GENERATOR DEVELOPMENT APPROVAL PROCEDURE

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Office of the Technical Regulator

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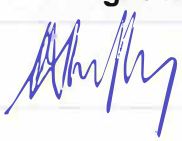
Title	Name	Date Signed	Signature
Technical Regulator	R. Faunt	3/02/2026	

Endorsed by

Title	Name	Date Signed	Signature
Deputy Chief executive	V. Duffy	18/2/26	

Revision History

Revision Version	Revision Date	Summary of Change	Author
1	28/06/2017	Approved	D. Bosnakis
1.1	6/07/2017	Clarifications made to 'Approval Process' and 'Technical Conditions'	D. Bosnakis
1.2	3/5/2021	OTR contact telephone number updated	M. Burns
1.3	19/6/2024	Additional fast frequency response requirements and notes on the application process	M. Burns
1.4	16/6/2025	Inclusion of the Hydrogen and Renewable Energy Act 2023 requirements	M. Burns
1.5	3/1/2026	Inertia requirement update	M. Burns

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OBJECTIVE

The objective of this document is to provide guidance on the Office of the Technical Regulator's (OTR) technical requirements Generators must meet to be granted an opportunity to seek Development Approval, or a licence under the Hydrogen and Renewable Energy Act 2023 (HRE Act) for renewable energy and energy storage systems.

These requirements are subject to change at any time, and it is necessary that the applicant consult with the OTR and obtain the relevant approval certificate before lodging an application for a Development Approval or HRE Act licence.

Note that this approval does not grant the applicant a Generator Licence through ESCOSA. This approval is provisional for the purpose of the Development Act and HRE Act, and proponents will require a Generator Licence from ESCOSA and negotiate through AEMO if required.

The OTR will consider negotiation on the Technical Conditions listed on this document by an applicant should the proponent be able to demonstrate that their proposal contributes towards providing power system security and reliability. This could include operational regimes or emerging technologies.

This document also contains a section providing guidance regarding the Application Process.

TECHNICAL CONDITIONS

Following technical conditions are to be met.

Inertia / Fast Frequency Response

This requirement states that the Generator shall provide either Real Inertia (real physical inertia provided by a synchronous system) OR Fast Frequency Response (FFR) as stipulated below.

1. The Generator shall provide 2.55 MW.s of real inertia per MVA installed capacity (2.74 MW.s of real inertia per MW of installed capacity). This inertia only needs to be provided into the network whilst the unit is generating supply. However, the full amount of inertia must be provided even if the unit is generating less electrical supply than its name-plate capacity.
2. Where a proposed generator does not meet the minimum inertia requirement as stated above, the shortfall may be subject to negotiation if the generator is equipped with a clutch mechanism that allows the machine to operate in synchronous condenser mode. Such configurations will be assessed on a case by case basis in consultation with the OTR.
3. The Generator has the option of trading-off inertia with FFR, should it wish to provide FFR rather than mechanical inertia.

   FFR required at a 250ms response time is:

   Generator MW output x 5.49 MW.s (inertia on MW base) x 0.086 MW/MW.s, or
   Generator MVA output x 5.11 MW.s (inertia on MVA base) x 0.086 MW/MW.s.

   FFR required at a 150ms response time is:

   Generator MW output x 5.49 MW.s (inertia on MW base) x 0.057 MW/MW.s, or
   Generator MVA output x 5.11 MW.s (inertia on MVA base) x 0.057 MW/MW.s.

   The response time is considered as the time taken to commence delivery of the FFR i.e., the technology shall be capable of commencing injecting (or absorbing) the required MW in <250ms or <150ms.

4. The Generator has the option of providing a combination of inertia and FFR to meet the requirements above. For example, if the chosen Generation Plant only provides 75% off the inertia requirement in dot point 1 (i.e. has an inertia constant of 1.91 MW.s/MVA), the remaining 25% output can be provided via FFR:

   0.25 x Generator MW output x 5.49 MW.s x 0.086 MW/MW.s (or 0.057 MW/MW.s where applicable), or

   0.25 x Generator MVA output x 5.11 MW.s x 0.086 MW/MW.s (or 0.057 MW/MW.s where applicable).

Substation / Connection Point

It is preferred that the Generator is connected to the network via a switched connection (breaker and half connection). If the proponent wishes to provide a different solution at the connection point, they must demonstrate to the Network Service Provider that their solution is not detracting resilience on that part of the network.

The FFR or inertia solution shall be at the same geographical location as the proposed generator, this should be reflected in the Development Approval or HRE Act licence application. Where the FFR or inertia solution is not proposed to be at the same geographical location as the proposed generator, the OTR will only consider a FFR or inertia solution that is in operational service, under construction or where the Technical Regulator is ultimately satisfied that the FFR or inertia solution will be constructed.

