

## **Information Document & FAQ's**

### **Revised ISO Rule 6.6 Pool Participant Non-compliance with Energy Market Dispatches**

As of Oct 28, 2009

**Rule effective date:** September 1, 2009  
**Prepared for:** AESO Pool Participants

#### **Purpose**

To help AESO pool participants understand the application and implementation of the revised ISO Rule 6.6 Pool Participant Non-Compliance with Energy Market Dispatches.

#### **Background**

The current ISO Rule 6.6, Pool Participant Non-Compliance with Energy Market Dispatch and Directives was implemented in December 2004; these rules only included an allowance for steady state variance of plus or minus 5 MW, and did not account for operational deviations or ramping. For further details on the rule history, and reasons why a rule review was initiated, please refer to sections 1 and 2 of the [Rule 6.6 AESO recommendation paper](#)

#### **Revised Rule 6.6 – Summary of changes**

- Allowable Dispatch Variance (ADV): 5 or 10 MW depending on size of unit averaged over 10 minute clock periods.
- Ramping: 10 minutes to begin + (ramp time  $\pm 40\%$  or 5 minutes).
- Allowed "Operational Deviations".
- Allowances for operation below MSG.
- Allowance for response to frequency deviations.
- Allowance for preparation to supply operating reserves.
- Reasonable Efforts Defense

#### **Comparison – Revised Rule vs. Current Rule**

Revised Rule	Current Rule
Pool Participant responsibilities well defined – due diligence defense established	Expectations of Pool Participant set out.
Allowable Dispatch Variance (ADV): 5 or 10 MW depending on size of unit averaged over 10 minute clock periods.	Plus or minus 5 MW from the dispatch level measured instantaneously
Ramping: 10 minutes to begin + (ramp time $\pm 40\%$ or 5 minutes).	Ramp compliance not explicitly defined

Allowed “Operational Deviations”.	No explicit allowance
Exceptions – prep for OR, operation below min stable, frequency deviations, testing and commissioning	Exception for testing and commissioning

**Responsibilities of the Pool Participant (Rule 6.6.1)**

- Must deliver energy pursuant to a dispatch or directive and must comply with and follow the dispatch
- Must use good electric operating practices
- Must coordinate it’s DDS, AS, and Energy submissions to ensure compliance with all related dispatches

**“Allowable Dispatch Variance” (ADV)**

- New definition
- ADV means:
  - (i) plus or minus 5 MW for generating assets with a maximum capability of 200 MW or less, or
  - (ii) plus or minus 10 MW for generating assets with a maximum capability of greater than 200 MW.

**“10 minute clock period”**

- required for steady state compliance (please refer to page 6 of this document for application of steady state compliance)
- New definition
- 10 minute clock period means:

ME:01 to ME:10  
 ME:11 to ME:20  
 ME:21 to ME:30  
 ME:31 to ME:40  
 ME:41 to ME:50  
 ME:51 to ME:60

- ME means “minute ending”

