

Single Electricity Market

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| Final REcommendation ReportMod\_23\_12: minimum stable generation correction08 March 2013 |

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Document History

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| **Version** | **Date** | **Author** | **Comment** |
| 1.0 | 22 February 2013 | Modifications Committee Secretariat | Issued to Modifications Committee for review and approval |
| 2.0 | 08 March 2013 | Modifications Committee Secretariat | Issued to Regulatory Authorities for final decision |

Reference Documents

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| **Document Name** |
| Trading & Settlement Code [Glossary](http://semopub/MarketDevelopment/MarketRules/Glossary.docx) |
| [Agreed Procedure 4](http://semopub/MarketDevelopment/MarketRules/AP04.docx) |
| [Mod\_23\_12: Minimum Stable Generation Correction](http://semopub/MarketDevelopment/ModificationDocuments/Mod_23_12%20Min%20Stable%20Gen.docx) |
| [Mod\_23\_12\_V2: Minimum Stable Generation Correction](http://semopub/MarketDevelopment/ModificationDocuments/Mod_23_12_v2%20Min%20Stable%20Generation.docx) |

Table of Contents

[1. MODIFICATIONS COMMITTEE RECOMMENDATION 3](#_Toc350517451)

[**Recommended for Approval– unanimous Vote** 3](#_Toc350517452)

[2. Background 3](#_Toc350517453)

[3. PURPOSE OF PROPOSED MODIFICATION 3](#_Toc350517454)

[**3A.) justification of Modification** 3](#_Toc350517455)

[**3B.) Impact of not Implementing a Solution** 3](#_Toc350517456)

[**3c.) Impact on Code Objectives** 4](#_Toc350517457)

[4. Assessment of Alternatives 4](#_Toc350517458)

[5. Working Group and/or Consultation 4](#_Toc350517459)

[6. impact on systems and resources 4](#_Toc350517460)

[7. Impact on other Codes/Documents 4](#_Toc350517461)

[8. MODIFICATION COMMITTEE VIEWS 4](#_Toc350517462)

[**Meeting 44 – 25 september 2012** 4](#_Toc350517463)

[**Meeting 46 – 25 september 2012** 4](#_Toc350517464)

[**Meeting 47 – 12 february 2012** 4](#_Toc350517465)

[9. Proposed Legal Drafting 5](#_Toc350517466)

[10. LEGAL REVIEW 5](#_Toc350517467)

[11. IMPLEMENTATION TIMESCALE 5](#_Toc350517468)

[Appendix 1: Mod\_23\_12\_V2 Minimum stable generation 6](#_Toc350517469)

# MODIFICATIONS COMMITTEE RECOMMENDATION

## Recommended for Approval– unanimous Vote

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| **Recommended for Approval (v2) by Unanimous Vote**  |
| Brian Mongan | Generator Alternate | Approved |
| Julie-Anne Hannon | Supplier Alternate  | Approved |
| Iain Wright-Chair | Supplier Member | Approved |
| Kevin Hannafin | Generator Member | Approved |
| Mary Doorly | Generator Alternate | Approved |
| Patrick Liddy | DSU Member | Approved |
| Philip Carson | Supplier Alternate | Approved |
| William Carr | Supplier Member | Approved |

# Background

This Modification Proposal was raised by SEMO and initially received by the Secretariat on 11 September 2012. An alternative version was received by the Secretariat on 29 January 2013. This modification further amends the Glossary definition of Minimum Stable Generation that was amended in Mod\_42\_10v2 to ensure that the definition is not too narrow to exclude Ex-Ante references to Minimum Stable Generation. The Modification Proposal was first presented and discussed at Meeting 44 on 25 September 2012 where it was deferred pending further feedback from the certification team. It was subsequently discussed at Meeting 46 on 05 December 2012 where it was again deferred. An alternative version of the proposal was submitted for Meeting 47 on 12 February 2013 where it was voted on.

# PURPOSE OF PROPOSED MODIFICATION

## 3A.) justification of Modification

Mod\_42\_10v2, which became effective in the November 2012 release, made changes to the Single Ramp Rate calculation. It also amended the definitions of Minimum Stable Generation and Minimum Generation. The certification review has commented that, as the amended Glossary definition of Minimum Stable Generation references a Code paragraph that refers to an Ex-Post calculation; this introduces a lack of clarity as to how Minimum Stable Generation is defined for Ex-Ante. In addition, Minimum Stable Generation is referenced in a number of Glossary definitions which refer to Ex-Ante quantities. Prior to Mod\_42\_10v2, Minimum stable Generation was used to refer to both a VTOD quantity and a profiled quantity. The VTOD quantity was renamed Minimum Generation in Mod\_42\_10v2. There are instances in the Glossary definitions where the use of Minimum Stable Generation in the Glossary definition should be amended to Minimum Generation. Proposed changes to these are made in this modification.

