

ENABLING SYSTEM FLEXIBILITY

Meeting #6

December 8, 2017

Agenda

- Engagement recap
- Proposed interim solution
 - Market Rule changes
 - Market Manual changes
- Next steps

Engagement Recap

Engagement Recap

- Objective: to determine potential solutions that can enable and achieve flexibility to meet evolving system needs
- Discussion from last meeting
 - Using 30-minute OR for flexibility
 - Analysis on frequency, amount and duration of flexibility need
 - Examples of scheduling/commitment for flexibility

Rationale for Proposed Interim Solution

- Current measures for flexibility may require manual actions and are not without cost
 - Aim to reduce manual actions
- Consistent with Market Renewal principles of:
 - Transparency: Send early signals to market participants indicating system need and value
 - Efficiency: Use/enhance current market processes for economic assessment
 - Competition: Enable market participants to offer more capability from existing resources

Proposed Interim Solution Using OR

Using Additional 30-Minute OR for Flexibility

- The proposed solution intends to use existing market processes to schedule/commit resources for additional 30-minute OR for flexibility
- However, some Market Rules and Market Manuals need to be updated

Processes of Proposed Solution

Notification

- Increase 30-minute OR for flexibility (Market Rule changes for clarification)
- Publish increased 30-minute OR requirement in day-ahead timeframe or later
- Market Manual changes required

Scheduling

- Commit/schedule resources via day-ahead and/or pre-dispatch commitment processes
- No Market Rule and Market Manual changes required

Deployment

- Dispatch energy using real-time dispatch processes
- May activate scheduled OR if flexibility need arises in real-time
- No Market Rules or Market Manual changes required

Use of OR for Flexibility

Current Market Rules allow the IESO to use OR for flexibility:

- Chapter 5, Section 4.5.1
 - Defines uses of OR including: unanticipated increases to load, force outages, and uncertainty related to supply
- Chapter 5, Section 4.5.3
 - Indicates minimum requirements for OR

Proposed Market Rule Changes

- Changes to two Market Rules will improve overall clarity and consistency of the rules related to OR
- Changes to two Market Rules in Chapter 5 are proposed:
 - Section 4.5.19
 - Section 4.5.20

Chapter 5, Section 4.5.19

Proposed changes in green

Subject to section 4.5.20, the requirement for *thirty-minute operating reserve* shall be **at least equal to** one-half of the largest *second contingency loss* sustainable on the *IESO-controlled grid*. However, when a *generation unit* is commissioning and is one of the two largest *contingency events*, the requirement for *thirty-minute operating reserve* shall **be at least equal to** the *second contingency loss*.

Chapter 5, Section 4.5.20

Proposed changes in green

If such as commissioning *generation unit* is not one of the two largest *contingency events*, the requirement for *thirty-minute operating reserve* shall be **at least equal to** the larger of one-half of the *second contingency loss* or the output of the commissioning *generation unit*.

Rationale for Proposed Rule Changes

- Provides clarity and consistency of rules related to OR
- Consistent with Northeast Power Coordinating Council (NPCC) requirements for reserve

Proposed Market Manual Changes

To notify Market Participants of the need for flexibility, changes to two Market Manuals are proposed:

- Market Manual Part 7.1, Section 2.4.2 relates to actions taken for variable generation events
- Market Manual Part 7.2, Appendix A provides an example of the Adequacy report

Current Market Manual 7.1, Section 2.4.2

2.4.2 Variable Generation Events

Table 2-3 provides examples of conditions that may require the IESO to take control actions, as well as examples of the potential actions, when we anticipate or are experiencing a variable generation event.

The IESO may issue an advisory notice in advance of or during a *variable generation* event as appropriate. The alert will notify the market of:

- The type of *variable generation* event expected or in progress, and
- The action(s) the IESO is taking.

Table 2-3: IESO Actions to Manage Variable Generation Events

If...	Then...
<p>The IESO experiences, or expects conditions that may result in:</p> <ul style="list-style-type: none">• Material differences between forecasted and actual <i>variable generation</i> output, or• Significant <i>variable generation</i> ramp events.	<p>The IESO may:</p> <ul style="list-style-type: none">• Manually adjust the <i>variable generation</i> forecast to align it with expected <i>variable generation</i> output,• Commit/constrain on/ constrain off <i>dispatchable</i> resources,• Curtail export⁴ transactions mid-hour, or• Take other actions appropriate for the circumstances.

Market Manual 7.1, Section 2.4.2

Proposed changes:

- Revise references of “variable generation events” to “system flexibility events”
- Provide definition of system flexibility as, “the ability of the power system to respond to intra-hour differences between supply/demand levels and actual production/consumption”

Market Manual 7.1, Section 2.4.2

Proposed changes (continued):

- Include as a condition requiring system flexibility
 - Material differences between forecasted and actual demand
- Include as an action to manage system flexibility
 - Adjusting the 30-minute operating reserve requirement

Market Manual 7.2, Section 2.2

Publication of the adequacy report is a suitable means to indicate the need for flexibility

- By 5:30 EST for the next day
- By 9:00 EST for the next day
- After each successful run of the day-ahead commitment process for the next day
- Hourly after 15:00 EST for the next day
- Twice per hour for the current day

