

Multi Municipal Energy Working Group

Update on IESO Energy Projects

Township of Georgian Bluffs

March 13, 2024

Multi Municipal Energy Working Group

- Made up of elected municipal plus community representatives from Grey, Bruce and Huron Counties.
- Originally focused on issues related to development and operation of wind turbines.
- Mandate expanded when municipalities asked to support Battery Energy Storage System (BESS) projects based on a minimum of information.
- Presentation provides updates on BESS and wind turbines.

2023 IESO Focus on Storage & Gas

Program	Capacity	Type	Timing
Expedited	930 MW	Electricity Storage Projects	Awarded
	570 MW	Other Expansions	Awarded
Upgrades	300 MW	Improve facility; amend contract	Awarded
LT1 RFP	1600 MW	Electricity Storage Projects	Award in Q2
	918 MW	Non Storage Projects	Award in Q2

Specific Requirements

- Provide electricity on demand.
- Duration - up to 4 (storage) or 8 (non-storage) hours.
- Length of Contracts
 - Storage – end in 2047
 - Natural Gas - end in 2040

Next IESO Procurements

- IESO has announced series of 3 additional RFP's in mid December:

LT RFP's	Launch Date	Operational	Target
LT2	2025	2029 – 2031	2,000 MW
LT3	2027	2032	1,500 MW
LT4	2029	2034	1,500 MW
Total		2029-2034	5,000 MW

- Includes wind, solar, hydroelectric, storage and bioenergy projects.
- Also potential for existing projects with expiring contracts to repower and participate in RFP's.

IESO's RFP Process for BESS

- Proponent proposes to build and operate a facility
 - Specifies size in MW, location
 - Hydro One confirms grid capacity available
- Proposal includes fixed cost for facility
- Points used to reduce cost in evaluation process
 - Municipal Support – if yes, points awarded
 - If no, municipal support must be obtained later
 - Indigenous support – if yes, points awarded
- Contracts go to lowest bidder based on adjusted price
- Hydro One uses facility as required to fill gaps in supply
 - No usage fees – just a fixed monthly cost

Battery Energy Storage Systems

Operating Experience Suggests Caution

- Contain flammable electrolytes, can create unique hazards if the battery cell enters thermal runaway
- During thermal runaway, large amounts of flammable and potentially toxic battery gas generated
- Major toxic gases emitted can include CO, HF, NO₂, HCL, - can pose very large threat to human health, a greater threat than the heat of the fire
- Tracking shows 32 destructive failures in 3 years since Dec. 2020. Some resulted in fatalities or serious injury of fire fighters

Emergency Response Required

- The response to a fire situation is often to let the affected battery section burn out - can take a day or multiple days.
- Fire crews need special training as some burning batteries can explode if water is used on the fire.
- Adjacent battery sections must be cooled with copious water. Dry sprinkler systems can be used to direct cooling water.
- Need to consider handling of effluent fire protection water to prevent contamination of adjacent land and water courses.
- Need to ensure safety setbacks to residences, roads, etc. to protect against heat and toxic gases,
- Need to assess the ability of emergency services to provide this type of extended response.

Regulations Related to BESS

- BESS technology is new and evolving rapidly.
- Unlike wind projects, Regulation 359-09 provides no standards or guidelines for BESS projects.
- US standards available for reference
 - Fire Code – NFPA 855; UL Testing – 9540A
- Hydro One identified a substantial fire risk to its infrastructure and published standards that proponents need to meet to connect to grid.
- Ontario Fire Marshall reviewing fire safety requirements – decision expected in 6 months

Municipal Role in Process

- Municipal support required for all IESO projects.
 - No rules for when multiple municipalities involved
- Responsibilities to evaluate projects
 - Need to fully understand BESS risks
 - Impact on municipal services
 - Decommissioning requirements
- Risk Management - joint/several liability
- Municipalities should complete a full evaluation of project before approving support resolution, site plans or building permits

Assessments Required by Hydro One

- For approval, proponents must have completed:
 - Hazard Mitigation Analysis
 - Fire Risk Assessment
 - Community Risk Assessment
 - Air/Gas Dispersion Study
 - Fire Protection Design Documentation
 - Passive Fire Protection System
 - Active Fire Protection System
 - Emergency Response Plan
- Applies only to Hydro One infrastructure
- At a minimum, municipalities should be requesting similar studies.

Hydro One BESS Separation Distances

Hydro One Facilities	Setback Distance
Hydro One – 500 kV Right of Way	150 metres
Hydro One – 230 kV Right of Way	100 metres
Hydro One – 115 kV Right of Way	60 metres
Hydro One – 500 kV Substation	300 metres
Hydro One – 230 kV Switching Station	200 metres
Hydro One – 115 kV Switching Station	100 metres

- Hydro One rules focused on fire risk and apply only to its infrastructure
- Municipal setbacks also need to consider toxic gases
 - eg. – Southern California fire in Sept 2023 – evacuation zone of 400 metres; shelter indoors – 800 metres.
- Municipal zoning by-laws could include 800 metre setbacks

Wind Turbine Projects

- Municipal support also required
- Experience with turbines indicate setbacks are not sufficient
- Gaps evident in enforcement of key terms in Renewable Energy Approvals
- Ministry of Environment, Conservation and Parks has no plans to change noise standards or minimum setbacks
- Municipalities now have authority to enact zoning by-laws governing placement of wind turbines.

Prime Agricultural Land

- Siting of energy projects on Prime Agricultural Land concerns local communities and councils.
- Current Provincial Policy Statement places a high priority on protecting prime land
- Projects allowed as a secondary “Diversified Use” on prime agricultural land
 - Size limited to 2% of total land area up to a maximum of 1 ha
- IESO has requested input whether this restriction should be relaxed.

New Zoning Rules

- **Prohibit energy projects on Prime Agricultural Land**
- **Establish setbacks for BESS facilities**
 - 400 metres from property line; 800 metres from other uses
 - Focus of projection is protection from toxic fumes
- **Establish wind turbine noise setback from other uses**
 - Recommending 2,000 metres
 - Protection for residential, industrial, institutional and agricultural uses.
 - Protects against audible and low frequency noises
- **Establish wind turbine setback from property lines**
 - Recommending 1,200 metres
 - Limits impact of turbine failure and ice throw to site

Other Municipal Concerns for BESS

- **Define Emergency Response Requirements**
 - Role of municipal services in responding to emergencies needs to be full documented. Annual training plan required.
- **Source of Water Supply for Emergencies**
 - If municipal water supply is not at site, the source of water to be used for cooling in an emergency needs to be defined.
 - Some US sites maintain water on site.
- **Limits on Noise Emissions**
 - Project will contain equipment used 24/7 to cool modules
 - Impact on neighbouring properties needs to be established
- **Decommissioning Requirements**
- **Process for Change in Ownership**

Summary

BESS Projects

- Technology is new and rapidly evolving.
- Limited direction from provincial level.
- Limited information provided to municipality.

Wind Turbines

- More familiar technology with known problems
- No changes to address issues
- Enact zoning by-law or holding by-law, or,
- Adopt “unwilling host” resolution

Bottom Line: Municipalities have the right to decline support for the IESO’s energy projects

Questions or Discussion