

ALL ABOUT DISTRIBUTION TRANSFORMERS

A common reason for a planned power outage is to allow Connect Saint Helena to replace a distribution transformer. We thought you might like to know what a transformer does; why they need to be replaced and how we do this.

What is a transformer?

A distribution transformer is an electrical unit consisting of two coils of wire wound separately on a common former called the primary and secondary windings. Electrical energy is transferred from one winding to the other through electromagnetic induction. Phew!

In simple terms, the distribution transformer steps down the high voltage electricity that flows through our network to the final low voltage electricity that is supplied to individual consumers.

Why do they need replacing?

In many cases we replace a transformer simply because it is old and reaching the end of its useful lifespan. If left, they can become increasingly unreliable and there is a higher likelihood of unplanned power outages.

Weather can also be a problem for transformers. In wetter areas the transformer casing can degrade which can cause the cooling oil to leak out. The internal parts then overheat and short out. If rainwater then leaks into the system through corrosion, there could be an arc discharge where the transformer sparks outside the casing. Both of these scenarios will cause the power to trip out for safety reasons.

How do we replace a transformer?

Replacing a transformer requires a two-stage power outage.

The first outage happens when we initially isolate the general area around the transformer using switches built into the system. The lines either side of the transformer are cut and earthed. Power is restored to the wider area whilst our employees work safely on removing the old transformer.

Stage two of the planned outage happens once the new transformer is securely in place. The wider area is again disconnected at the switch points to allow the linesmen to connect the new transformer back into the grid. Once it is safe, power is fully restored.



Ground mounted transformer



Pole mounted transformer

Our main concern throughout these works is to ensure the safety of our employees working on the high voltage network. We aim to isolate as small an area as possible to minimise inconvenience to our consumers.

In most cases a transformer can be replaced in a single day. Some are straight forward roadside ground mounted and others are more challenging being pole mounted and on steep hillsides. We have an on-going programme to replace 1 to 2 transformers per month to help prevent unplanned outages caused by old or corroded transformers but it can be a time consuming and labour intensive task.

9 October 2015

