

## **CHAPTER 9**

# Committed, current and recently commissioned network developments

### 9.1 Transmission network

## 9 Committed, current and recently commissioned network developments

### Key highlights

- During 2019/20, Powerlink's efforts have continued to be predominantly directed towards reinvestment in transmission lines and substations across Powerlink's network.
- Powerlink's investment program is focussed on reducing the identified risks arising from assets reaching the end of technical service life and maintaining network resilience while continuing to deliver safe, reliable and cost efficient transmission services to our customers.
- A major project for Powerlink completed since publication of the 2019 Transmission Annual Planning Report (TAPR) has been the rebuild of Dysart Substation which is critical to transporting power to the Dysart township, neighbouring communities, industry and the regional rail network in Central Queensland (CQ).
- While there are no concerns regarding the reliability of power supply, the delivery of Powerlink's regulated program of work, which is currently in progress, has been impacted by the restrictions related to COVID-19.
- Powerlink continues to support the development of all types of energy projects requiring connection to the transmission network in Queensland.

### 9.1 Transmission network

Powerlink Queensland's network traverses 1,700km from north of Cairns to the New South Wales (NSW) border. The Queensland transmission network comprises transmission lines constructed and operated at 330kV, 275kV, 132kV and 110kV. The 275kV transmission network connects Cairns in the north to Mudgeeraba in the south, with 110kV and 132kV systems providing transmission in local zones and providing support to the 275kV network. A 330kV network connects the NSW transmission network to Powerlink's 275kV network at Braemar and Middle Ridge substations.

A geographic representation of Powerlink's transmission network is shown in Figure 9.1.

While there are no concerns regarding the reliability of power supply, there have been impacts on Powerlink's regulated program of work given the restrictions related to COVID-19. The 2020 TAPR provides best information available at the time of publication with regard to the proposed commissioning dates of network reinvestment projects in progress which will be further updated in the 2021 TAPR.

There have been no transmission network developments commissioned or network assets retired<sup>1</sup> since Powerlink's 2019 TAPR was published.

There have been no connection works commissioned since Powerlink's 2019 TAPR was published.

Table 9.1 lists new transmission connection works for supplying loads which are committed and under construction at October 2020. These connection projects resulted from agreement reached with relevant connected customers, generators or Distribution Network Service Providers (DNSPs) as applicable.

Table 9.2 lists network reinvestments commissioned since Powerlink's 2019 TAPR was published.

Table 9.3 lists network reinvestments which are committed at October 2020.

Table 9.4 lists network reinvestments which have recently undergone the Regulatory Investment Test for Transmission (RIT-T) or similar process and are not fully committed at October 2020.

Table 9.5 lists asset retirement works at October 2020.

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<sup>1</sup> Operational works, such as asset retirements, do not form part of Powerlink's capital expenditure budget.

**Table 9.1** Committed and under construction connection works at October 2020

Project (1)	Purpose	Zone location	Proposed commissioning date
Gangarri Solar Farm	New solar farm	Surat	Quarter 1 2021
Coopers Gap Wind Farm	New wind farm	South West	Quarter 4 2020 (2)

Notes:

- (1) When Powerlink constructs a new line or substation as a non-regulated customer connection (e.g. generator, renewable generator, mine or industrial development), the costs of acquiring easements, constructing and operating the transmission line and/or are paid for by the company making the connection request
- (2) Powerlink's scope of works for this project has been completed. Remaining works associated with generation connection are being coordinated with the customer.

**Table 9.2** Commissioned network reinvestments since June 2019

Project	Purpose	Zone	Date commissioned
Garbutt transformers replacement	Maintain supply reliability in the Ross zone (1)	Ross	July 2019
Line refit works on the 132kV transmission line between Collinsville North and Proserpine substations	Maintain supply reliability to Proserpine	North	July 2020
Dysart Substation replacement	Maintain supply reliability in the Central West zone (1)	Central West	September 2019
Rocklea secondary systems replacement	Maintain supply reliability in the Moreton zone	Moreton	July 2020

Notes:

- (1) Project identified under the RIT-T transitional arrangements in place for committed projects between 18 September 2017 and 30 January 2018.

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**Table 9.3** Committed network reinvestments at October 2020

Project	Purpose	Zone	Proposed commissioning date
Woree secondary systems replacement	Maintain supply reliability in the Far North zone (1)	Far North	December 2022
Woree SVC secondary systems replacement	Maintain supply reliability in the Far North zone (1)	Far North	December 2022
Kamerunga 132kV Substation replacement	Maintain supply reliability in the Far North zone (1)	Far North	December 2024
Ingham South 132/66kV transformers replacement	Maintain supply reliability in the Ross zone (1)	Ross	August 2021
Line refit works on the 132kV transmission line between Townsville South and Clare South substations	Maintain supply reliability in the Ross zone (1)	Ross	December 2021
Townsville South 132kV primary plant replacement	Maintain supply reliability in the Ross zone (1)	Ross	October 2022
Ross 132kV primary plant replacement	Maintain supply reliability in the Ross zone (1)	Ross	October 2024
Ross 275kV primary plant replacement	Maintain supply reliability in the Ross zone (1)	Ross	October 2024
Kemmis 132/66kV transformer replacement	Maintain supply reliability in the North zone	North	November 2020
Line refit works on the 132kV transmission line between Eton tee and Alligator Creek Substation	Maintain supply reliability in the North zone (2)	North	October 2021
Mackay Substation replacement	Maintain supply reliability in the North zone (6)	North	December 2021
Strathmore 275/132kV transformer establishment	Maintain supply reliability in the North zone (1)	North	December 2021
Nebo primary plant and secondary systems replacement	Maintain supply reliability in the North zone (6)	North	August 2022
Kemmis 132kV secondary systems replacement	Maintain supply reliability in the North zone	North	June 2023
Line refit works on the 132kV transmission line between Egans Hill and Rockhampton Substation	Maintain supply reliability in the Central West zone (1)(6)	Central West	December 2020
Lilyvale 132/66kV transformers replacement	Maintain supply reliability in the Central West zone (6)	Central West	June 2021
Calvale and Callide B secondary systems replacement	Maintain supply reliability in the Central West zone (2)(5)(6)	Central West	June 2021
Calvale 275/132kV transformer reinvestment	Maintain supply reliability in the Central West zone (2)(4)(6)	Central West	June 2021
Moura Substation replacement	Maintain supply reliability in the Central West zone (3)	Central West	December 2021

