SE-91 Renewable Integration
Final Design Principles
March 8, 2011

The Renewable Integration initiative will prepare power system operations and the IESO-administered markets to accommodate Ontario's growing renewable generation. The principles proposed for incorporating that generation were published last December (Integrating Renewable Resources – Design Principles; December 9, 2010). Feedback from consultations since that date has been incorporated into the final principles, set out below. These principles will be the basis for development of market rules and the detailed design work for their implementation.

The final principles for the IESO's Renewable Integration initiative fall into three areas: *Forecasting*, *Visibility* and *Dispatch*.

Forecasting:

Principle 1:
The IESO will implement a centralized forecast for all wind and solar resources with an installed capacity of 5MW or greater and all wind and solar resources directly connected to the IESO Controlled Grid.

Principle 2:
Real-time forecast data will be used for variable generation dispatch and actual real-time data will be used for calculating foregone energy to support OPA contract settlement.

Principle 3:
The costs paid to the centralized forecast service providers will be treated as procured service charges and will be recovered from consumers through existing procurement market recovery mechanisms.

Visibility:

Principle 4:
All variable resources subject to centralized forecasting will provide static plant information and data.

Principle 5:
All variable resources subject to centralized forecasting will provide dynamic data (real-time telemetry).

Principle 6:
All forecasts of facility output for resources subject to centralized forecasting will be publicly available.

Dispatch:

Principle 7:
All variable resources connected to the IESO-Controlled Grid, and embedded variable resources that are registered market participants, will be actively dispatched on a five-minute economic basis.

Principle 8:
Variable generators will operate within a compliance deadband when ambient conditions offer sufficient fuel.

Principle 9:
Variable generators will be entitled to Congestion Management Settlement Credit (CMSC) payments.

Principle 10:
The IESO may establish various floor prices for offers from baseload generators (e.g. wind, must-run hydro, nuclear, etc.) to ensure efficient dispatches during periods of local and/or global surplus baseload generation (SBG) events.

Principle 11:
Directly connected variable resources (and embedded resources that are market participants) will be eligible to participate in Operating Reserve and ancillary markets where technically feasible (such integration will be considered on a cost benefit basis, and is not likely to be addressed in the near term).

The IESO appreciates the comments and discussion on the principles, and looks forward to working with stakeholders in their practical implementation.