The definition below now refers to a general Minimum Stable Generation quantity which has Ex-Ante and Ex-Post interpretations. An alternative option would be to define a Minimum Stable Generation Profile in addition to Minimum Stable Generation, which would be the Ex-Post profiled value, similar to the way in which Availability Profile is defined. However this would require extensive editing to the T&SC. Therefore, reverting to a general definition of Minimum Stable Generation is preferred.

Please note, Mod\_29\_12 Definitions of Dwell Time Up Trigger Point and Dwell Time Down Trigger Point amends related sections of the T&SC. Mod\_23\_12\_v2 was submitted for consideration at Meeting 47 prior to RA Decision approval of Mod\_29\_12.

## 3B.) Impact of not Implementing a Solution

If this modification is not implemented, a lack of clarity will remain as to the definition of Minimum Stable Generation in the T&SC.

## 3c.) Impact on Code Objectives

This Modification Proposal aims to further Code Objective 1.3.5, namely:

1.3.5 to provide transparency in the operation of the Single Electricity Market;

# Assessment of Alternatives

One alternative was assessed over the lifespan of the proposal. The original version of the proposal, raised at Meeting 44, was deferred at a request by SEMO in order to allow sufficient time for feedback from a subsequent round of certification. Following completion of the certification process, the alternative version (v2) of the proposal was put forward by SEMO at Meeting 47 encompassing the necessary changes.

# Working Group and/or Consultation

N/A

# impact on systems and resources

N/A

# Impact on other Codes/Documents

N/A

# MODIFICATION COMMITTEE VIEWS

## Meeting 44 – 25 september 2012

Proposer outlined the changes proposed in the Modification Proposal advising that the change was deemed necessary following the last certification process. Proposer advised that this modification amends the Glossary definition previously amended in Mod\_42\_10v2 and also clarifies the use of Minimum Stable Generation in Ex-Ante MSP Software Runs. Proposer advised that a subsequent round of certification will be commencing, therefore the proposal should be deferred pending feedback from the certification team.

Supplier Alternate raised a query regarding the term “Accepted” in Clause N.41 B and N.41 C and whether this includes Price Maker Generators who would have submitted TOD in Gate Window EA1, and choose not to submit it in EA2.

SEMO Member advised that Intra-Day Trading introduced Starting Gate Window Data, defined in Section 3.44 of the T&SC defining which data will be used in the case of non-submission to a particular Gate Window. For example, for EA2 the EA1 data would be used and for WD1 the latest Accepted Data would be utilised.

## Meeting 46 – 25 september 2012

MO Member advised that an alternative version of the proposal will be submitted for consideration at the next Modifications Committee Meeting.

## Meeting 47 – 12 february 2012

MO Member advised that this proposal was raised at Meeting 44 with SEMO requesting its deferral pending further feedback from the certification team. Mod\_42\_10v2, which became effective in the November 2012 release, made changes to the Single Ramp Rate calculation. It also amended the definitions of Minimum Stable Generation and Minimum Generation. The certification review commented that as the amended Glossary definition of Minimum Stable Generation references a Code paragraph that refers to an Ex-Post calculation; this introduces a lack of clarity as to how Minimum Stable Generation is defined for Ex-Ante. In addition, Minimum Stable Generation is referenced in a number of Glossary definitions which refer to Ex-Ante quantities. Prior to Mod\_42\_10v2, Minimum stable Generation was used to refer to both a VTOD quantity and a profiled quantity. The VTOD quantity was renamed Minimum Generation in Mod\_42\_10v2. There are instances in the Glossary definitions where the use of Minimum Stable Generation in the Glossary definition should be amended to Minimum Generation. Proposed changes to these are made in this modification. The proposed definition now refers to a general Minimum Stable Generation quantity which has Ex-Ante and Ex-Post interpretations.

MO Member advised that the proposal introduces changes to the Glossary definition for clarity purposes and that no systems changes are incurred. Supplier Alternate commented that the definitions of Min Generation and Min Stable Generation are similar. MO Member advised that many of the Glossary definitions are quite general and that the alternative option was to create another term “Minimum Stable Generation Profile” to refer to the Ex Post profiled value of Minimum Stable Generation, but this would lead to extensive editing to the Code. Therefore this more straightforward solution was chosen.

