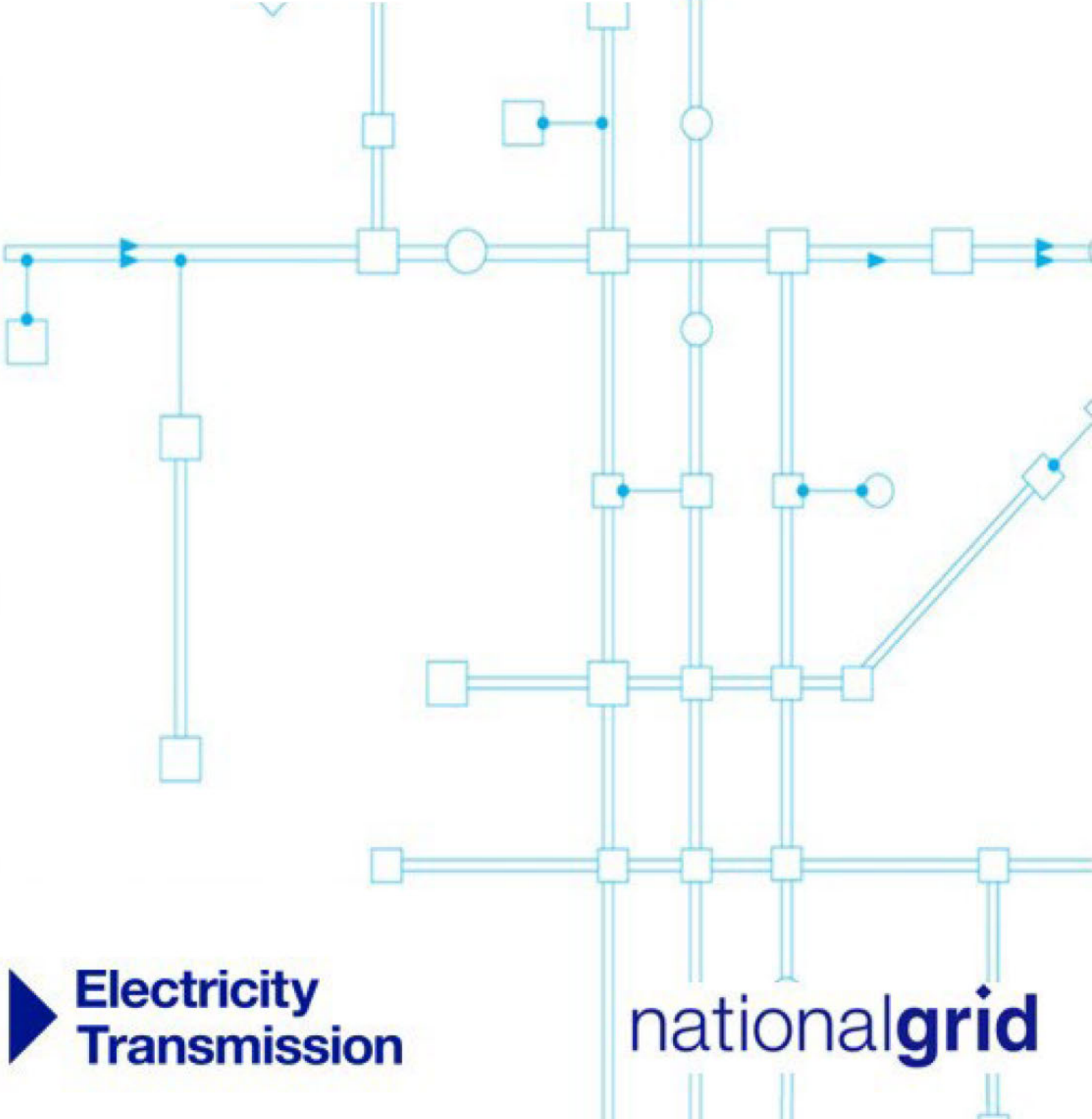
RIIO-T3

Didcot

Project Assessment Submission

October 2026



Electricity Transmission

nationalgrid

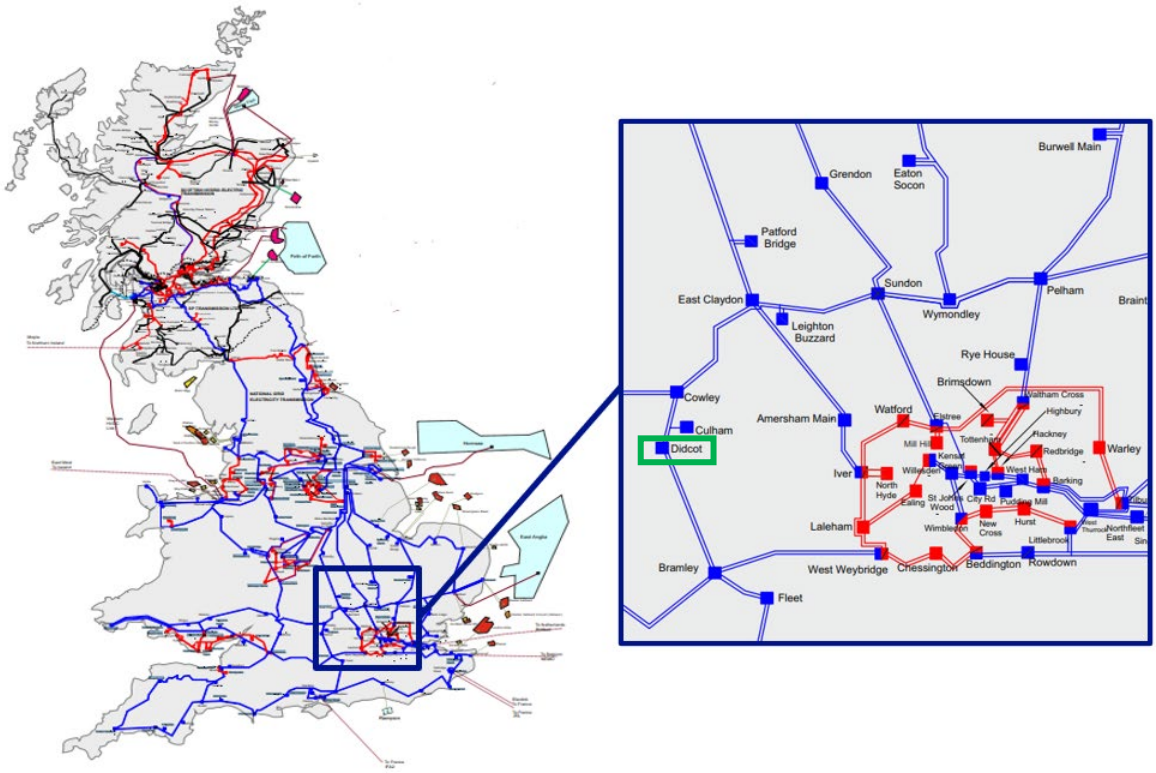
Didcot 400kV substation extension and new 132kV substation: Project Assessment

Executive summary

Background

The Didcot project involves extending the existing Didcot 400kV substation in South Oxfordshire (see figure below) and building a new 132kV substation on the expanded site, to provide capacity for contracted demand and generation customers in the region.

Figure 1: Transmission route map



*Key: **Red** = 275kV assets, **Blue** = 400kV assets. Investment location shown in **green** box.*

The project involves:

- New Super Grid Transformers (SGTs) and bay extension of the existing 400kV substation.
- A new indoor SF_6-free 132kV Gas Insulate Switchgear (GIS) substation, built with space for future connections.

- A two-storey control building, together with associated cabling, protection and control systems.

By allowing more customers to connect, the project will support significant private investment and economic growth in Oxfordshire, as well as the UK's transition to net zero.

We are seeking Ofgem's Project Assessment decision for this project, which is being submitted under Special Licence Condition 3.18 (Load Re-Opener and Price Control Deliverable) as part of the RIIO-ET3 Load Re-opener.

Investment drivers

Customer connections:

The primary driver for this project is to enable the connection of contracted customers at Didcot 400kV substation.

Future proofing:

The Didcot 400kV substation expansion project has been designed with the future in mind as it will enable further customer and network infrastructure connections.

