**CDWR Comment 1**

CDWR asks the CAISO to clarify the need for the four new telemetry points.  CDWR believes this information may not be applicable to comply with the new NERC frequency response standard.  Also, these telemetry points would most likely provide static information that only changes when governors are tested and recertified.  Furthermore, some of CDWR’s governors are fifty plus year old and would need to be retrofitted to provide this telemetry information.  Providing these new telemetry points would be a considerable undertaking.

**CAISO Response: Except the ramp rate, remaining new telemetry points can be static value. These values can remain static and change only when the technology changes. Please provide additional information on which of the telemetry points data cannot be provided.**

**CDWR Comment 2**

Existing BPM Language: Page 15

|  |  |
| --- | --- |
| Acronym | Acronym Expansion |
| T1 | Trunk Level 1 |

Proposed Revision to Above Language:

|  |  |
| --- | --- |
| Acronym | Acronym Expansion |
| T1 | ~~Trunk~~ Transmission Level 1 |

Note: Should state both to cover different usage in industry.

Reason Requesting: Clarity

Request Priority: Normal

Category Type: A

A - Clarifications of existing BPM language, grammatical errors and or revisions with minor significance.

B - Revisions of substantial significance or changes to CAISO or Market Participants’ systems.

C - Revisions implementing significant new CAISO policies and/or requiring revisions to the CAISO Tariff.

**CAISO Response: In the Telemetry BPM, T1 acronym stands only for Trunk Level 1**

**CDWR Comment 3**

Existing BPM Language: Page 65

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Analogs | **AGC** | **Spinning Reserve** | **Non-Spinning Reserve** | **QF Conversion** | **Energy Only** | **PDR** | **Solar** | **Wind** | **Solar/Wind less than 10MW** | **Battery** | **Hybrid Resource** | |
| Droop Setting | X | X | X | X | X |  | X | X | X | X | | X |

Proposed Revision to Above Language:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Analogs | **AGC** | **Spinning Reserve** | **Non-Spinning Reserve** | **QF Conversion** | **Energy Only** | **PDR** | **Solar** | **Wind** | **Solar/Wind less than 10MW** | **Battery** | **Hybrid Resource** |
| Governor  Droop Setting | X | X | X | X | X |  | X | X | X | X | X |

CAISO Response: Updated BPM as suggested.

Reason Requesting: Clarity

Request Priority: Normal

Category Type: A

**CDWR Comment 4**

Existing BPM Language: Page 65

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Analogs | **AGC** | | | **Spinning Reserve** | | **Non-Spinning Reserve** | | **QF Conversion** | **Energy Only** | **PDR** | | **Solar** | | **Wind** | | | **Solar/Wind less than 10MW** | | **Battery** | **Hybrid Resource** |
| Governor Dead  Band | | X | X | | X | | X | | X | |  | | X | | X | X | | X | | X |

Proposed Revision to Above Language:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Analogs | **AGC** | | **Spinning Reserve** | | **Non-Spinning Reserve** | | **QF Conversion** | **Energy Only** | **PDR** | | **Solar** | | **Wind** | | | **Solar/Wind less than 10MW** | | **Battery** | **Hybrid Resource** |
| Governor Speed Dead Band (mHz) | X | X | | X | | X | | X | |  | | X | | X | X | | X | | X | |

Reason Requesting: Clarity

Request Priority: Normal

Category Type: A

CAISO Response: Updated BPM as suggested.

**CDWR Comment 5**

Existing BPM Language: Page 105

14.1.12 Governor Droop Setting

Definition

Droop is the amount of speed (or frequency) change that is necessary to cause the main prime mover control mechanism to move from fully closed to fully open. A governor tuned with speed droop will open its control valve specified amount for a given frequency deviation. It is the change in steady state rotor speed, expressed in percent of rated speed, when power output is gradually reduced from rated to zero power. Applicable droop settings are set forth in CAISO tariff section 4.6.5.1 and in resources’ interconnection agreements.

Proposed Revision to Above Language:

14.1.12 Governor Droop Setting

Definition

Droop is the amount of speed (or frequency) change that is necessary to cause the main prime mover control mechanism to move from fully closed to fully open. A governor tuned with speed droop will open its control valve a specified amount for a given frequency deviation. It is the change in steady state rotor speed, expressed in percent of rated speed, when power output is gradually reduced from rated to zero power. Applicable droop settings are set forth in CAISO tariff section 4.6.5.1 and in resources’ interconnection agreements.

Note: Include the unit of the expected valve opening to add more clarity. Eg. a specified amount (%)

CAISO Response: Updated BPM as shown below.

14.1.12 Governor Droop Setting

Definition

Droop is the amount of speed (or frequency) change that is necessary to cause the main prime mover control mechanism to move from fully closed to fully open. A governor tuned with speed droop will open its control valve proportional ~~specified amount for a given~~ to frequency deviations. It is the change in steady state rotor speed, expressed in percent of rated speed, when power output is gradually reduced from rated to zero power. Applicable droop settings are set forth in CAISO tariff section 4.6.5.1 and in resources’ interconnection agreements.