Supplier Alternate queried as to whether any operational impact would be introduced to Generators as a result of the proposal. MO Member clarified that no operational impact will be incurred and reiterated that the proposal is intended to introduce clarity and to ensure that the Glossary is aligned with the Code; no systems impacts are incurred.

# Proposed Legal Drafting

As set out in Appendix 1. Please note, Mod\_29\_12 Definitions of Dwell Time Up Trigger Point and Dwell Time Down Trigger Point amends related sections of the T&SC. Mod\_23\_12\_v2 was submitted for consideration at Meeting 47 prior to RA Decision approval of Mod\_29\_12.

#  LEGAL REVIEW

Complete

# IMPLEMENTATION TIMESCALE

It is proposed that this Modification is implemented on a Settlement Day basis with effect from one Working Day after an RA Decision.

# Appendix 1: Mod\_23\_12\_V2 Minimum stable generation

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| --- |
| **MODIFICATION PROPOSAL FORM** |
| **Proposer** | **Date of receipt** | **Type of Proposal** | **Modification Proposal ID** |
| **SEMO** | **29 January 2012** | **Standard**  | **Mod\_23\_12\_v2** |
| **Contact Details for Modification Proposal Originator** |
| **Name** | **Telephone number** | **Email address** |
| **Niamh Delaney** | 1. **2370321**
 | **niamh.delaney@sem-o.com** |
| **Modification Proposal Title** |
| **Minimum Stable Generation Correction Version 2** |
| **Documents affected** | **Section(s) Affected** | **Version number of T&SC or AP used in Drafting** |
| **T&SC****AP** | **T&SC Glossary; Agreed Procedure 4** | **V12.0** |
| **Explanation of Proposed Change***(mandatory by originator)* |
| Mod\_42\_10v2, which became effective in the November 2012 release, made changes to the Single Ramp Rate calculation. It also amended the definitions of **Minimum Stable Generation** and **Minimum Generation**.The certification review has commented that, as the amended Glossary definition of Minimum Stable Generation references a Code paragraph that refers to an Ex-Post calculation, this introduces a lack of clarity as to how Minimum Stable Generation is defined for Ex-Ante. In addition, Minimum Stable Generation is referenced in a number of Glossary definitions which refer to Ex-Ante quantities. Prior to Mod\_42\_10v2, Minimum stable Generation was used to refer to both a VTOD quantity and a profiled quantity. The VTOD quantity was renamed Minimum Generation in Mod\_42\_10v2. There are instances in the Glossary definitions where the use of Minimum Stable Generation in the Glossary definition should be amended to Minimum Generation. Proposed changes to these are made in this modification. The definition below now refers to a general Minimum Stable Generation quantity which has Ex-Ante and Ex-Post interpretations. An alternative option would be to define a Minimum Stable Generation Profile in addition to Minimum Stable Generation, which would be the Ex-Post profiled value, similar to the way in which Availability Profile is defined. However this would require extensive editing to the T&SC. Therefore, reverting to a general definition of Minimum Stable Generation is preferred.A further edit to the legal drafting will be required when an RA decision on Mod\_29\_12 is received ( definitions of Dwell Time Up Trigger Point and Dwell Time Down Trigger Point).  |
| **Legal Drafting Change***(Clearly show proposed code change using* ***tracked*** *changes, if proposer fails to identify changes, please indicate best estimate of potential changes)* |
|  GlossaryDefinitions

|  |  |
| --- | --- |
| Deload Break Point | means the break point which defines the shared MW boundary between the two Deloading Rates. The second Deloading Rate applies from Minimum Generation to the Deload Break Point, the first Deloading Rate applies from the Deload Break Point to 0 MW. |
|  Deloading Rate | means the rate at which a Generator Unit decreases Output below Minimum Generation. |
| Dwell Time Trigger Point | means a constant MW level at which a Generator Unit must remain while ramping up or down between Minimum Generation and Maximum Generation. |
| Loading Rate Cold | means the rate at which a Generator Unit increases Output from Block Load to Minimum Generation when it is instructed to Cold Start.  |
| Loading Rate Hot | means the rate at which a Generator Unit increases Output from Block Load to Minimum Generation when it is instructed to Hot Start. |
| Loading Rate Warm | means the rate at which a Generator Unit increases Output from Block Load to Minimum Generation when it is instructed to Warm Start. |
| Minimum Stable Generation | means the level of minimum sustainable Output which a Generator Unit is capable of producing.  |
| Soak Time Trigger Point Cold | means a constant MW level at which a Generator Unit must remain while loading up between zero MW and Minimum Generation after a Cold Start. |
| Soak Time Trigger Point Hot | means a constant MW level at which a Generator Unit must remain while loading up between zero MW and Minimum Generation after a Hot Start. |
| Soak Time Trigger Point Warm | means constant MW level at which a Generator Unit must remain while loading up between zero MW and Minimum Generation after a Warm Start. |

