

## Aberaeron Primary Substation Load-Related Reinforcement Summary

### Introduction



Aberaeron is a Single Transformer 33/11kV Primary Substation located in Ceredigion and feeds approximately 1,892 customers. The Primary substation currently has a firm capacity of 3.5MVA derived from the rating of 11kV back-feeds and the ability to maintain voltages within statutory limits under FCO conditions.

The existing substation demand is in the order of 3.3MVA. The NGED Best View forecasts that the substation demand will increase to 3.94MVA by 2028, 6.1MVA by 2032 and 8.5MVA by 2035.

The proposed reinforcement recommends the installation of a second 33kV circuit from Llanfihangel Ystrad to Aberaeron in addition to a second 33/11kV transformer, associated 33kV switchgear and reconfiguration of the existing 11kV switchboard at Aberaeron primary substation itself.

This will ensure the forecast group demand can be secured under First Circuit Outage (FCO) conditions by removing the reliance upon existing 11kV backfeeds, increases network resilience and operational flexibility, and accommodates the projected load growth from the connection of Low Carbon Technologies (LCTs) such as EV Chargers and Heat Pumps.

### Investment Drivers

There are currently two principal drivers prompting load related reinforcement of Aberaeron Primary substation:

- Forecasted load growth indicates that the substation group demand will increase to 3.94MVA by 2028, 6.1MVA by 2032 and 8.5MVA by 2035.
- To ensure that the network voltage profile remains within statutory limits under FCO conditions.

### Options Considered

The following options were considered during the Concept stage of the project:



Option	Description	RAG	Comment
1	Do Nothing - allow demand to grow without any intervention.		This option has been discounted as the voltage profile on the 11kV network will fall below statutory voltage limits under FCO conditions.
2	Build a new 33kV circuit from Llanarth BSP to Aberaeron and a second 33/11kV transformer		While feasible, this option was not chosen as it only benefits Aberaeron primary substation and does not provide any wider network benefits across the West Wales 33kV network.
3	Build a new 11km 33kV circuit from Llanfihangel Ystrad to Aberaeron and a second 33/11kV transformer		This will increase the firm capacity at Aberaeron Primary Substation to 11.5MVA which will ensure compliance with statutory voltage limits and P2 throughout the RIIO-ED2 period and beyond. It also provides significant wider network benefit of improving the voltage profile across the West Wales 33kV network.

### Preferred Solution

The establishment of a new 33kV circuit from Llanfihangel Ystrad was identified as the preferred solution as it resolves all the network constraints, allows forecast load growth at Aberaeron and provides significant wider network benefit of improving the voltage profile across the West Wales 33kV network.

### Project Benefits

- Aberaeron primary substation will be set up to accommodate future forecast load growth. The reliance upon 11kV backfeeds from Llanarth and Llanfihangel Ystrad substations will be removed.
- The voltage profile across the West Wales 33kV network will be improved for First Circuit Outage conditions.

**Estimated Project  
Cost: £4.2 million**

**Estimated  
Completion:  
Summer/Autumn  
2026**

**Current Stage:  
Consenting & Build  
Readiness**