Options

The preferred option was established at the Final Needs Case (FNC) stage and remains unchanged in this project assessment:

- **Option D-1**: Extension of the existing Didcot 400kV substation and a new 132kV GIS substation on the expanded site (**Preferred option**).
- **Option D-2**: Use of spare bays at the existing 400kV substation, connected by a 400kV cable to a new 132kV GIS substation on nearby customer-owned land.
- **Option D**-3: Use of spare bays at the existing 400kV substation as transformer bays, connected by 132kV cable to a new 132kV GIS substation on nearby customer-owned land.

Alternatives requiring a larger site were assessed as adding around 18 months to delivery, as they relied on separately owner land with its own acquisition and consenting requirements.

Preferred solution

The preferred solution is the option we are proposing – extension of the existing Didcot 400kV substation and a new 132kV GIS substation (Option D-1).

Key benefits of this solution include:

- Fastest and most certain route to customer connections – the works sit on land already available to National Grid, no separate planning application or compulsory purchase was required.

- Maximises existing infrastructure – extending an existing substation avoids the land, consenting and delivery risk of an equivalent new-build site.
- Use of a future-proofed design, with space and spare bays for further connections.
- Use of SF_6-free technology at 132kV, aligning with net-zero objectives.
- Benchmarked efficiency – costs are comparable to similar projects of equivalent scope and complexity.