**Agreed Procedure 4**(abridged version of Table 9 below showing changes)**Table 9: Business Data per Element**

| **Class / Element** | **Screen Name** | **Comment** | **Data Category** |
| --- | --- | --- | --- |
| MPR / Generator Parameters | Resource Type | Indicates the type of resource for which data is being submitted - for example this will indicate if a resource is predictable or variable and whether it is a price taker or price maker. Permitted values include: PRED\_PR\_MAKER\_GEN, PRED\_PR\_TAKER\_GEN, VAR\_PR\_MAKER\_GEN, VAR\_PR\_TAKER\_GEN, AUTO\_PR\_TAKER\_GEN. | VRD |
|  | Resource Name | The name of the resource in question (e.g. the name of the Generator Unit, Supplier Unit, Demand Side Unit, Interconnector Unit or Interconnector for which data is being submitted). | VRD |
|  | IM Resource Name | Reference ID to the unit’s injection point to the transmission system referenced in the Connection Agreement | VRD |
|  | Connection Point | Identifier of the Unit connection point (provided by the Transmission System Operators). | VRD |
|  | Connection Type | Will be "TRNS" if transmission system connected and "DIST" if distribution system connected. | VRD |
|  | Connection Agreement | Reference ID to the unit's and/or Participant's connection agreement. | VRD |
|  | Effective Date | Proposed date and time when Participant will become eligible to participate in the market.  | VRD |
|  | Expiry Date | Expiry Date | VRD |
|  | Dual Rated Generator Unit Flag | A flag Indicating that a Generator Unit is a Dual Rated Generator Unit. |  |
|  | Fuel Type | May be Oil (OIL), Gas (GAS), Coal (COAL), Multiple Fuel (MULTI), Wind (WIND), Hydro (HYDRO), Biomass (BIO), Combined Heat and Power (CHP), Pumped Storage (PUMP) Demand Side Unit (DEM)  | VRD |
|  | Secondary Fuel Type | May be Oil (OIL), Gas (GAS), Coal (COAL), Multiple Fuel (MULTI), Wind (WIND), Hydro (HYDRO), Biomass (BIO), Combined Heat and Power (CHP), Pumped Storage (PUMP) Demand Side Unit (DEM) | VRD |
|  | Minimum Stable Generation  | Registered Minimum Generation level in MW. | VTOD |
|  | Maximum Generation | Maximum Generation level, in MW.  | VRD |
|  | Number of Hours elapsed for Cold Sync time. | This is not utilised in the systems. This can be left as NULL in the Data Transaction |  |
|  | Number of Hours elapsed for Warm Sync time. | This is not utilised in the systems. This can be left as NULL in the Data Transaction |  |
|  | Number of Hours elapsed for Hot Sync time. | This is not utilised in the systems. This can be left as NULL in the Data Transaction |  |
|  | Pumped Storage Flag | May be Y, N or NULL - it will only be Y if the Unit is a pumped storage unit. | VRD |
|  | Energy Limit Flag | May be Y, N or NULL - it will only be Y if the Unit is a pumped storage unit. | VRD |
|  | Netting Generator Flag | Only applicable to PPMG, PPTG, VPMG, VPTG, APTG. It is a Y/N/Null field. Null for supplier, demand and interconnector. | VRD |
|  | Fixed Unit Load | Fixed linear factor used to calculate net output from a Generator Unit. Fixed Unit Load (FUL) ≥ 0 | VRD |
|  | Unit Load Scalar | Scalar quantity which approximates physical losses associated with a Generator Unit Transformer. Unit Load Scalar (ULS). 0 < ULS ≤ 1.  | VRD |
|  | Start-up End Point | This is not utilised in the systems. This can be left as NULL in the Data Transaction | VTOD |
|  | Droop | In relation to the operation of the governor of a Generator Unit, the percentage drop in System Frequency which would cause the Generator Unit under free governor action to change its output from zero to Full Load. (in %) | VRD |
|  | Number of Starts | Number of Starts available before maintenance of the unit when < 30 starts. Note: this value will be provided by Participants as part of their technical offer data. There will be no requirement to consider it in the optimization runs. | VRD |
|  | Number of Run Hours | Number of run hours available for a unit before maintenance when < 200 hours. Note: this value will be provided by Participants as part of their technical offer data. There will be no requirement to consider it in the optimization runs. | VRD |
|  | Minimum Reservoir Capacity  | For Pumped Storage. Minimum possible capacity for the reservoir (MWh). Reservoir levels must be the same for submissions from all Units Sharing the Reservoir. The value for the first unit by alphabetical order of the unit's name will be selected if the reservoir capacities differ. | VTOD |
|  | Maximum Reservoir Capacity | For Pumped Storage, reservoir levels must be the same for submissions from all Units Sharing the Reservoir. The value for the first unit by alphabetical order of the unit's name will be selected if the reservoir capacities differ. | VTOD |
|  | Modes of Operation | This is not utilised in the systems. This can be left as NULL in the Data Transaction | VRD |
