

PLANNING STANDARDS & CRITERIA

Alinta Energy

Effective to 30 June 2024

TABLE OF CONTENTS

PURPOSE 2
APPLIES TO 2
EFFECTIVE PERIOD 2
OTHER RELEVANT POLICIES 2
CONFIDENTIALITY 3
ADEWAP NETWORK PLANNING CRITERIA 3
  POWER QUALITY 3
  PLANNING LEVEL 3
  PLANNING LEVEL LIMITS 4
  GENERATOR PERFORMANCE SETTINGS 4
ADEWAP NETWORK PLANNING PHILOSOPHY 4
  APPLICATION 4
  TRANSMISSION SYSTEM 4
  N-0 CRITERION 4
  N-1 CRITERION 5

Please contact us for more information on ADEWAP's services:

Email: NWISnetworkaccessenquiries@alintaenergy.com.au
Level 18 Raine Square 300 Murray Street, Perth WA 6000
PO Box 8348, Perth BC WA 6849
www.adewap.com.au

PURPOSE

This policy is Alinta Duke Energy WA Power Pty Ltd's ("ADEWAP") Planning Standards prepared in accordance with the Pilbara Network Access Code ("PNAC"), the Pilbara Network Rules ("PNR") and the Harmonised Technical Rules ("HTR"). This policy forms part of the Network Development Policy requirements outlined at section 41 (1) of the PNAC and sets out the ADEWAP Network Planning Criteria. The Network Development Policy requires:

41 (1) (a) information regarding, and setting benchmarks for, network planning and the technical standard and reliability of delivered electricity and which must be:

…

(iv) consistent with good electricity industry practice; and

(v) sufficiently detailed and complete to enable an applicant or user to determine the value represented by a particular reference service when considered together with the other information published by the NSP under this Chapter 4.

This policy also meets the requirements of 2.5 of the HTR which is as follows:

2.5 Transmission and Distribution System Planning Criteria

(a) In NSP must develop, maintain and from time to time review, and may from time to time amend, planning criteria for its network ("network planning criteria").

(b) An NSP's network planning criteria must:

a comply with GEIP and these rules;

b seek to be consistent with the overall objective of (at least) maintaining security and reliability within its network and across the power system;

c for a covered Pilbara network:

i be consistent with the Pilbara electricity objective; and

ii so far as practicable consistent with the balance of this clause 2.5(b), seek to accommodate access seekers', network users' and consumers' reasonable requirements regarding the connection of loads or generation.

The Purpose of the ADEWAP Network Planning Criteria is to ensure a balance between providing safe, secure and reliable quality of electricity supply at the lowest possible cost.

APPLIES TO

Applicants or Users of the ADEWAP network in the Pilbara, as defined by the System Description.

EFFECTIVE PERIOD

This Policy applies from 1 July 2021.

OTHER RELEVANT POLICIES

The Queueing Policy should be read in conjunction with the ADEWAP System Description.

CONFIDENTIALITY

ADEWAP respects the confidentiality associated with prospective network connections in accordance with section 78 of the PNAC.

ADEWAP NETWORK PLANNING CRITERIA

The ADEWAP Network Planning Criteria (Alinta NPC) sets out the:

- planning criteria used by ADEWAP for achieving and maintaining security and reliability on the ADEWAP network, which
- applies to network users and connection applicants on the ADEWAP network; and
- defines the technical performance standards and characteristics of reliability for electricity delivered by a Reference Service(s) on the ADEWAP network.

Connection applicants and users should note that ADEWAP's other network policies and standards, including the ADEWAP Contributions Policy, may also apply depending on the network access requirements.

The information below refers to those sections of the HTR which define the power quality and technical standards of the Alinta NPC, and which are applicable to network access on the ADEWAP network.

POWER QUALITY

The power quality and network performance requirements on the ADEWAP network are to be maintained as follows:

1. Frequency – the Alinta NPC requires power system frequency to be maintained to within the technical envelopes defined at section 2.2.1 of the HTR "Frequency Variations".

2. Voltage – the Alinta NPC requires power system voltage to be maintained to within the technical envelopes defined at section 2.2.2 of the HTR "Steady State Power Frequency Voltage".

