

Garbutt Substation Upgrade Project Update



August 2024

Crews work day and night to bring the new Garbutt substation to life

About the Garbutt bulk supply substation.

The Garbutt Substation plays an important role in providing power to residents and businesses right across Townsville. It is what is known in the industry as a bulk supply substation, a substation that connects the electricity produced by generators and transported through large transmission powerlines, to the different distribution substations around town, which ultimately supply electricity to our homes, businesses, and services like schools and hospitals.

Electricity is transported from where it is generated to us at extremely high voltages – as high as 330,000-volts in Queensland – to minimise loss over large distances. The role of the bulk supply substation is to take this very high voltage electricity and lower the voltage so that the electricity can be distributed around town to where it is used locally in our homes and businesses.

In building the new Garbutt Substation, each of the seven major distribution powerlines – or feeders – that supply the different areas across Townsville, need to be transitioned over to be supplied by the new substation. The 66,000-volt (66kV) feeders run both underground and overhead out of the Garbutt substation to the various distribution substations.

In the last couple of months, several specialised Ergon teams have been busy working on the installation and connection of these feeders. In this project update, we'll look at the team's progress.

Connecting the Belgian Gardens feeders to the new substation

For frequent users of Dalrymple Road, it was hard to miss the work that our contractors and crews completed over the last couple of months around the Garbutt Substation. Work sites were established, and detours put in place, to create a safe working environment for crews to install and connect the underground exit cables from the new substation that will supply the Belgian Gardens Substation and Townsville's eastern suburbs.

Two cable pits were excavated in Dalrymple Road where cable conduits were installed before a large cable drum, carrying the new 66kV cable, was lifted into position onto the special cable drum cradle - see Figure 1.



Fig 1 – A franner lifts the 66,000-volt cable drum into position on Dalrymple Road.

Using the mechanical cable drum cradle, the team carefully ran the new exit cables down into the pit, feeding them into conduits that run along Dalrymple Road and into the substation - see Figure 2.

Precision was key to ensure the cables remained in pristine condition as they entered the substation. Cable alignment was monitored, and the cables lubricated as they were fed in, eliminating friction as they travelled along the conduits into the substation.

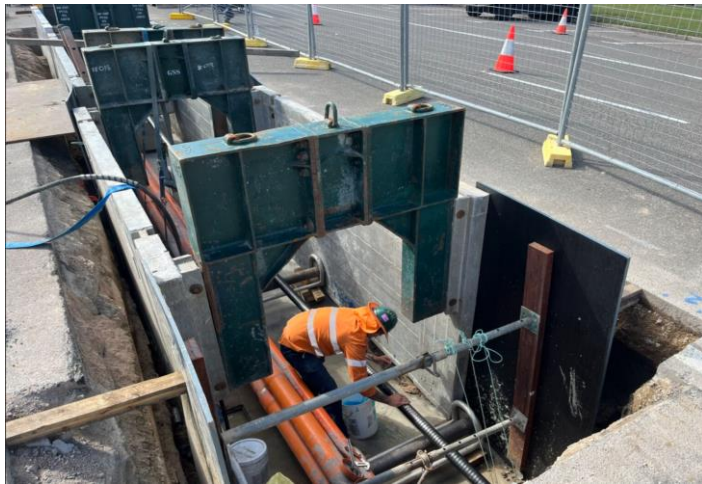


Fig 2 – The new cables connecting Belgian Gardens and Garbutt substations are lubricated and carefully installed into the conduit.

With the new exit cables installed, our specialist transmission underground team returned to join them up to the cables supplying the Belgian Gardens substation - see Figure 3.



Fig 3 – The exit cables from the Garbutt Substation are joined to the feeder supplying the Belgian Gardens Substation.

Once the two sections of cable were joined, they were connected to the new switchgear inside the new Garbutt substation, then tested and commissioned. The two Belgian Gardens feeders are now energised and supplying power to customers in the eastern suburbs from the new Garbutt substation.



Fig 4 – The Belgian Gardens feeders are connected to the switchgear at the Garbutt substation and energised.

Following the energisation of the Belgian Gardens feeders, the pit in Dalrymple Road was backfilled, the frames to shore up the trench were removed, and the road was reinstated and reopened to traffic.

We want to thank everyone for following the directions from traffic controllers, obeying road signage, and travelling safely around the worksite while these works were underway. It's great to see everyone get home safely and the work completed on time.

Out with the old as new overhead feeders are installed

With the two underground cables to Belgian Gardens Substation now energised, the project teams focus turned to connecting the remaining five overhead feeders.

In early August, in a highly complex nighttime operation, multiple local overhead and substation crews, crane operators, and traffic controllers came together in a coordinated effort to disconnect the powerlines that supply the Aitkenvale and Bohle Substations from the old Garbutt Substation and connect them to the new Garbutt Substation.

Each of these 66,000-volt powerlines were connected to the live substation equipment in the old switch yard. Power was turned off to this section of the substation so crews could safely remove the connections to the old substation equipment - see Figures 5 and 6.



Fig 5 – Each of the powerlines are carefully disconnected from the overhead network at the pole.



Fig 6 – The powerlines were disconnected from the old substation equipment and removed.

On the same night, additional crews stood a new concrete pole on the far side of Woolcock Street for the new Aitkenvale feeder- see Figure 7.



Fig 7 – New concrete pole is craned into position adjacent to Woolcock Street

Then, in a coordinated effort with the teams across the road at the substation, traffic on Woolcock Street was stopped as the old powerlines were carefully lowered to the ground and removed - see Figure 8.



Fig 8 – The powerlines connected to the old substation are lowered to the ground and removed.

Project next steps

We've completed a massive amount of work over the past few months, with five of the seven feeders now connected to the new substation, but we've got plenty more work planned between now and Christmas.

Work to connect the remaining feeders to the new substation continues in September, when our specialist transmission underground team will be completing cable terminations on the Hermit Park 66kV underground cable.

They will be working at the top of the large concrete pole at the back of the Ergon Energy Depot adjacent to Woolcock Street. This cable comes from the substation and will connect to the distribution network to supply the Hermit Park Substation and surrounding suburbs. This work is scheduled to be completed in early September.

Prior to this work commencing, a large scaffold will be erected around the pole so that the crews can access the pole top to complete the work. A work site will be established and signage to safely redirect pedestrian traffic around the site where it is required.

Then in mid-October we will be completing similar cable terminations on a pole on Woolcock Street adjacent to McDonalds.

We will continue to keep you updated about this work and any expected impacts via project construction notices.

Getting in touch with us

Want to know more? You can [visit our project webpage](#) for more information.

You can **register for future project updates by simply scanning the QR code**, or contacting our Senior Community Engagement Advisor, Kate Austin on 1300 653 055 or email us at:

NetworkProjectEngagement@energyq.com.au



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