|  | Identification of Unit location on grid. | Unique identifier of unit location. Multiple Unit IDs can exist for each Physical Location (e.g. Supplier Unit and Generator Unit). | VRD |
|  | Physical Location ID. | Name of unit location on the transmission system.  | VRD |
|  | Name of station or site where unit is located (multiple units per station). | Name of station or site where unit is located (there can be multiple units per station). | VRD |
|  | Identification of the Station  | Station ID defined by the Transmission System Operators. | VRD |
|  | Station address line 1 | Station Address line 1. | VRD |
|  | Station address line 2 | Station Address line 2. | VRD |
|  | Registered Firm Capacity | Total deep connected capacity designation for the unit.  | VRD |
|  | Non-Firm Access Quantity | Non-firm capacity for a unit in MW, i.e. part of a Generator Unit's Availability that does not have Firm Access.  | VRD |
|  | Commission Test Certificate | Acceptance of commission test for data and generation communication requirements.  | VRD |
|  | Old Resource Flag | To indicate if this is an old resource whose ownership is being changed/ or is being re-registered. | VRD |
|  | Old Resource Name | In case of a previously registered resource, this is to provide its previous registered resource identification. | VRD |
|  | Old Participant Name | Participant ID of the previous Participant (if applicable). Can be left NULL if not relevant. | VRD |
|  | Priority Dispatch Flag | Indication of a Unit's priority in the physical market schedule if in a tie to serve marginal demand. Will be Y or N and will be set in conjunction with the Transmission System Operator(s). | VRD |
|  | Unit Under Test Start Date | Date when the Unit is proposed to be under test. This will be approved by the Market Operator in conjunction with the Transmission System Operator(s).  | VRD |
|  | Unit Under Test End Date | Date when the Unit is proposed to complete its test. This will be approved by the Market Operator in conjunction with the Transmission System Operator(s). | VRD |
|  | Qualified Communication Channel | Indicator of the communication channels the unit has been qualified to utilise. | VRD |
|  | Jurisdiction | Jurisdiction for the resource - will be "ROI" or "NI". | VRD |
|  | Notification Comment | Used by the Market Operator and Participant to exchange notes with respect to that registration data.  |  |
|  | Trading Site Name | Name of the Trading Site to which the Generator Unit is associated. |  |
|  | Meter Registration ID | Identifier for metering purposes. |  |
|  | Data Exchange Test | Will be P (Pass) or F (Fail), depending on whether Market Operator data exchange testing is successful. | VRD |
|  | EB Licence number | Regulatory licence ID number for the Participant based on type of unit owned (e.g. Wind Generation, Demand-side, etc.).  | VRD |
|  | Electricity Commission License Effective Date | Electricity Commission License Effective Date. | VRD |
|  | Electricity Commission License Expiration Date | Electricity Commission License Expiration Date. | VRD |
|  | External ID | Optional text field that can be used to track submissions by Market Participants.  |  |
|  | Default Data Submission | This is a flag set by the Market Operator, and indicates whether Default Data has been submitted by the Market Participant for a Unit. |  |
|  |  |  |  |
| MI / Generator Technical Offer Data | Resource Name | Must be a valid Resource Name | VTOD |
|  | Resource Type | Must be a valid Unit Classification. | VTOD |
|  | Validation Data Set Number | Numerical identifier associated with a Validation Data Set |  |
|  | External Identifier | Optional text field that can be used to track submissions by Market Participants. This can be non-unique and cannot be queried (although will be returned in responses if successful). |  |
|  | Block Load Flag | Will be “Yes” or “No”, depending on whether the Unit has block loading characteristics. | VTOD |
|  | Block Load Cold | Block Load in MW when the unit is in a cold state. | VTOD |
|  | Block Load Warm | Block Load in MW when the unit is in a warm state. | VTOD |
|  | Block Load Hot | Block Load in MW when the unit is in a hot state. | VTOD |
|  | Deloading Rate 1 | Deloading Rate in MW/min that applies for a Unit below the DELOAD\_BREAK\_PT to zero. | VTOD |
|  | Deloading Rate 2 | Deloading Rate in MW/min that applies for a Unit below Minimum Generation beyond DELOAD\_BREAK\_PT. | VTOD |
|  | Deload Break Point | MW level from which the deloading rate will change from DELOADING\_RATE\_1 to DELOADING\_RATE\_2. | VTOD |
|  | Minimum Time Sync Cold | This is not utilised in the systems. This can be left as NULL in the Data Transaction | VTOD |
|  | Minimum Time Sync Warm | The duration in hours off load that indicates the standby status change of the unit from Warm to Cold.  | VTOD |