**Table 9.3** Committed network reinvestments at October 2020 (*continued*)

Project	Purpose	Zone	Proposed commissioning date
Bouldercombe transformer replacement	Maintain supply reliability in the Central West zone (1)	Central West	December 2021
Blackwater 66kV CT & VT replacement	Maintain supply reliability in the Central West zone	Central West	June 2022
Blackwater 132kV transformers replacement	Maintain supply reliability in the Central West zone	Central West	June 2022
Dysart transformer replacement	Maintain supply reliability in the Central West zone (2)	Central West	June 2022
Lilyvale 132/275kV primary plant replacement	Maintain supply reliability in the Central West zone (6)	Central West	October 2022
Bouldercombe primary plant replacement	Maintain supply reliability in the Central West zone (1)	Central West	June 2023
Baralaba secondary systems replacement	Maintain supply reliability in the Central West zone (1)	Central West	December 2023
Wurdong secondary systems replacement	Maintain supply reliability in the Gladstone zone	Gladstone	October 2021
Boyne Island secondary systems replacement	Maintain supply reliability in the Gladstone zone	Gladstone	December 2021
Line refit works on 275kV transmission line between Woolooga and Palmwoods	Maintain supply reliability in the Wide Bay zone (2)	Wide Bay	June 2021
Gin Gin Substation rebuild	Maintain supply reliability in the Wide Bay zone (2)	Wide Bay	December 2021
Tarong secondary systems replacement	Maintain supply reliability in the South West zone (1)(6)	South West	June 2022
Ashgrove West Substation replacement	Maintain supply reliability in the Moreton zone (2)(6)	Moreton	July 2021
Belmont 275kV secondary systems replacement	Maintain supply reliability in the Moreton zone (1)(6)	Moreton	June 2021
Abermain 110kV secondary systems replacement	Maintain supply reliability in the Moreton zone (1)(6)	Moreton	June 2021
Palmwoods 275kV secondary systems replacement	Maintain supply reliability in the Moreton zone (1)(6)	Moreton	July 2021
Line refit works on the 110kV transmission lines between South Pine and Upper Kedron	Maintain supply reliability in the Moreton zone (1)	Moreton	November 2021
Line refit works on the 110kV transmission lines between West Darra and Sumner	Maintain supply reliability in the Moreton zone (1)	Moreton	November 2021
Line refit works on the 110kV transmission lines between Rocklea and Sumner	Maintain supply reliability in the Moreton zone (1)	Moreton	November 2021
Mudgeeraba 275kV secondary systems replacement	Maintain supply reliability in the Gold Coast zone (1)	Gold Coast	December 2021

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### Notes:

- (1) RIT-T project undertaken after the commencement of the Replacement expenditure planning arrangements Rule 2017 No.5.
- (2) Project identified under the RIT-T transitional arrangements in place for committed projects between 18 September 2017 and 30 January 2018.
- (3) Major works were completed in October 2017. Minor works scheduling is being coordinated with Ergon Energy (Energex and Ergon Energy are part of the Energy Queensland Group).
- (4) Approved works were rescoped as part of the Callide A/Calvale 132kV transmission reinvestment, previously named Callide A Substation replacement. Refer to Section 5.7.5.
- (5) The majority of Powerlink's staged works are anticipated for completion by summer 2020/21. Remaining works associated with generation connection will be coordinated with the customer.
- (6) Projects impacted by restrictions related to COVID-19.

**Table 9.4** Uncommitted network reinvestments at October 2020

Project	Purpose	Zone	Proposed commissioning date
Cairns secondary systems replacement	Maintain supply reliability in the Far North zone	Far North	December 2024
Gladstone South secondary systems replacement	Maintain supply reliability in the Gladstone zone	Gladstone	April 2024
QAL West secondary systems replacement	Maintain supply reliability in the Gladstone zone	Gladstone	April 2024
Mt England 275kV secondary systems replacement	Maintain supply reliability in the Moreton zone	Moreton	October 2023

**Table 9.5** Asset retirement works at October 2020 (I)

Project	Purpose	Zone	Proposed retirement date
132kV transmission line retirement between Townsville South and Clare South substations	Removal of assets at the end of technical life in the North zone	North	December 2022
Mudgeeraba No 3 275/110kV transformer retirement	Removal of asset at the end of technical life in the Gold Coast zone	Gold Coast	June 2022

Note:

(I) Operational works, such as asset retirements, do not form part of Powerlink's capital expenditure budget.

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**Figure 9.1** Existing Powerlink Queensland transmission network October 2020

