

# SE-57: Embedded and Renewable Generation (including periods of surplus baseload generation)

Dec 2, 2009



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# Centralized Forecasting for Variable Generation

Devon Huber

December 2, 2009



- Recap of funding model decision
- Project update and considerations
- Next Steps

- The IESO is proceeding with a generator-funded model.
- Stakeholders have not stated a preference for one model over another (production-based, capacity-based or hybrid).
- The IESO has elected to proceed with the production-based model.

- The IESO has initiated a project and assembled a work team.
- Project considerations:
  - Data requirements and standards
  - Operational and financial framework
  - Pilot study

Establish data requirements for wholesale and embedded generators:

- What data is required from wind generators (i.e. wind speed, wind direction, barometric pressure, output, outages)?
- What data is collected if forecasters value wind data differently?
- What market rules need to be established for frequency of data transmission, data quality, etc?

Establish funding model and settlement processes:

- What is the settlement process with embedded resources?

Develop the necessary infrastructure to communicate wind data and forecasts:

- How is data transmitted and received?
- What relationship will the IESO need to establish with embedded resources (any wind farm greater than 5MW) in order to facilitate data exchange?

Develop a protocol to evaluate wind forecasters through a pilot study:

- Is a pilot study necessary?
- How long a study period is required to effectively evaluate the performance of wind forecasters?
- By what measures will forecasters be evaluated?

In early 2010, the IESO will present a proposed project plan to stakeholders. At that time, stakeholders will be asked to provide feedback on the plan.



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# Enabling Feed-In-Tariff Dispatch

Gordon Drake

December 2, 2009



- IESO is in the process of scoping out the FIT needs through the life cycle of the resource
  - Registration
  - Operations (Planning timeframe and Real-Time)
  - Settlement
  - Compliance
- Need to develop rules to support the integration of FIT dispatch
- The IESO will work to develop the necessary relationships with local distribution companies where FIT projects are embedded

- For FIT resources that are directly connected to the ICG, there are existing processes
- For embedded, non-MP FIT resources
  - What information/telemetry is needed?
  - What communication infrastructure is needed? (dispatch workstation, dedicated lines, etc)
  - What types of contacts need to be registered?
  - What level of communication/response time is needed?

- What rules are needed to enforce compliance?
- For market participants, we have existing rules
- For non-market participants, we need rules in place and need to determine the appropriate compliance regime

- FIT resources will provide a price at which they will reduce their output
  - Analogous to price that is submitted today along with hourly forecast information
  - With centralized forecasting, individual resources (both FIT and existing) will no longer be submitting a forecast quantity
- What is the price trigger to determine that a FIT resource will reduce its output?
  - Hour-ahead PD
  - 5-minute MCP

- PD Price Signal
  - The decision to generate in a given hour is determined by a predispatch schedule
- RT Price Signal
  - Active Dispatch vs. Passive Dispatch
    - Active: IESO sends a dispatch instruction, generator responds
    - Passive: Generator watches the price and determines when they need to curtail generation
  - If active dispatch, then what are the implications for market/constrained schedules?
  - What do the dispatch instructions look like? A cap (i.e. “Do not exceed x MW”) or a target?

- Additional contract payment (ACP)
  - Part of contract for all generators above 5 MW
  - Provides compensation through the contract to make participant indifferent between generating and being dispatched off by IESO during low price/demand periods
  - IESO will be working with the OPA to identify any required information flows to support the settlement of this contract term

- IESO continues to discuss these issues internally as well as with the OPA and local distribution companies
- As decisions develop, they will be stakeholdered through the SE-57 working group for feedback from stakeholders



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# Peak versus Average

Jessica Tang

December 2, 2009



# Peak versus average: What We Are Going to Do

- Use peak demand forecasting in all ramp hours and use average demand forecasting in all other hours.
  - not go to average for all hours at this time due to reliability concerns around the use of average forecasting in the ramp up hours.
  - we require more detailed analysis which will look at specific hours with low supply cushions and the generation available and able to move to meet the peak interval in those hours.

- The ramp hour concerns are exacerbated at this time for the following reasons:
  - The new fleet of gas which represents an additional 3000 MW since the fall of 2008
  - The phase out of 2000 MW of coal in October 2010
  - The upcoming rule changes with DACP and SGOL
  - It is becoming more difficult to forecast load due to changes in load patterns over the past year
  - The increase in penetration of intermittent renewables

- We have defined the ramp up hours as follows:
  - November, December, January – HE 6 - HE 9 and HE 17- HE 18
  - February - October – HE 6 - HE 9
- In addition to the use of peak forecasting in these hours we also require the ability to use peak forecasting for any hour of the day for reliability concern purposes on rare occasions. (i.e. Earth Day, Public Appeal Days, System Status “Red” Days).
- We will communicate the use of peak forecasting on these days via an SSR.

- The ramp hours have been defined based on historical data from January 2008 up to and including October 2009. The above hours are those hours in which there were 5 or more occurrences of ramp increasing greater than 1000 MW over the course of the hour. We have used 1000 MW as a benchmark as it is our 10 minute operating reserve requirement.

- We will continue analysis of the use of average during ramp hours with the continued commitment to investigate moving toward average demand forecasting during all hours.
- IMDC posted to show market manual changes with an expected implementation date of December 15, 2009.

# MR-00363: Surplus Baseload Generation: Synchronization of Non-Quick-Start Facilities and Commissioning Units

**Jo Chung**  
**Dec 2, 2009**



- Proposed market rule amendment addresses two situations that exacerbate SBG conditions:
  - (1) the synchronisation of non-quick-start facilities
  - (2) commissioning units
- Technical Panel determined the amendment submission warrants consideration and assigned a high priority to developing the proposed amendments

- Non-quick-start, dispatchable generators accepted for real-time (RT) and day-ahead (DA) generation cost guarantees are constrained-on for their minimum run-times (MGBRT) which may extend into SBG periods
- May represent an inefficient use of resources if lower marginal cost generation such as nuclear is requested to reduce output or shutdown
- Key driver for proposed change: efficiency

- For RT guarantee or SGOL, proposed to grant IESO authority to deny an SGOL start at time of request for synchronisation if SBG is forecasted in at least one hour of the generators MGBRT
- For DA, proposed to grant IESO authority to not schedule a generator in the DACP (or EDAC) if SBG is forecasted in at least one hour of the generators MGBRT
- For both RT and DA, if GCG has been accepted and IESO denies sync or requests de-sync due to SBG, generator remains eligible for guarantee consistent with current de-commitment process

- Existing rules classify commissioning generation units as self-schedulers, allowing them to generate during SBG conditions
- Proposed to allow the IESO to reject, revoke, or recall commissioning test plans during periods of forecasted SBG in any hour identified in the test plan
- Goal: coordinated planning effort between IESO and generators well in advance to reduce the likelihood of revocation or recall of approved testing
- Current rules link the scheduling of commissioning test plans to the outage coordination process
- Therefore, proposed that the compensation rules that apply to outages that are revoked or recalled would also apply to commissioning tests