ESCOSA Licencing Conditions

The Essential Services Commission of South Australia's (ESCOSA) current Generator Licencing conditions must be met. The proponent must initially confirm in their submission to the OTR that they will achieve these licencing requirements (or as negotiated with ESCOSA). At a later stage, the proponent must show evidence that these conditions have been met through their Safety, Reliability, Maintenance, and Technical Management Plan (SRMTMP). This process is explained in more detail in the 'Application Process' section of this document.

APPLICATION PROCESS

The Proponent must provide a statement to the OTR outlining their proposal and provide confirmation that they will meet the Technical Conditions listed in this document. This statement needs to be provided directly to the OTR prior to lodging their Development Application to the Development Assessment Commission (DAC), or licence application under the HRE Act as relevant. The statement to the OTR can also be lodged via their application for Crown Sponsorship. The relevant department will then forward this statement to the OTR and will only provide sponsorship should the OTR provide their approval certificate. Note if the certificate is granted at the Crown Sponsorship stage, the Proponent does not need to re-apply to the OTR at prior to the Development Application stage.

The Development Approval or HRE Act licence application should reflect the technical conditions on which the OTR certificate is issued. Were the OTR of the opinion that the Development Approval or HRE Act licence application is not compliant with the OTR requirements, this may have an impact on the outcome of the application.

After Development Application approval or HRE Act licence grant, the Proponent must apply for a Generation Licence through ESCOSA prior to energisation. Once granted a licence, the proponent is required to submit a Safety, Reliability, Maintenance and Technical Management Plan (SRMTMP) to the OTR on an annual basis. The proponent must validate through their SRMTMP that they have achieved the OTR's and the ESCOSA's licence's technical conditions and show evidence of this in their SRMTMP submission.

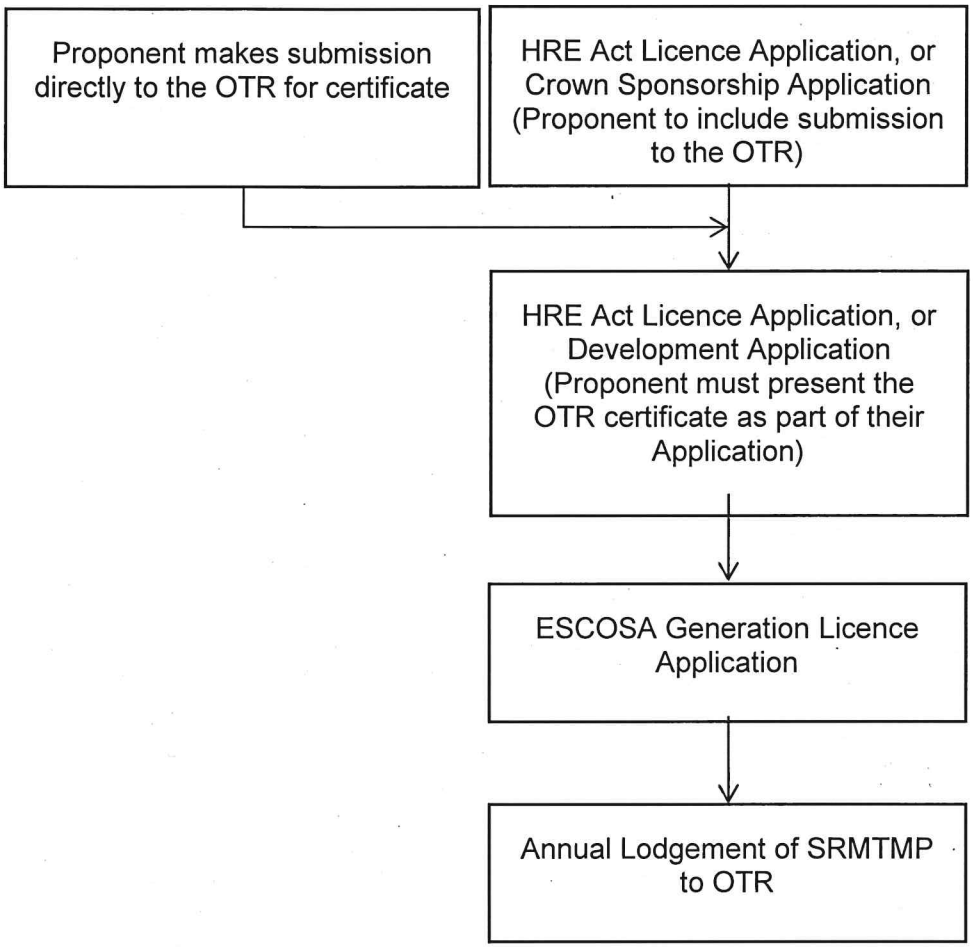

Figure 1: Application Process Stages

CONTACT

The OTR can be contacted regarding any queries regarding the Application Process or Technical Conditions via email generatorapplications@sa.gov.au or phone +61 8 8226 5667.