

FiT Dispatch and Operability

Gordon Drake
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- Initial applications for FiT program totalled more than 9,000 MW
 - Wind: 79%
 - Solar: 16%
 - Other: 5%
- Significant volumes of FiT projects are expected to connect to the distribution system
- Agreement with Samsung introduces another 2,500 MW of generation
 - Wind: 80%
 - Solar: 20%

- In addition to providing payments for energy, FiT contracts provide compensation for foregone energy under certain conditions:
 - Generator is 5 MW or larger
 - Hour-ahead predispach price < \$5
 - IESO issues a dispatch instruction to generator to reduce output
 - Generator follows IESO dispatch instruction
- Keeps generator whole to contract price (i.e. \$135/MWh) for the amount of energy that would have been produced had the generator not been curtailed

Outline of the Expected Changes

- To address the increasing penetration of renewables the IESO Market Rules need to address changes through the whole of the resource life cycle.
 - Registration
 - Technical Standards
 - Operations
 - Settlements
- Although changes will impact both transmission and distribution-connected facilities, the IESO relationships with embedded generators will have to expand to be more aligned with the existing requirements for transmission-connected facilities.

- Registration – resources will formalize their relationship through an IESO registration process which will capture details of:
 - Operational information
 - Telemetry
 - Communication links between the IESO and generator operator
 - Technical details
 - Contact information
 - Real-time communications with IESO control room
 - Settlement of market revenues and charges

- The industry (NPCC/NERC/FERC) is currently reviewing the impacts of large penetrations of variable generation and to the extent reliability standards are introduced, all proponents will be expected to comply with all standards adopted by the IESO that apply to their facilities

- Higher wind penetration will require centralized forecasting in order to produce forecasts over timeframes from several days out into real-time
 - Requires real-time visibility of operational and meteorological data
- The costs of centralized forecasting will be shared amongst wind generators and may extend to other generation types, such as solar

- To implement FiT dispatch and centralized forecasting, a minimum data set is required
 - Operational
 - Real-time output, number of turbines in service, wind farm outages
 - Meteorological
 - Wind speed, wind direction, pressure, temperature
- As project develops, more data elements may be identified

- Wind generators will provide a price at which they will reduce their output
- Generators must be able to respond to instructions from the IESO in real-time
 - Submitted price will be used to determine a dispatch instruction
 - Instructions may be sent for global or local supply situations, or to manage other system events
 - Generators will need to have the appropriate plant control systems and business processes in place to receive and follow dispatch instructions

- The additional contract payment and/or other settlement requirements within the FiT program may require some changes to the settlement information and treatment for FiT generation;
- New settlement processes for cost recovery for centralized forecasting services will also be introduced.

- 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