|  | Minimum Time Sync Hot | The duration in hours off load that indicates the standby status change of the unit from Hot to Warm.  | VTOD |
|  | Start-Up Time Cold | Notification/Start-up times in hours for a unit considered to be in a cold state. | VTOD |
|  | Start-Up Time warm | Notification/Start-up times in hours for a unit considered to be in a warm state. | VTOD |
|  | Start-Up Time Hot | Notification/Start-up times in hours for a unit considered to be in a hot state. | VTOD |
|  | Dwell Time 1 | Time above Minimum Generation for which a Unit remains at a constant MW level before continuing to increase or decrease output. | VTOD |
|  | Dwell Time 2 | Time above Minimum Generation for which a Unit remains at a constant MW level before continuing to increase or decrease output. | VTOD |
|  | Dwell Time 3 | Time above Minimum Generation for which a Unit remains at a constant MW level before continuing to increase or decrease output. | VTOD |
|  | Dwell Time Trigger Point 1 | MW level at which DWELL\_TIMES\_1 should be observed before output can further increase or decrease. | VTOD |
|  | Dwell Time Trigger Point 2 | MW level at which DWELL\_TIMES\_2 should be observed before output can further increase or decrease. | VTOD |
|  | Dwell Time Trigger Point 3 | MW level at which DWELL\_TIMES\_3 should be observed before output can further increase or decrease. | VTOD |
|  | Loading Rate Cold 1 | Loading Up Rate in MW/min when a Unit is in a cold state that applies until LOADING\_UP\_BREAK\_PT\_COLD\_1. | VTOD |
|  | Loading Rate Cold 2 | Loading Up Rate in MW/min when a Unit is in a cold state that applies from LOADING\_UP\_BREAK\_PT\_COLD\_1 to LOADING\_UP\_BREAK\_PT\_COLD\_2. | VTOD |
|  | Loading Rate Cold 3 | Loading Up Rate in MW/min when a Unit is in a cold state that applies above LOADING\_UP\_BREAK\_PT\_COLD\_2. | VTOD |
|  | Loading Rate Warm 1 | Loading Up Rate in MW/min when a Unit is in a warm state that applies until LOADING\_UP\_BREAK\_PT\_WARM\_1 | VTOD |
|  | Loading Rate Warm 2 | Loading Up Rate in MW/min when a Unit is in a warm state that applies from LOADING\_UP\_BREAK\_PT\_WARM\_1 to LOADING\_UP\_BREAK\_PT\_WARM\_2 | VTOD |
|  | Loading Rate Warm 3 | Loading Up Rate in MW/min when a Unit is in a warm state that applies above LOADING\_UP\_BREAK\_PT\_WARM\_2 | VTOD |
|  | Loading Rate Hot 1 | Loading Up Rate in MW/min when a Unit is in a hot state that applies until LOADING\_UP\_BREAK\_PT\_HOT\_1. | VTOD |
|  | Loading Rate Hot 2 | Loading Up Rate in MW/min when a Unit is in a hot state that applies from LOADING\_UP\_BREAK\_PT\_HOT\_1 to LOADING\_UP\_BREAK\_PT\_HOT\_2. | VTOD |
|  | Loading Rate Hot 3 | Loading Up Rate in MW/min when a Unit is in a hot state that applies above LOADING\_UP\_BREAK\_PT\_HOT\_2. | VTOD |
|  | Loading Up Breakpoint Cold 1 | MW level from which the cold loading up rate will change from Loading Rate 1 to Loading Rate 2. | VTOD |
|  | Loading Up Breakpoint Cold 2 | MW level from which the cold loading up rate will change from Loading Rate 2 to Loading Rate 3. | VTOD |
|  | Loading Up Breakpoint Warm 1 | MW level from which the warm loading up rate will change from Loading Rate 1 to Loading Rate 2. | VTOD |
|  | Loading Up Breakpoint Warm 2 | MW level from which the warm loading up rate will change from Loading Rate 2 to Loading Rate 3. | VTOD |
|  | Loading Up Breakpoint Hot 1 | MW level from which the hot loading up rate will change from Loading Rate 1 to Loading Rate 2. | VTOD |
|  | Loading Up Breakpoint Hot 2 | MW level from which the hot loading up rate will change from Loading Rate 2 to Loading Rate 3. | VTOD |
|  | Minimum On-time | The minimum time that must elapse from the time a Generator Unit Starts-Up before it can be Shut-Down | VTOD |
|  | Maximum On-time | The maximum time that must elapse from the time a Generator Unit Starts-Up before it can be Shut-Down | VTOD |
|  | Minimum Off-time | The minimum time that a Generator Unit must remain producing no Active Power or Reactive Power commencing at the time when it stops producing Active Power or Reactive Power. | VTOD |
|  | Pumped Storage Cycle Efficiency | (PSCEuh) The ratio between the gross electrical energy consumed to pump a given quantity of water from the lower reservoir to the upper reservoir and the net electrical energy sent out through the release of that quantity of water from the upper reservoir | VTOD |
|  | Pumping Load Capacity | For Pumped Storage, the load consumed by unit during pumping phase (MW). | VTOD |
|  | Max Ramp Up Rate | Rate of load increase. Rate of decreasing demand (MW/min). | VTOD |
|  | Max Ramp Down Rate | Rate of load reduction. Rate of increasing demand (MW/min). | VTOD |
|  | Ramp Up Rate 1 | Ramp Up Rate in MW/min that applies until RAMP\_UP\_BREAK\_PT\_1. | VTOD |
|  | Ramp Up Rate 2 | Ramp Up Rate in MW/min that applies from RAMP\_UP\_BREAK\_PT\_1 until RAMP\_UP\_BREAK\_PT\_2. | VTOD |