3. Flicker – the Alinta NPC requires power system flicker to be maintained to the limits set within section 2.2.3 of the HTR "Flicker".

PLANNING LEVEL

The planning levels for the ADEWAP network comply with the following standards:

1. Short Term Voltage Stability – section 2.2.9 of the HTR provide the Short Term Voltage Stability requirements of the Alinta NPC.

2. Long Term Voltage Stability – section 2.2.11 of the HTR provide the Long Term Voltage Stability requirements of the Alinta NPC.

3. Negative Phase Sequence – protection level settings on the Alinta NPC are to comply with the settings provided at section 2.2.5 of the HTR "Negative Phase Sequence".

Planning Level Limits

The planning level limits for the ADEWAP network are as follows:

1. Harmonics – the Alinta NPC requires power system harmonics to comply with the emissions limits defined within section 2.2.4 of the HTR "Harmonics".

2. Electromagnetic Interference – the Alinta NPC requires power system electromagnetic interference to comply to the interference limitations defined within section 2.2.6 of the HTR "Electromagnetic Interference".

3. HTR section 2.2.10 – Temporary Over-Voltages (planning level limits).

Generator Performance Settings

The specific generator performance settings of the Alinta NPC for the ADEWAP network are listed below:

1. Transient Rotor Angle Stability – section 2.2.7 of the HTR provide the generator performance settings relevant to Transient Rotor Angle Stability as required by the Alinta NPC.

2. Oscillatory Rotor Angle Stability – section 2.2.8 of the HTR provide the generator performance settings relevant to Oscillatory Rotor Angle Stability as required by the Alinta NPC.

ADEWAP Network Planning Philosophy

Application

The planning criteria in this section applies only to ADEWAP's 66kV Transmission Network and not to connection assets. ADEWAP will design connection assets in accordance with a user's requirement and the relevant requirements described in Section 3 (Technical Requirement of User Facilities) of the HTR.

Transmission System

ADEWAP seeks to achieve a transmission network redundancy standard of n-1 to network access on the ADEWAP network. In simple terms an n-1 level of network redundancy means that the loss of any one component of the network will not result in the loss of power supply to network users.

While the Alinta NPC applies a network redundancy standard of n-1 as the network planning default, an n-0 standard may be applied in scenarios where this is deemed appropriate. The deeming of an n-0 standard as the appropriate level of network redundancy is determined by ADEWAP (in its capacity as Network Service Provider) in consultation with the relevant user(s) of the ADEWAP Network, provided that (as a minimum) the network can maintain the steady state power system performance standards as defined by the HTR.

N-0 Criterion

a) A sub-network of the transmission system designed to the n-0 criterion will experience an inability to transfer power into an area supplied by that sub-network upon the loss of a transmission element. Following such an event, this power transfer capability will not be restored until the transmission element has been repaired, replaced or restored.

b) For a sub-network designed to the n-0 planning criteria, ADEWAP will use best endeavours to transfer load to other parts of the network to the extent that this is possible, and if spare power transfer capacity is available. Load shedding is permissible should sufficient back-up power transfer capacity not exist. Such load shedding will take place in accordance with each user's network access rights.

N-1 CRITERION

a) Any sub-network of the transmission system that is not identified as being designed to the n-0 criterion must be designed to the n-1 planning criterion

b) For sub-networks of the transmission system designed to the n-1 criterion, supply must be maintained, and load shedding avoided at any load level and for any generation schedule following an outage of any single transmission element. This excludes instances where operational restrictions have been agreed between ADEWAP and a user pursuant to clause 3.1(b) of the HTR.

c) Following the loss of the transmission element, the power system must continue to operate in accordance with the power system performance standards specified in section 2.2 of the HTR, except for the HPS-TIG 66kV Transmission Line Tee off that shall operate in accordance with the power system performance standard within 30mins of the loss of this interconnection.

d) Notwithstanding the requirements subclauses n-1 Criterion (b) and n-1 Criterion (c), where the failed transmission element is a zone substation supply transformer, supply may be lost for a brief switching period while loads are transferred to un-faulted supply transformers by means of transmission system switching.