

Network Capability Incentive Parameter Action Plan (2014-2019)

Project Number	16
Project Priority	15
Transmission Circuit / Injection Point	Farrell Substation
Project	Installation of second 220 kV bus-coupler circuit breaker at Farrell Substation
Scope of works	Purchase and install a second 220 kV bus-coupler dead tank circuit breaker in series with the existing 220 kV bus-coupler circuit breaker
Reasons to undertake the project	Farrell Substation has an outdoor AIS 220 kV switchyard which has a double bus arrangement. The two buses are connected via one only bus-coupler circuit breaker. Failure of this circuit breaker to open under a fault event would result in all circuits connected to both 220 kV buses being tripped. This would interrupt connections to six 220 kV transmission circuits and two 220/110 kV network transformers.
Current value of the limit	Failure of the 220 kV bus-coupler circuit breaker to open under a fault event could trip all 220 kV circuits, causing interruption of supply to west coast load (71 MW) as well as separation of significant West Coast generation (617 MW) from the rest of the network.
Target limit	No interruption to supply (up to 71 MW) or generation (up to 617 MW) caused by failure of a single 220 kV bus coupler circuit breaker
Priority project improvement target	Improve security of supply to all 220 kV connections at Farrell Substation
Completion date	June 2015
Capital cost	\$665K
Operating cost	\$120K
Market benefit	Mitigate risk of widespread interruption to west coast generation (617MW) and west coast load (71MW) caused by failure of bus-coupler circuit breaker The annualized market benefit of this project is approximately \$94,000.