

CHAPTER 9

Committed, current and recently commissioned network developments

9.1 Transmission network

9 Committed, current and recently commissioned network developments

Key highlights

- During 2018/19, Powerlink's efforts have continued to be predominantly directed towards reinvestment in transmission lines and substations across Powerlink's network.
- Powerlink's reinvestment program is focussed on reducing the identified risks arising from assets reaching the end of technical service life while continuing to deliver safe, reliable and cost efficient transmission services to our customers.
- A major project for Powerlink has been the completion of a secondary systems upgrade at Broadsound Substation which is critical to transporting power generated in central Queensland to communities in northern and western Queensland.
- Powerlink continues to support the development of all types of energy projects requiring connection to the transmission network in Queensland, with numerous connection works enabling variable renewable energy (VRE) generation completed during 2018/19.
- During 2018/19, Powerlink has completed its scope of works for 11 large-scale VRE developments in Queensland, adding 1,423 MW of generation capacity to the grid.¹

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.

There have been no transmission network developments commissioned or network assets retired² since Powerlink's 2018 TAPR was published.

Table 9.1 lists connection works commissioned since Powerlink's 2018 TAPR was published.

Table 9.2 lists new transmission connection works for supplying loads which are committed and under construction at June 2019. These connection projects resulted from agreement reached with relevant connected customers, generators or Distribution Network Service Providers (DNSPs) as applicable.

Table 9.3 lists network reinvestments commissioned since Powerlink's 2018 TAPR was published.

Table 9.4 lists network reinvestments which are committed at June 2019.

¹ Refer to tables 9.1 and 9.2

² Operational works, such as asset retirements, do not form part of Powerlink's capital expenditure budget.

Table 9.1 Commissioned connection works since June 2018

Project (I)	Purpose	Zone location	Date commissioned
Mount Emerald Wind Farm	New wind farm	Far North	Quarter 3 2018
Ross River Solar Farm	New solar farm	Ross	Quarter 3 2018
Haughton Solar Farm	New solar farm	Ross	Quarter 4 2018
Hamilton Solar Farm	New solar farm	North	Quarter 2 2018 (2)
Whitsunday Solar Farm	New solar farm	North	Quarter 2 2018 (2)
Rugby Run Solar Farm	New solar farm	North	Quarter 4 2018
Daydream Solar Farm	New solar farm	North	Quarter 4 2018
Hayman Solar Farm	New solar farm	North	Quarter 4 2018
Lilyvale Solar Farm	New solar farm	Central West	Quarter 1 2019
Darling Downs Solar Farm	New solar farm	Bulli	Quarter 1 2018 (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 substation are paid by the company making the connection request.
- (2) Powerlink's scope of works for this project were completed as noted in Table 9.1. Remaining works associated with generation connection have been coordinated with the customer since publication of the 2018 TAPR.

Table 9.2 Committed and under construction connection works at June 2019

Project (I)	Purpose	Zone location	Proposed commissioning date
Coopers Gap Wind Farm	New wind farm	South West	Quarter 4 2019 (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.

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Table 9.3 Commissioned network reinvestments since June 2018

Project	Purpose	Zone location	Date commissioned
Turkinje secondary systems replacement	Maintain supply reliability in the Far North zone	Far North	November 2018
Tully secondary systems replacement	Maintain supply reliability in the Far North zone	Far North	November 2018
Ross secondary systems replacement	Maintain supply reliability in the Ross zone	Ross	December 2018
Moranbah 132/66kV transformer replacement	Maintain supply reliability in the North zone	North	October 2018
Nebo 275/132kV transformer replacements	Maintain supply reliability in the North zone	North	December 2018
Broadsound secondary systems replacement	Maintain supply reliability in the Central West zone	Central West	January 2019
Stanwell secondary systems replacement	Maintain supply reliability in the Central West zone	Central West	November 2018
Line refit works on 132kV transmission lines between Calliope River and Boyne Island	Maintain supply reliability in the Gladstone zone	Gladstone	November 2018
Tarong 66kV cable replacement	Maintain supply reliability in the South West zone	South West	December 2018
Tennyson secondary systems replacement	Maintain supply reliability in the Moreton zone	Moreton	December 2018

