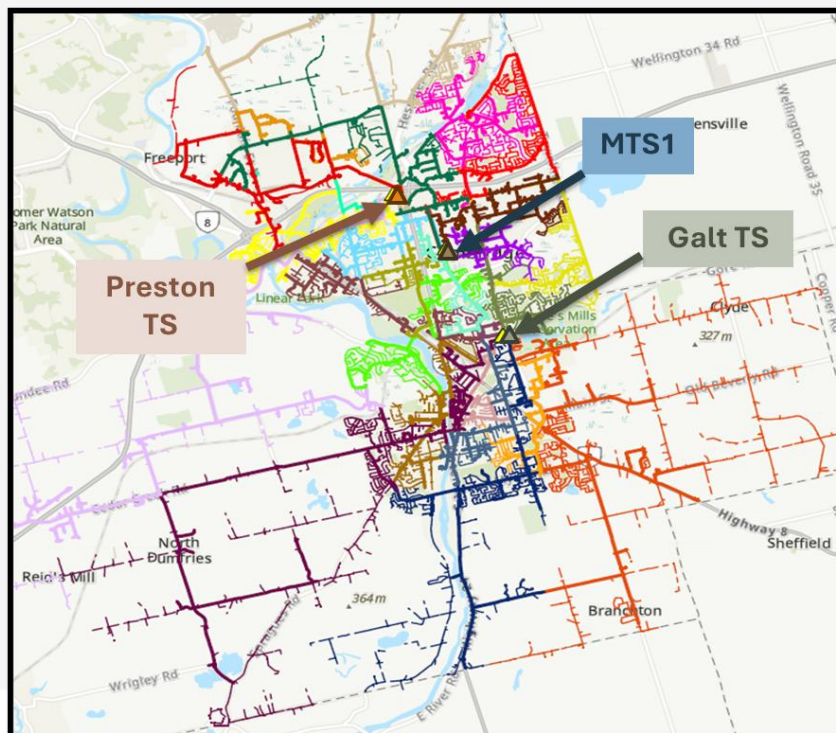


GrandBridge Energy System Control Center

A local 'flexibility program

Program Need

- Grid capacity is under strain and therefore GBE is developing a new flexibility program.

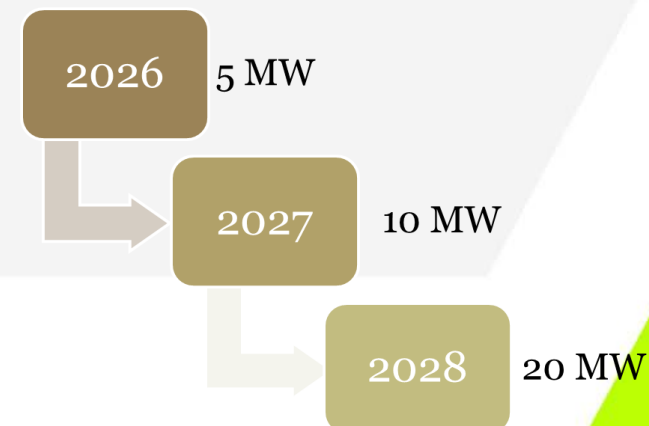


Program Objective

Relieve capacity constraints and strengthen grid resiliency by leveraging:

- Demand Response (DR):** Incentivize customers to reduce or shift electricity use during peak demand periods
- Behind-the-Meter (BTM) Energy Resources:** Incentivize use of on-site generation or storage (e.g., batteries, generators) to lessen grid demand at critical times
- Market Participation:** Leverage a capacity auction to competitively procure resources, promoting cost efficiency

To add 20MW of capacity between 2026-2028



DSO as a 'Stand Alone' Market Not Realistic



There are outstanding **matters that require resolution** in relation to operating a DSO market



Section 71 of the **OEB Act** restricts LDC to carry out business activities other than distributing electricity. Exceptions to the Act required.



Operating a day-ahead market involving financial contracts linked to real-time hourly energy market would require a DSO to obtain an exemption order from the **Ontario Securities Commission** (OSC).



Competition law prevents competitors (or potential competitors) from entering into agreements to fix prices, allocate markets, or restrict output.

Presenter's opinion based on professional market knowledge and publicly available information.



Umar Waqas, VP, Grid Modernization

uwaqas@grandbridgeenergy.com