Reason Requesting: Clarity

Request Priority: Normal

Category Type: A

**CDWR Comment 6**

Existing BPM Language: page 105

14.1.12 Governor Droop Setting

Definition

Droop is the amount of speed (or frequency) change that is necessary to cause the main prime mover control mechanism to move from fully closed to fully open. A governor tuned with speed droop will open its control valve a specified amount for a given frequency deviation. It is the change in steady state rotor speed, expressed in percent of rated speed, when power output is gradually reduced from rated power to zero power. Applicable droop settings are set forth in CAISO tariff section 4.6.5.1 and in resources’ interconnection agreements.

Proposed Revision to Above Language:

14.1.12 Governor Droop Setting

Definition

Droop is the amount of speed (or frequency) change that is necessary to cause the main prime mover control mechanism to move from fully closed to fully open. A governor tuned with speed droop will open its control valve a specified amount for a given frequency deviation. It is the change in steady state rotor speed, expressed in percent of rated speed, when power output is gradually reduced from rated power to zero power. Applicable droop settings are set forth in CAISO tariff section 4.6.5.1 and in resources’ interconnection agreements.

CAISO Response: Updated BPM as suggested.

Reason Requesting: Clarity

Request Priority: Normal

Category Type: A

**CDWR Comment 7**

Existing BPM Language: Page 105

14.1.12 Governor Droop Setting

…

Droop settings can be provided by the resource manufacturer or plant controller based on tested results. Direct telemetry will reflect any dynamic change in droop setting based on different constraints and types of resources. Data representation for 5% Droop should be 0.05.

Proposed Revision to Above Language:

14.1.12 Governor Droop Setting

…

Droop settings can be provided by the resource manufacturer or plant controller based on tested results. Direct telemetry will reflect any dynamic change in droop setting based on different constraints and types of resources. Data representation for 5% Droop should be 0.05.

Note: should add more explanation of CAISO requirements and not just how 5% means 0.05 in decimal value which is not clear whether it is the expected requirement or whether it is just stating the mathematical fact.

Should state the specific requirements listed by the Tariff Section 4.6.5.1:

"No higher than 4 percent droop for combustion turbines and 5 percent droop for other technology types".

For example, the following section 14.1.13 Governor Dead band states the not to exceed Hz limits from CAISO Tariff for clarity.

Reason Requesting: Clarity

Request Priority: Normal

Category Type: B

**CAISO Response: Since the tariff section is referenced, additional details are not repeated again in BPM.**

**CDWR Comment 8**

Existing BPM Language: Page 105

14.1.13 Governor Dead band

Definition

The range of deviations of system frequency (+/-) that produces no turbine Governor response, and therefore, no frequency (speed) regulation. Dead band settings should not be exceed +/- 0.036 Hz (59.964 Hz to 60.036 Hz).

Proposed Revision to Above Language:

14.1.13 Governor Dead band

Definition

The range of deviations of system frequency (+/-) that produces no turbine Governor response, and therefore, no frequency (speed) regulation. Dead band settings should not ~~be~~ exceed +/- 0.036 Hz (59.964 Hz to 60.036 Hz).

Reason Requesting: Clarity

Request Priority: Normal

Category Type: A

CAISO Response: Updated BPM as suggested.

**CDWR Comment 9**

Existing BPM Language: Page 105

14.1.13 Governor Dead band

…

Method of providing this value:

Direct telemetry from the plant controller. Data representation should be in Hz (Example: 0.036 Hz for for 36 millihertz

Proposed Revision to Above Language:

14.1.13 Governor Dead band

…

Method of providing this value:

Direct telemetry from the plant controller. Data representation should be in Hz (Example: 0.036 Hz for ~~for~~ 36 millihertz

Reason Requesting: Clarity

Request Priority: Normal

Category Type: A

CAISO Response: Updated BPM as suggested.

**CDWR Comment 10**

Existing BPM Language:

14.1.14 Operating Ramp Rates

Definition

The rate, expressed in megawatts per minute, that a generator changes its output. The maximum ramp rate of a resource should be reflected in the Master File.

Proposed Revision to Above Language:

14.1.14 Operating Ramp Rates

Definition

The rate, expressed in megawatts per minute, that a generator changes its output. The maximum ramp rate of a resource should be reflected in the Master File.

Note: Should also state in the definition section that "Operating Ramp Rates refer to both "Ramp Up" and "Ramp Down" rates of the Unit/Generator and that both values need to be reported to CAISO.

Reason Requesting: Clarity

Request Priority: Normal

Category Type: A

CAISO Response: Ramp rate at any instance of time will be either Ramp up rate or ramp down rate. Ramp rate should be the instanteonous value.