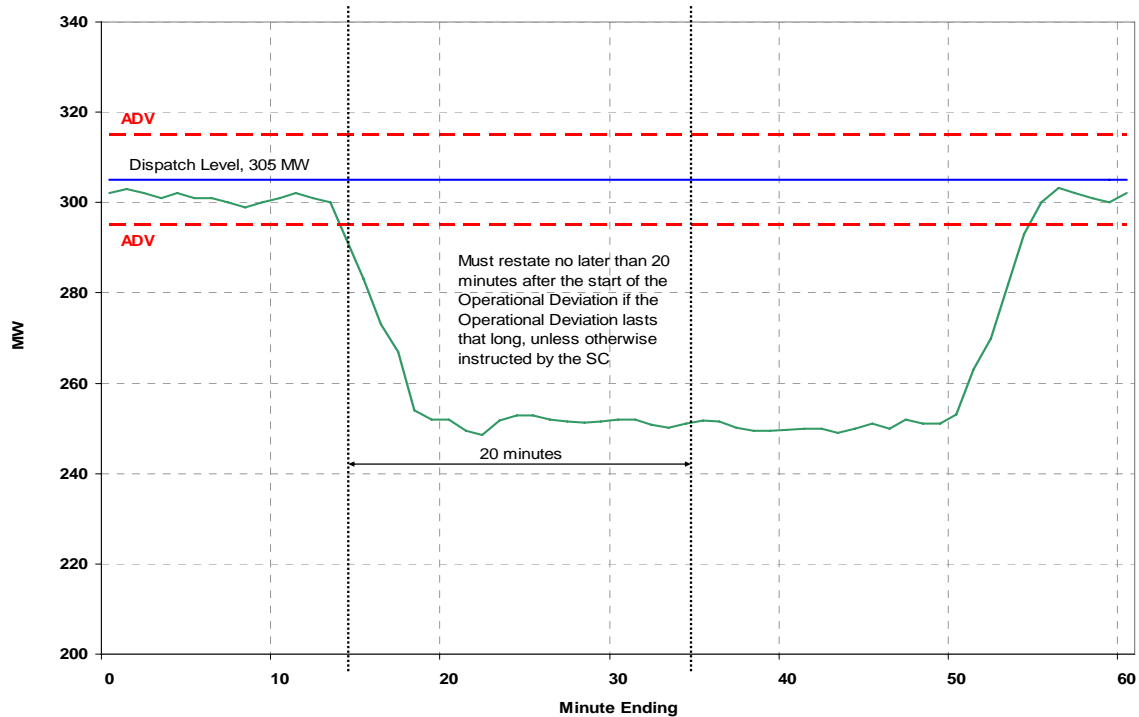
**Operational Deviation**

- New definition
- Operational Deviation means:
  - (i) a generating asset is unable to comply with the ramping requirements set out in rule 6.6.3(a) or 6.6.3(b), or
  - (ii) a generating asset operating in steady state varies outside its ADV due to force majeure or any other circumstances related to the operation of the generating asset which could reasonably be expected to affect the available capability or safety of the generating asset, third party facilities, contracts or arrangements, the environment, personnel working at the generating asset or the public.
    - If an asset experiences an operational deviation, the pool participant must verbally inform the SC (Rule 6.6.4)

