

The Management of Minimum Load Conditions

June 16, 2009



- Background
- IESO Review Criteria
 - Operability and Reliability
 - Implications to the Environment
 - Allocative Efficiencies
- Moving Forward

- Change in flexibility and manoeuvrability of fleet of resources
- Baseload/non-dispatchable generation will form a large percentage of total generation mix
- Look to sharing of dispatch between manoeuvring nuclear, spilling water and dispatching non-dispatchable resources
 - Secondary issues (i.e. guarantees and commissioning units)

- Expect higher frequency, magnitude and duration of minimum load conditions
- Review management of these conditions using three criteria:
 - Operability and Reliability
 - Implications to the Environment
 - Allocative Efficiencies

- Operability and Reliability
 - Nuclear Generation
 - Equipment damage (short term, long term)
 - Regulatory requirements restrict manoeuvrability
 - Return to service timeframe
 - Potential higher consumer costs
 - Hydro
 - Safety implications
 - Minimum spill times
 - No equipment concerns when spilling
 - Water flow regulations
 - Non-dispatchable Renewable Generation (i.e. wind)
 - Limited dispatch control
 - No known equipment concerns

- Implications to the Environment
 - Nuclear Generation
 - Violations of thermal emission constraints
 - Hydro
 - Environmental limits of water back up
 - Flooding concerns
 - Non-dispatchable Renewable Generation (i.e. wind)
 - No known environmental implications
 - Loss of nuclear or hydro for prolonged periods of time may result in other, more environmentally unfriendly generation being committed

- Allocative Efficiencies

- More Expensive Energy

- Potential higher real-time price as a result of minimum down times of nuclear units

Secondary Issues:

- Commissioning Units

- Self-schedulers permitted to generate while nuclear manoeuvres and hydro spills
- Long term view needs to be considered – i.e. delays for new generation coming online

- Real-Time and Day Ahead Guarantees

- In place to enhance/support reliability
- Today, more expensive generation coming online while baseload is being dispatched down

- Current Thinking
 - In order to manage minimum load periods appropriately and to maximize penetration of renewable resources, current policies need to change
 - Best practices based on review criteria (could mean nuclear shutdowns for long term surpluses and/or renewable reductions for short term scenarios)

- Next Steps
 - Paper posted and comment period will be open for 2 weeks
 - Any additions, concerns or corrections on the paper will be received during these two weeks
 - IESO response to comments posted 2 weeks after comment period
 - Next meeting in 4 - 6 weeks with IESO recommendation