|  | Ramp Up Rate 3 | Ramp Up Rate in MW/min that applies from RAMP\_UP\_BREAK\_PT\_2 until RAMP\_UP\_BREAK\_PT\_3. | VTOD |
|  | Ramp Up Rate 4 | Ramp Up Rate in MW/min that applies from RAMP\_UP\_BREAK\_PT\_3 until RAMP\_UP\_BREAK\_PT\_4. | VTOD |
|  | Ramp Up Rate 5 | Ramp Up Rate in MW/min that applies from RAMP\_UP\_BREAK\_PT\_5. | VTOD |
|  | Ramp Up Breakpoint 1 | MW level from which the ramp rate will change from Ramp Rate 1 to Ramp Rate 2. | VTOD |
|  | Ramp Up Breakpoint 2 | MW level from which the ramp rate will change from Ramp Rate 2 to Ramp Rate 3. | VTOD |
|  | Ramp Up Breakpoint 3 | MW level from which the ramp rate will change from Ramp Rate 3 to Ramp Rate 4. | VTOD |
|  | Ramp Up Breakpoint 4 | MW level from which the ramp rate will change to Ramp Rate 5. | VTOD |
|  | Ramp Down Rate 1 | Ramp Down Rate in MW/min that applies until RAMP\_DOWN\_BREAK\_PT\_1. | VTOD |
|  | Ramp Down Rate 2 | Ramp Down Rate in MW/min that applies from RAMP\_DOWN\_BREAK\_PT\_1 until RAMP\_DOWN\_BREAK\_PT\_2. | VTOD |
|  | Ramp Down Rate 3 | Ramp Down Rate in MW/min that applies from RAMP\_DOWN\_BREAK\_PT\_2 until RAMP\_DOWN\_BREAK\_PT\_3. | VTOD |
|  | Ramp Down Rate 4 | Ramp Down Rate in MW/min that applies from RAMP\_DOWN\_BREAK\_PT\_3 until RAMP\_DOWN\_BREAK\_PT\_4. | VTOD |
|  | Ramp Down Rate 5 | Ramp Up Rate in MW/min that applies from RAMP\_UP\_BREAK\_PT\_5. | VTOD |
|  | Ramp Down Breakpoint 1 | MW level from which the ramp rate will change from Ramp Rate 1 to Ramp Rate 2. | VTOD |
|  | Ramp Down Breakpoint 2 | MW level from which the ramp rate will change from Ramp Rate 2 to Ramp Rate 3. | VTOD |
|  | Ramp Down Breakpoint 3 | MW level from which the ramp rate will change from Ramp Rate 3 to Ramp Rate 4. | VTOD |
|  | Ramp Down Breakpoint 4 | MW level from which the ramp rate will change to Ramp Down Rate 5. | VTOD |
|  | Start Forbidden Range 1  | MW level where restricted loading range (1) starts. Unit must move through this range as quickly as possible | VTOD |
|  | End Forbidden Range 1  | MW level where restricted loading range (1) ends. Unit must move through this range as quickly as possible. | VTOD |
|  | Start Forbidden Range 2  | MW level where restricted loading range (2) starts. Unit must move through this range as quickly as possible. | VTOD |
|  | End Forbidden Range 2  | MW level where restricted loading range (2) ends. Unit must move through this range as quickly as possible. | VTOD |
|  | Soak Time Hot 1 | Time below Minimum Generation for which a Unit remains at a constant MW level whilst in a hot state before continuing to increase or decrease output. | VTOD |
|  | Soak Time Hot 2 | Time below Minimum Generation for which a Unit remains at a constant MW level whilst in a hot state before continuing to increase or decrease output. | VTOD |
|  | Soak Time Warm 1 | Time below Minimum Generation for which a Unit remains at a constant MW level whilst in a warm state before continuing to increase or decrease output. | VTOD |
|  | Soak Time Warm 2 | Time below Minimum Generation for which a Unit remains at a constant MW level whilst in a warm state before continuing to increase or decrease output. | VTOD |
|  | Soak Time Cold 1 | Time below Minimum Generation for which a Unit remains at a constant MW level whilst in a cold state before continuing to increase or decrease output. | VTOD |
|  | Soak Time Cold 2 | Time below Minimum Generation for which a Unit remains at a constant MW level whilst in a cold state before continuing to increase or decrease output. | VTOD |
|  | Trigger Point Hot 1 | MW level at which TRIGGER\_PT\_HOT\_1 should be observed before output can further increase or decrease. | VTOD |
|  | Trigger Point Hot 2 | MW level at which TRIGGER\_PT\_HOT\_2 should be observed before output can further increase or decrease. | VTOD |
|  | Trigger Point Warm 1 | MW level at which TRIGGER\_PT\_WARM\_1 should be observed before output can further increase or decrease. | VTOD |
|  | Trigger Point Warm 2 | MW level at which TRIGGER\_PT\_WARM\_2 should be observed before output can further increase or decrease. | VTOD |
|  | Trigger Point Cold 1 | MW level at which TRIGGER\_PT\_COLD\_1 should be observed before output can further increase or decrease. | VTOD |
|  | Trigger Point Cold 2 | MW level at which TRIGGER\_PT\_COLD\_2 should be observed before output can further increase or decrease. | VTOD |
|  | Short Term Maximisation Capacity above MAXGEN | Capacity above MAXGEN that can be sustained for a finite period of time (MW). | VTOD |
|  | Short Term Maximisation time | The duration in hours representing the length of time that Short-Term Maximisation can be sustained. | VTOD |
|  | Minimum Down Time  | Minimum amount of time the demand-side unit can be curtailed.(in Hours) | VTOD |
|  | Maximum Down Time | Maximum amount of time the demand-side unit can be curtailed.(in Hours) | VTOD |