Proposed Adequacy Report Change



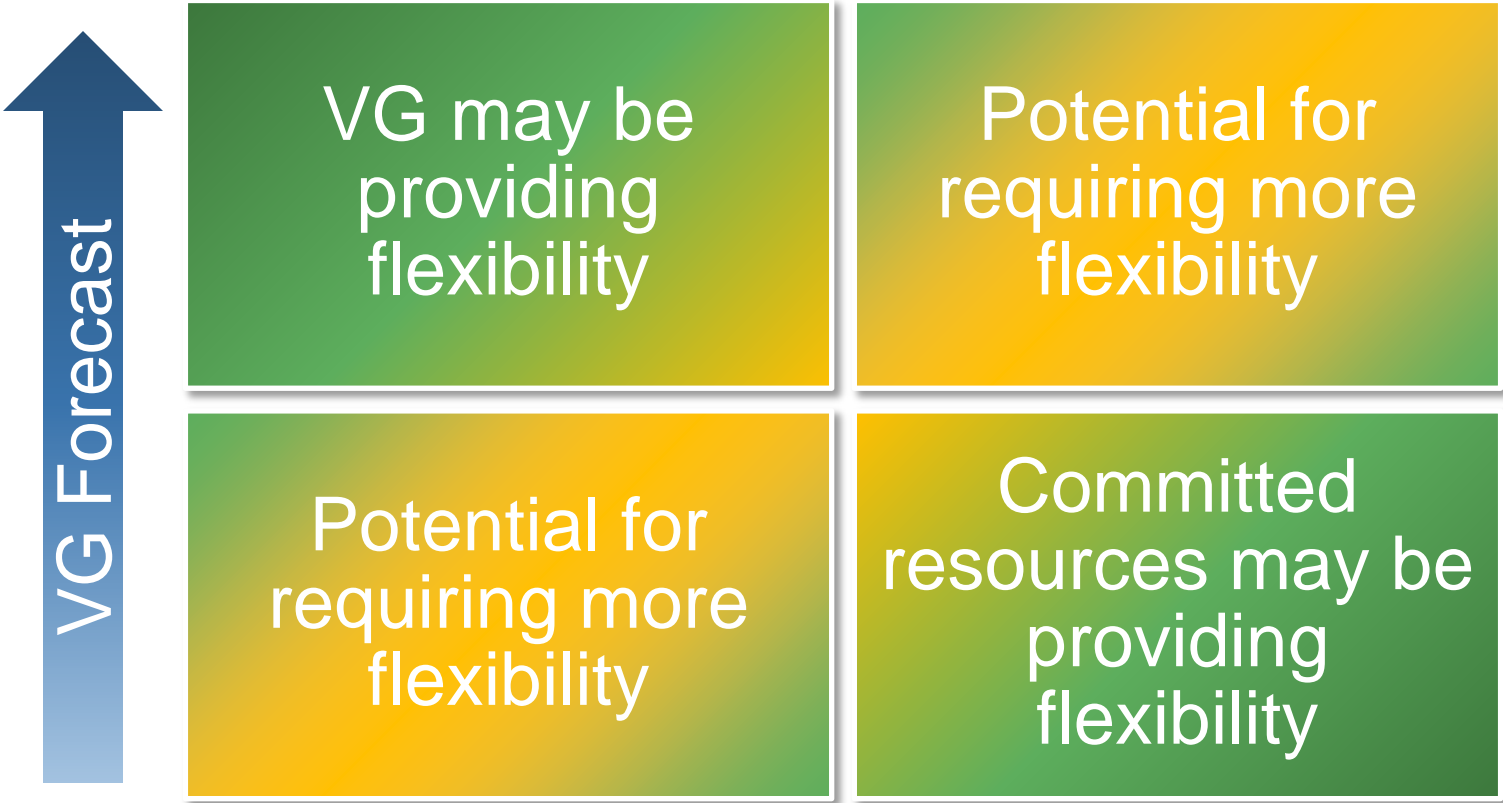
Adequacy Report

	Capacity Exports	127	127	127	127	127	127
Generation Reserve Holdback	Total Operating Reserve Requirement	1418	1418	1418	1418	1418	1418
	Minimum 10-Minute OR	945	945	945	945	945	945
	Minimum 10-Minute Spin OR	237	237	237	237	237	237
	Load Forecast Uncertainty	0	0	0	0	0	0
	Additional Contingency Allowance	0	0	0	0	0	0
Total Requirement		15543	15006	14682	14601	14786	1593

Insert new row to indicate "Flexibility Need"



Factors Affecting Flexibility Need



Demand Forecast →

Next Steps

Next Steps

Date	Activity
December 22 nd , 2017	Stakeholder feedback submission deadline
January 23 rd , 2018	Technical Panel Meeting – Review market rule amendment and seek a vote to post the proposed amendment for stakeholder comment
March 6 th , 2018	Technical Panel Meeting – Review comments from stakeholders and seek a vote to recommend the proposed amendment to the IESO Board for consideration
April 11 th , 2018	IESO Board to consider proposed rule amendment
May 4 th , 2018	Earliest effective date (22 days following publication of IESO Board approved amendment)
Q1, 2018	Next stakeholder meeting to discuss process details
Q1 – Q2, 2018	Market Manual updates
Q2, 2018	Initial trials using 30-minute OR for flexibility

Feedback

Please submit written feedback related to proposed Market Rule and Market Manual change by December 22nd to engagement@ieso.ca