Table 9.4 Committed network reinvestments at June 2019

Project	Purpose	Zone location	Proposed commissioning date
Woree secondary systems replacement	Maintain supply reliability in the Cairns area (1)	Far North	December 2022
Woree SVC secondary systems replacement	Maintain supply reliability in the Cairns area (1)	Far North	December 2022
Garbutt transformers replacement	Maintain supply reliability in the Ross zone (2)	Ross	August 2019
Ingham South 132/66kV transformers replacement	Maintain supply reliability in the Ross zone (1)	Ross	October 2019
Townsville South 132kV primary plant replacement	Maintain supply reliability in the Ross zone (1)	Ross	December 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
Line refit works on the 132kV transmission line between Collinsville North and Proserpine substations	Maintain supply reliability to Proserpine	North	January 2020
Mackay Substation replacement	Maintain supply reliability in the North zone	North	February 2020
Kemmis 132/66kV transformer replacement	Maintain supply reliability in the North zone	North	July 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 2020
Nebo primary plant and secondary systems replacement	Maintain supply reliability in the North zone	North	August 2022
Moura Substation replacement	Maintain supply reliability in the Central West zone (3)	Central West	December 2019
Blackwater 66kV CT & VT replacement	Maintain supply reliability in the Central West zone	Central West	September 2019
Dysart Substation replacement	Maintain supply reliability in the Central West zone (2)	Central West	October 2019
Dysart transformer replacement	Maintain supply reliability in the Central West zone (2)	Central West	October 2019
Calvale 275/132kV transformer reinvestment	Maintain supply reliability in the Central West zone (2)(4)	Central West	June 2020
Baralaba secondary systems replacement	Maintain supply reliability in the Central West zone (1)	Central West	December 2020
Line refit works on the 132kV transmission line between Egans Hill and Rockhampton Substation	Maintain supply reliability in the Central West zone (1)	Central West	December 2020
Bouldercombe primary plant replacement	Maintain supply reliability in the Central West zone (1)	Central West	December 2021

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Table 9.4 Committed network reinvestments at June 2019 (*continued*)

Project	Purpose	Zone location	Proposed commissioning date
Bouldercombe transformer replacement	Maintain supply reliability in the Central West zone (1)	Central West	June 2021
Calvale and Callide B secondary systems replacement	Maintain supply reliability in the Central West zone (2) (5)	Central West	December 2021
Wurdong secondary systems replacement	Maintain supply reliability in the Gladstone zone	Gladstone	September 2019
Boyne Island secondary systems replacement	Maintain supply reliability in the Gladstone zone	Gladstone	September 2019
Line refit works on 275kV transmission line between Woolooga and Palmwoods	Maintain supply reliability in the Wide Bay zone (2)	Wide Bay	October 2020
Gin Gin Substation rebuild	Maintain supply reliability in the Wide Bay zone (2)	Wide Bay	October 2020
Tarong secondary systems replacement	Maintain supply reliability in the South West zone (1)	South West	June 2022
Rocklea secondary systems replacement	Maintain supply reliability in the Moreton zone	Moreton	November 2019
Ashgrove West Substation replacement	Maintain supply reliability in the Moreton zone (2)	Moreton	October 2020
Line refit works on the 110kV transmission lines between South Pine and Upper Kedron	Maintain supply reliability in the Moreton zone (1)	Moreton	December 2020
Line refit works on the 110kV transmission lines between West Darra and Sumner	Maintain supply reliability in the Moreton zone (1)	Moreton	December 2020
Line refit works on the 110kV transmission lines between Rocklea and Sumner	Maintain supply reliability in the Moreton zone (1)	Moreton	December 2020
Belmont 275kV secondary systems replacement	Maintain supply reliability in the Moreton zone (1)	Moreton	December 2020
Abermain 110kV secondary systems replacement	Maintain supply reliability in the Moreton zone (1)	Moreton	June 2021
Palmwoods 275kV secondary systems replacement	Maintain supply reliability in the Moreton zone (1)	Moreton	July 2021

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.

Figure 9.1 Existing Powerlink Queensland transmission network June 2019



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