 |
| **Modification Proposal Justification***(Clearly state the reason for the Modification)* |
| Following comments from the certification review, this modification further amends the Glossary definition of Minimum Stable Generation that was amended in Mod42\_10v2 to ensure that the definition is not too narrow to exclude Ex-Ante references to Minimum Stable Generation. The current Glossary definition references only the Ex-Post Minimum Stable Generation profiled value. In addition, a number of Glossary definitions reference Minimum Stable Generation instead of Minimum Generation. These references are also incorrect in Agreed Procedure 4 and are corrected in this modification.  |
| **Code Objectives Furthered***(State the Code Objectives the Proposal furthers, see Section 1.3 of T&SC for Code Objectives)* |
| This Modification Proposal aims to further Code Objective 1.3.5, namely:1.3.5 to provide transparency in the operation of the Single Electricity Market; |
| **Implication of not implementing the Modification Proposal***(State the possible outcomes should the Modification Proposal not be implemented)* |
| If this modification is not implemented, a lack of clarity will remain as to the definition of Minimum Stable Generation in the T&SC.  |
| **Working Group***(State if Working Group considered necessary to develop proposal)* | **Impacts***(Indicate the impacts on systems, resources, processes and/or procedures)* |
| No | No system impacts.  |
| ***Please return this form to Secretariat by email to*** ***modifications@sem-o.com*** |