- Restatement required no later than 20 minutes after the commencement of the operational deviation if the operational deviation still exists - ***Unless otherwise instructed by the system controller*** (Rule 6.6.4)

Example – Operational deviation:

This example illustrates generator deviation from generating asset steady state *that* lasts longer than 20 minutes.



The generating asset must inform the SC of the operational deviation from dispatch, and submit a restatement no later than 20 minutes after the start of the operational deviation (unless otherwise instructed by the SC).

### Ramping & Ramping Compliance

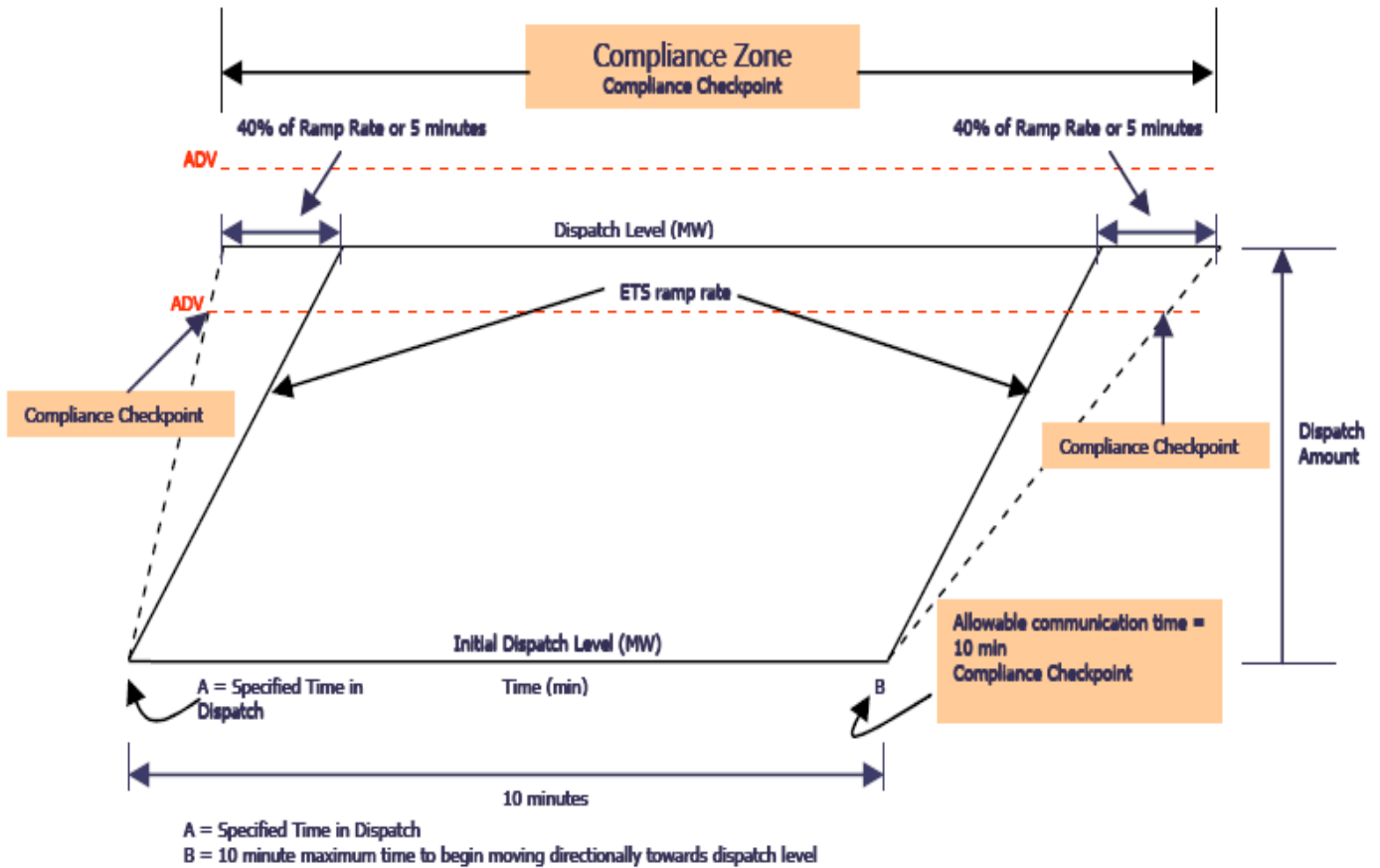
- New definition for Ramping
- Ramping means:

the state of operation that begins at the point in time an energy market dispatch has been issued for a generating asset and continues until the point in time the generating asset has reached the quantity specified in the energy market dispatch, plus or minus the ADV for that generating asset.

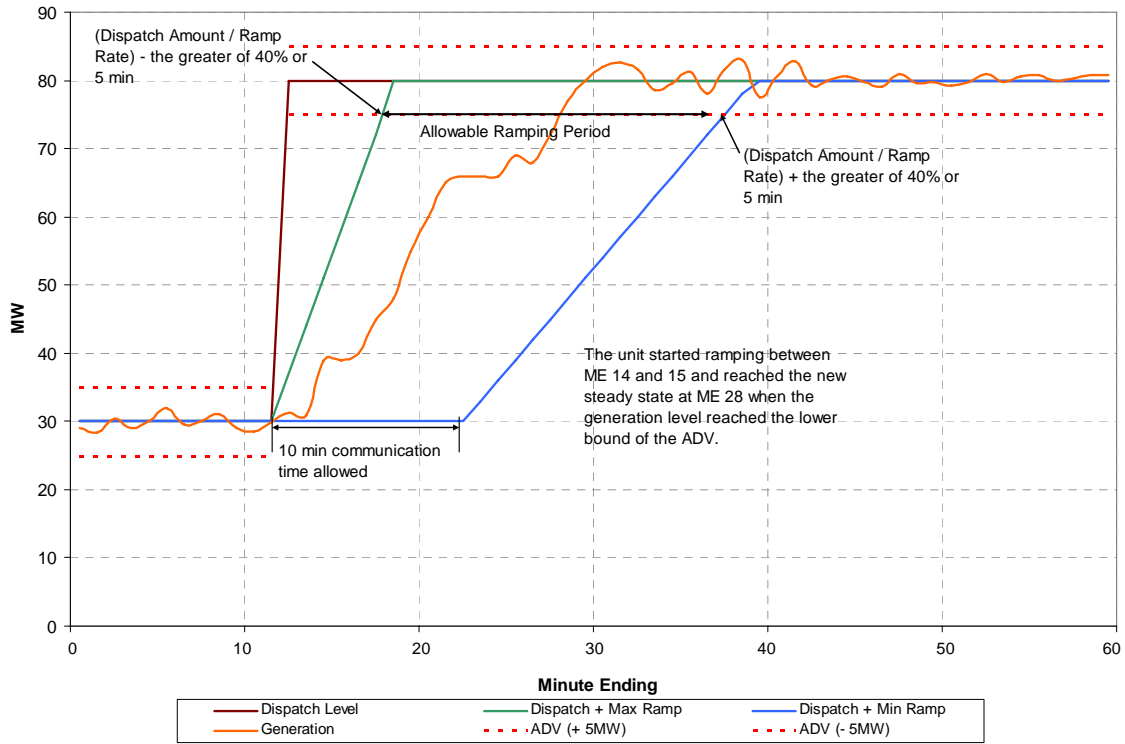
- Ramping Compliance- Maximum 10 minutes to start ramping (Rule 6.6.3)
- Ramping Compliance- based on ***ramp time*** plus or minus the greater of 40% or 5 minutes measured at the dispatch level plus or minus the ADV (Rule 6.6.3)
- Ramping Compliance - Generating asset must reach dispatch level plus or minus the ADV no sooner than:

- (Incremental dispatch amount divided by the ramp rate) minus the greater of (40% of such time or 5 minutes)
- Ramping Compliance - Generating asset must reach dispatch level plus or minus the ADV no longer than:
  - (Incremental dispatch amount divided by the ramp rate) plus the greater of (40% of such time or 5 minutes) plus 10 minutes for communication

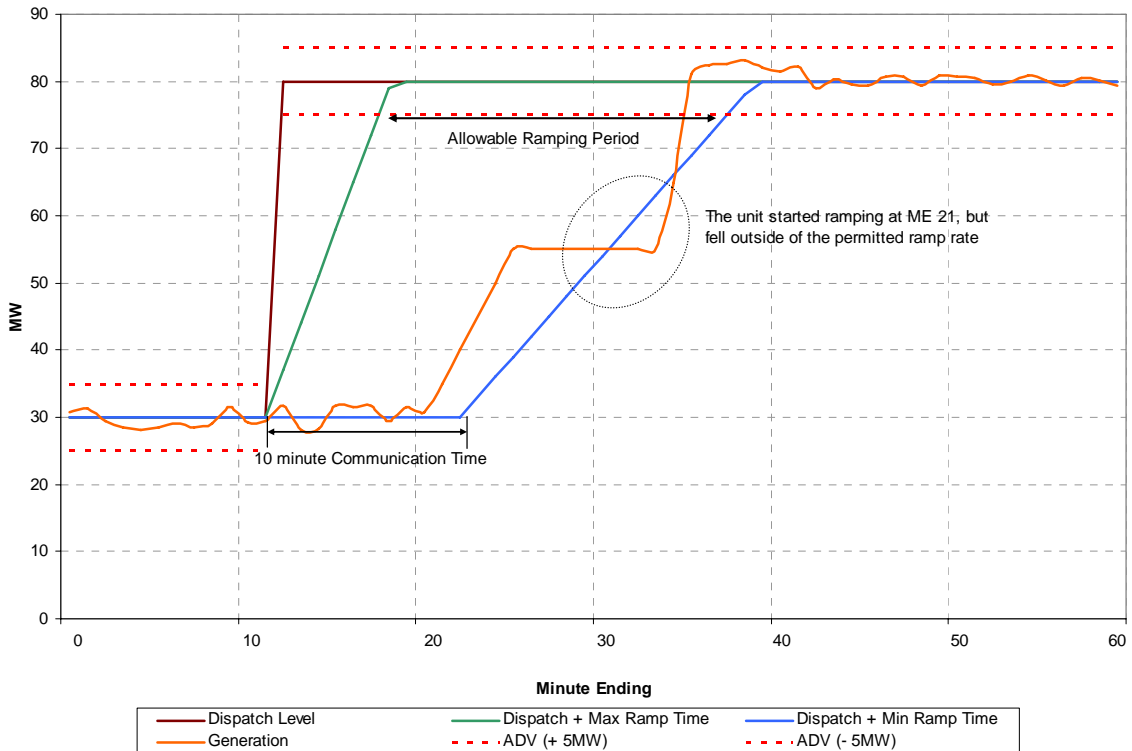
Example – Ramping



### Example – Ramping Compliance



### Example – Ramping Compliance



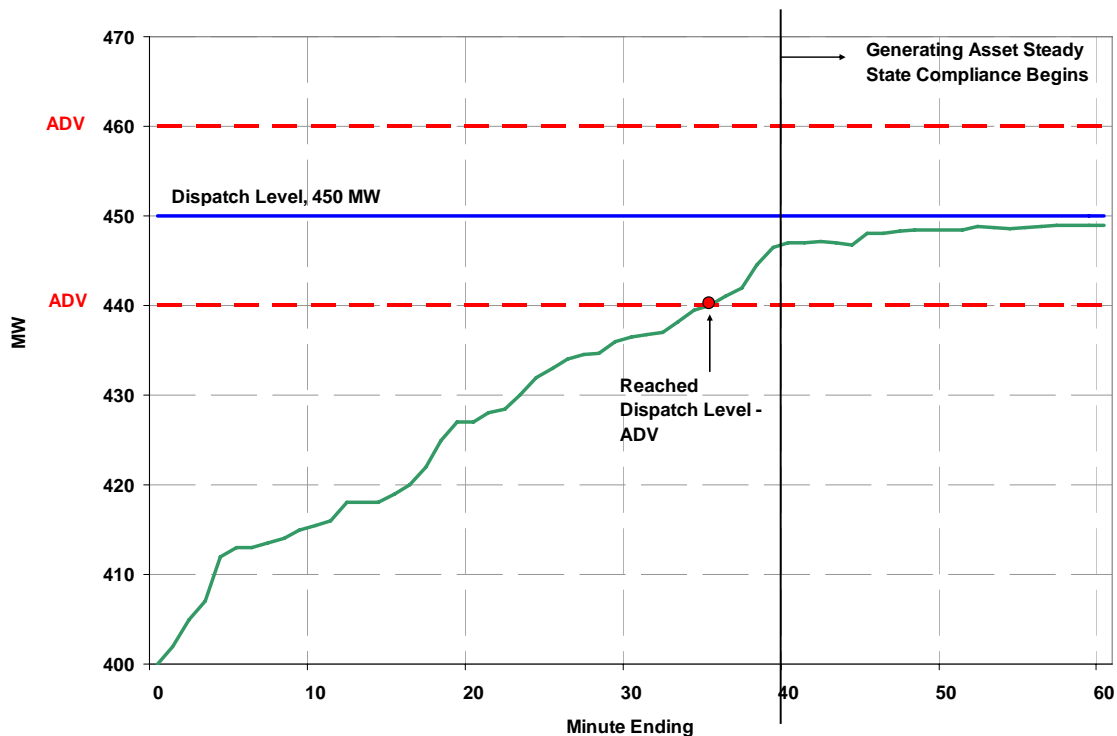
The generator is compliant with the ramp because it started ramping within 10 minutes of the dispatch being issued and was within the ADV in the maximum time allowed

### Generating Asset Steady State & Generating Asset Steady State Compliance

- New definition
- Generating Asset Steady State means: the state of operation that begins the first 10 minute clock period following the period in which a generating asset's output has reached the quantity (MW) specified in an energy market dispatch, plus or minus the ADV for that generating asset.
- Generating asset steady state compliance: During generating asset steady state, the generating asset **average** output for each 10 minute clock period must not vary from the dispatch quantity by more than the ADV (Rule 6.6.2)
- Generating asset steady state compliance: is based on average output during each 10 minute clock period as opposed to instantaneous measure

