

4. REQUIRED FREQUENCY STANDARD FOR CONNECTING ALINTA

Based on the plant characteristics, the required standard to enable CCGT's to be connected in Tasmania is *proposed as* in table 4-1. The table also presents the aspects of the standard which need to be changed (shown as bold) and the corresponding values from current standards are shown within brackets.

Condition	Containment	Stabilisation	Recovery
Interconnected Operation			
No contingency or load event	49.75 to 50.25 Hz, 49.85 to 50.15 Hz 99% of the time	49.85 to 50.15 Hz within 5 minutes	
Load event	49.0 to 51.0 Hz	49.85 to 50.15 Hz within 10 minutes	
Generation event	48.0 to 51.0 Hz (47.5 to 51.0 Hz)	49.85 to 50.15 Hz within 5 minutes	
Network event	48.0 to 52.0 Hz (47.5 to 53.0 Hz)	49.0 to 51.0 Hz within 1 min	49.85 to 50.15 Hz within 5 min
Separation event	47.0 to 55.0 Hz (46.0 to 55.0 Hz) With thermal units allowed to trip at 52 Hz	48.0 to 51.0 Hz within 2 min (47.0 to 51.0) Hz	49.85 to 50.15 Hz within 10 min
Multiple contingency event	47.0 to 55.0 Hz (46.0 to 55.0 Hz) With thermal units allowed to trip at 52 Hz	48.0 Hz to 51.0 Hz within 2 min	49.85 to 50.15 Hz within 10 min
Islanded Operation			
No contingency or load event	49.0 51.0 Hz		
Load event	49.0 to 51.0 Hz	49.0 to 51.0 Hz within 10 min	
Generation event	48.0 to 51.0 Hz (47.5 to 51.0 Hz)	49.0 to 51.0 Hz within 5 min	
Network event	48.0 to 52.0 Hz (47.5 to 53.0 Hz)	49.0 to 51.0 Hz within 1 min	49.85 to 50.15 Hz within 5 min
Separation event	47.0 to 55.0 Hz (46.0 to 60.0 Hz) With thermal units allowed to trip at 52 Hz	48.0 Hz to 51.0 Hz within 2 min	49.85 to 50.15 Hz within 10 min
Multiple contingency event	47.0 to 55 Hz (46.0 to 55.0 Hz) With thermal units allowed to trip at 52 Hz	48.0 Hz to 51.0 Hz within 2 min	49.85 to 50.15 Hz within 10 min

Table 4-4-1 Proposed Frequency Standard for connecting CCGT

Note: Changes from the current Tasmanian standards are shown in bold letters. (Current Tasmanian standards are shown within brackets)

It can be seen from the Table 4.1 that the changes are mainly in the containment band and one change in the stabilisation band. The changes are:

- *Generator event* – the lower frequency limit in the containment band is required to be changed to **48 Hz** from the current standard of 47.5 Hz for interconnected operation and islanded

operation. Also in the stabilisation band the lower frequency limit is changed to **48 Hz** from 47.5 Hz. Thus 0.5 Hz increase in the bottom frequency for a generator event will be required.

- *Network event* – the containment band is changed to **48.0 Hz to 52.0 Hz** from the current standard of 47.5 Hz to 53.0 Hz. Under network event the lower frequency need to be increased by 0.5 Hz, while the upper frequency needs to be lowered by 1 Hz.
- *Separation event and multiple contingency events* – the containment band is required to be changed to **47 Hz to 55 Hz** from the current standard of 46.0 Hz to 55.0 Hz. This is based on the assumption that thermal plant can be added to the OFGSS to trip at 52 Hz. If this is not possible under the NER, setting an upper end to these bands will be very difficult. (See later).