

Appendix A – Performance Standards for Ancillary Services

A.1 REGULATION

- A.1.1 The *market participant* for a *registered facility* providing *regulation* shall ensure that all monitoring and control information required to be provided pursuant to section A.1.2 is provided by the *registered facility*.
- A.1.2 The telemetering between the *PSO's* Energy Management System and a *registered facility* providing *regulation* shall indicate the gross power output of the *registered facility* and whether the *generating unit(s)* within the *registered facility* are:
- A.1.2.1 *synchronised* with the *transmission system*; and
- A.1.2.2 selected to be on *AGC*.
- A.1.3 A *registered facility* providing *regulation* must conform with the maximum response period specified in section A.1.5 for the full amount of *regulation* capacity offered.
- A.1.4 A *registered facility* providing *regulation* must be able to increase its output in, at most, the period specified in section A.1.5, up to the maximum output specified in the most recent *standing capability data* submitted on behalf of the *registered facility* in accordance with section 4.4 of this Chapter and must be able to decrease its output in, at most, the period specified in section A.1.5 down to the minimum output specified in the most recent *standing capability data* submitted on behalf of the *registered facility* in accordance with section 4.4 of this Chapter.
- A.1.5 The maximum response period when increasing or decreasing output referred to in sections A.1.3 and A.1.4 shall be 60 seconds.

A.2 RESERVE

- A.2.1 The *PSO* shall maintain three classes of *reserve*; namely primary *reserve*, secondary *reserve* and contingency *reserve*.
- A.2.2 Each *registered facility* offering primary *reserve* shall be capable of achieving its scheduled MW response *automatically* without further instruction from the *PSO* within 8 seconds of being triggered by any *contingency event*, and shall be able to maintain its scheduled MW response for not less than 30 seconds.
- A.2.3 Each *registered facility* offering secondary *reserve* shall be capable of achieving its scheduled MW response *automatically* without further instruction from the *PSO* within 30 seconds of being triggered by any *contingency event*, and shall be able to maintain its scheduled MW response for not less than 10 minutes.
- A.2.4 Each *registered facility* offering contingency *reserve* shall be capable of achieving its scheduled MW response within 10 minutes of being instructed to do so, and shall be able to maintain its scheduled MW response for not less than 30 minutes.

A.3 REACTIVE SUPPORT AND VOLTAGE CONTROL – GENERATION FACILITIES

- A.3.1 All *generation registered facilities* providing *reactive support service* and *voltage control service* must be capable of meeting the requirements of this section A.3.
- A.3.2 Subject to section A.3.6, automatic voltage regulators (“AVRs”) shall be in service and in automatic mode unless the *generation registered facility* is specifically directed by the *PSO* to operate the AVRs in manual mode.
- A.3.3 Subject to section A.3.4, *generation registered facilities* providing *reactive support service* and *voltage control service* shall be operated within the standard power factor range in accordance with the *transmission code*.
- A.3.4 The *PSO* may direct a *generation registered facility* providing *reactive support service* and *voltage control service* to operate in an under- or over-excited state for a certain period of time in order to maintain prescribed voltages on the *PSO controlled system*. Such direction may require such *registered facility* to operate in the compensation mode or to reduce real power output in order to increase its ability to provide reactive power.
- A.3.5 Unless otherwise specified by the *PSO*, each *generation registered facility* providing *reactive support service* and *voltage control service* shall respond to voltage or reactive power schedules immediately following receipt of the *PSO’s* request. Where such *registered facility* cannot be operated as directed by the *PSO*, the *dispatch coordinator* for the *registered facility* shall immediately so notify the *PSO* and shall indicate the reasons for such non-compliance.
- A.3.6 Each *generation registered facility* providing *reactive support service* and *voltage control service* shall:
- A.3.6.1 notify the *PSO* immediately upon the AVR at its *generation registered facility* being forced out of service; or
- A.3.6.2 prior to the AVR being removed from its *generation registered facility* for planned maintenance in accordance with section 7 of this Chapter.

- A.3.7 Following a *contingency event*, each *generation registered facility* shall respond *automatically* without further instruction from the *PSO* to provide or absorb reactive power in accordance with the established maximum and minimum reactive power capabilities of such *registered facility*. Each *dispatch coordinator* shall immediately notify the *PSO* whenever its *generation registered facility* cannot perform to the established maximum and minimum reactive power capabilities of such *registered facility*.

A.4 REACTIVE SUPPORT AND VOLTAGE CONTROL – NON-GENERATION FACILITIES

- A.4.1 Except for *forced outages* and *planned outages* co-ordinated with the *PSO* pursuant to these *market rules*, the *transmission licensee* shall keep its transmission assets in service at all times unless released from service by the *PSO* or directed by the *PSO* to be removed from service pursuant to section A.4.2.
- A.4.2 The *PSO* may direct the *transmission licensee* to remove transmission assets from service to the extent necessary to maintain *reactive support* and *voltage control*.
- A.4.3 The *transmission licensee* and each *market participant* for a *load facility connected to the PSO controlled system* providing *reactive support service* and *voltage control service* shall respond immediately following receipt of a direction from the *PSO* with respect to directions concerning, but not limited to, static capacitors, static VAR compensators and reactors. Each such provider of *reactive support service* and *voltage control service* shall immediately notify the *PSO*, with reasons, whenever the devices referred to in this section A.4.3 cannot be switched in accordance with the *PSO's* direction.

A.5 BLACK START

- A.5.1 *A registered facility, or registered facilities, providing black start capability must be available as specified in its ancillary service contract for black start capability.*
- A.5.2 *A registered facility, or registered facilities, providing black start capability must provide in its ancillary service contract sufficient MWs and MVARs to:*
- A.5.2.1 *energise the specified transmission path within the applicable time period specified in its ancillary service contract for black start capability;*
 - A.5.2.2 *provide energy requirements along such transmission path, including the requirements of any load connected to the transmission path; and*
 - A.5.2.3 *provide start-up power to the nearest generating facility - as specified in its ancillary service contract for black start capability.*
- A.5.3 *A registered facility, or registered facilities, providing black start capability must maintain voltage within emergency voltage limits over a range of loading from no external load to full external load in accordance with all applicable reliability standards.*
- A.5.4 *A registered facility, or registered facilities, providing black start capability must be equipped with governors that are capable of operating in an islanded mode.*
- A.5.5 *Except during outages approved by the PSO pursuant to section 7 of this Chapter, a registered facility or registered facilities providing black start capability must provide black start capability regardless of the operating status of such facility or facilities prior to a blackout.*
- A.5.6 *A registered facility, or registered facilities, providing black start capability must provide startup power for the period of time it takes to switch the applicable transmission path specified in section A.5.2.1 into service and to complete the start-up process at the nearest generating facility as specified in its ancillary service contract for black start capability.*

- A.5.7 *A registered facility or registered facilities providing black start capability must be able to complete such number of successive starts within such period of time as may be specified in its ancillary service contract for black start capability.*
- A.5.8 *A registered facility, or registered facilities, providing black start capability must produce the range of reactive power resources required by the PSO controlled system as specified in the system operation manual.*
- A.5.9 *A registered facility, or registered facilities, providing black start capability must participate in the training activities and restoration drills referred to in sections 12.3.6.1 and 12.3.6.2, respectively, of this Chapter.*

A.6 FAST START

- A.6.1 *A registered facility, or registered facilities, providing fast start capability must be available as specified in its ancillary service contract for fast start capability.*

A.7 RELIABILITY MUST-RUN

- A.7.1 *A registered facility, or registered facilities, providing reliability must-run service must be available as specified in its ancillary service contract for reliability must-run service.*