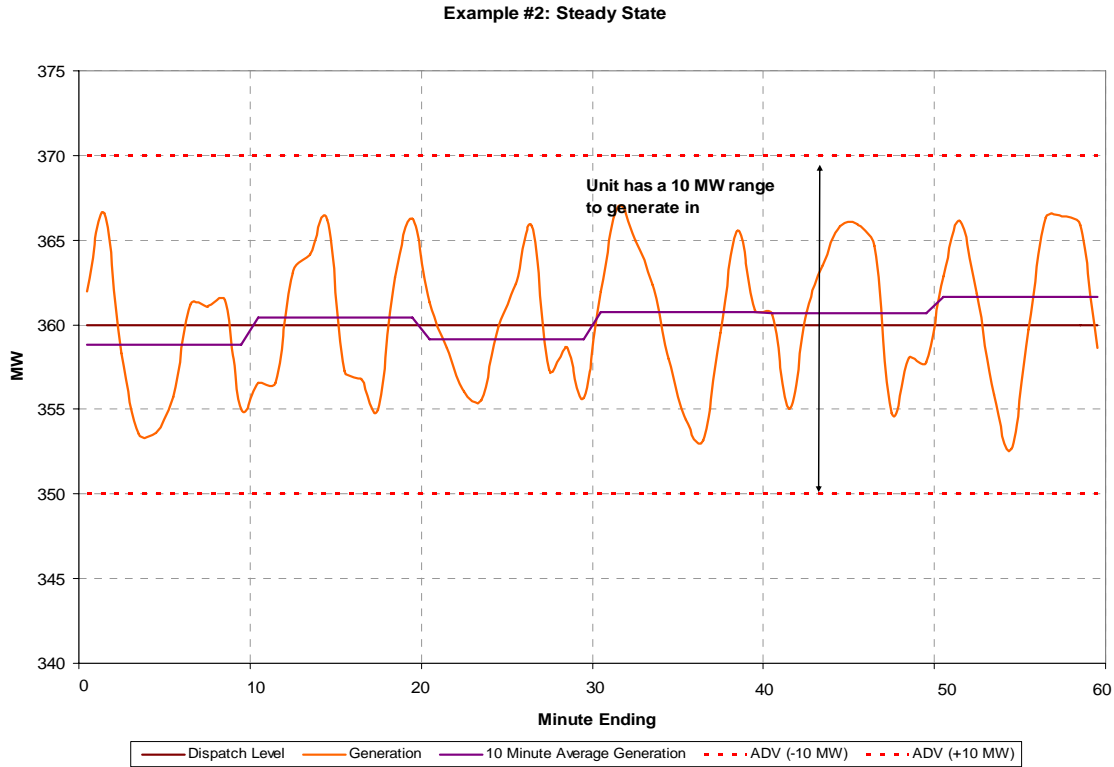
Example – generating asset steady state

The following asset begins its “generating asset steady state” at ME:40, the first 10 minute clock period following the period in which the asset's output reached the quantity specified in the energy market dispatch, minus the ADV (plus the ADV if ramping down):



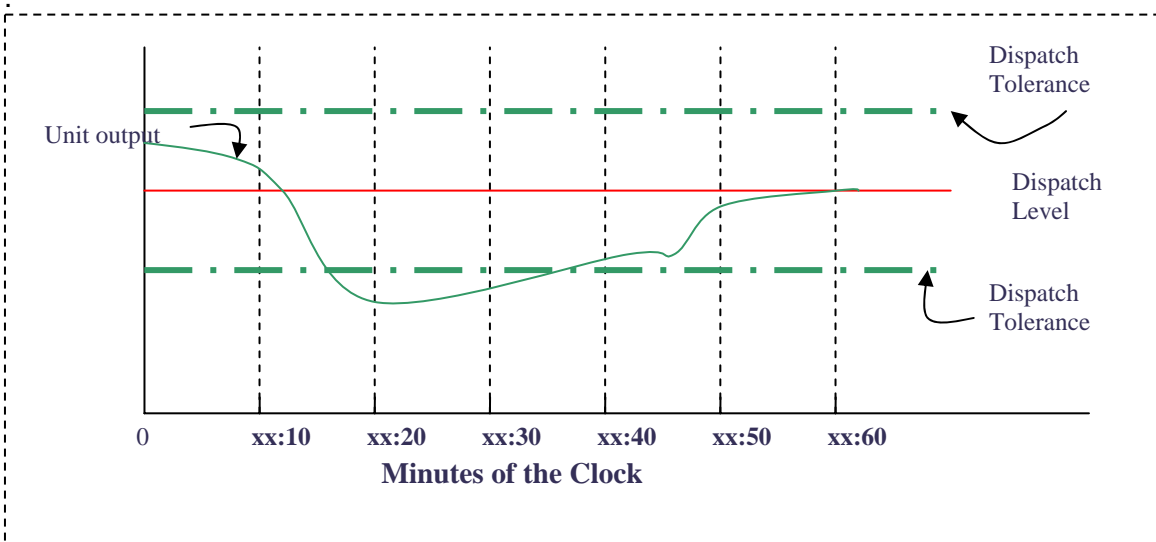
### Example – Generating Asset Steady State Compliance

This generating asset is in compliance during all 10 minute clock periods:



### Example – Generating Asset Steady State Non-Compliance

In this example: the asset is out of compliance for 10 minute clock periods xx:20–xx:30 and xx:30–xx:40, but not out of compliance for 10 minute clock period xx:10 – xx:20 even though the instantaneous output is outside the ADV.



### Exceptions to Non-Compliance (Rule 6.6.5)

- Ramping into position to prepare to provide operating reserves – 15 minutes allowed. No change from today's practice other than it is now part of the rule.
- Operation below minimum stable generation -
  - AC must be properly restated
  - **Verbal plan** must be submitted
  - **Updates required** for deviations from plan of > 30 min or 50 MW
  - Stopped for more than 30 minutes requires AC restatement
- Governor action in response to frequency deviation
- Operational Deviation and procedure is followed
- Testing and commissioning

### FAQ's

1) Q: When might the pool participant inform the SC that they are out of compliance when generating in a steady state?

- A. After a unit trips
- B. When the generation level is outside of the ADV range
- C. When the unit is ramping into position to provide AS
- D. A & B
- E. All of the above

A: The answer is D; after a unit trips and when the generation level is outside the ADV range

2) Q: Asset ABC has an MC of 400. The asset consists of 3 units: Unit 1 has a MC of 150 MW, Unit 2 has a MC of 150 MW, Unit 3 has a MC of 100. Stated ramp rate is 10 MW/minute. The asset is not a long lead time asset, as the unit is able to provide "some" MW to the grid in under 1 hour. During on peak hours, we run all 3 units, during off peak hours, we run 2 units and price the 3<sup>rd</sup> unit at \$999.99. When we transition from off peak to on peak hours, we are able to start the 3<sup>rd</sup> unit within 20-40 minutes. Since we are able to turn on this unit within 30-45 minutes, we do not have long lead time energy, as it does not take more than 1 hour to turn on the 3<sup>rd</sup> unit. It may take us up to 45 minutes to supply MW's to the grid from the 3<sup>rd</sup> unit once we have received a dispatch. Are we still in compliance with the rule?

A: When in the process of starting the 3<sup>rd</sup> unit, you will be physically unable to provide these MW's to the grid in the time calculated using the stated ramp rate. This is a case of a ramp rate operational deviation and you must contact the System Controller within 10 minutes and explain that you are starting a unit and the expected achieve time of the dispatch level. This would not be a non-compliance event.

3) Q: With the definition of "ramping" it is referenced the ramp begins at the "specified effective time" which still could mean: 1) instructed time or 2) acceptance time. Please clarify.

A: The ramp begins at the dispatch instruction time.

4) Q: I have a 250 MW generating asset dispatched to 190 MW. The output of the unit drops to 160 for 2 minutes due to a momentary problem with fuel supply; am I out of compliance?

A: The unit is greater than 200 MW so its allowable dispatch variance is 10 MW. The deviation from the dispatch level is greater than that but if you return to between 180 to 200MW within two minutes this will not be a non-compliance event. If the unit cannot return before the average output of the unit for a 10 minute clock period is outside the allowable dispatch variance then you must phone the SC and explain that you have an operational deviation. You must restate the AC of the generating asset if the problem exists for 20 minutes or more.

5) Q: My generating asset is off its dispatch level by 25 MW from 8 minutes past the hour until 23 minutes past the hour. All other times it is providing exactly the amount in the dispatch level. Is the unit out of compliance?

A: The generating asset will have averaged 5 MW off the dispatch level for the first 10 minute clock period, i.e., xx:00 to xx:10 minutes and therefore would have been in compliance.

For the clock period xx:11 to xx:20 the unit would have averaged 25 MW off the dispatch level and would have been out of compliance unless an operational deviation applied.

For the third 10 minute clock period, xx:21 to xx:30, the generating asset would have averaged 7.5 MW off the dispatch level. If the generating asset had an MC greater than 200 this would not be a non-compliance event because the ADV is 10. If the generating asset's MC is 200 or less the ADV is 5 MW and this would be a non-compliance event unless an operational deviation applied.

6). Q: My generating asset is operating at the dispatch level of 250 MW and receives a dispatch to 280. The generating asset's ramp rate is 10 MW/min. How much time do I have to ramp to 280 MW.

A: The generating asset has 10 minutes to start moving directionally towards the new dispatch level. The incremental dispatch amount is 30 MW at a ramp rate of 10 MW/min, allowing another 3 minutes to ramp up. Add to this the greater of 40% or 5 minutes to allow for ramping variance. 40% of the ramp time is equal to 1.2, thus the greater, or 5 minutes is added. Therefore a maximum of 10 minutes to start + 8 minutes to ramp = 18 minutes is allowed for this generator to ramp to 280 MW.