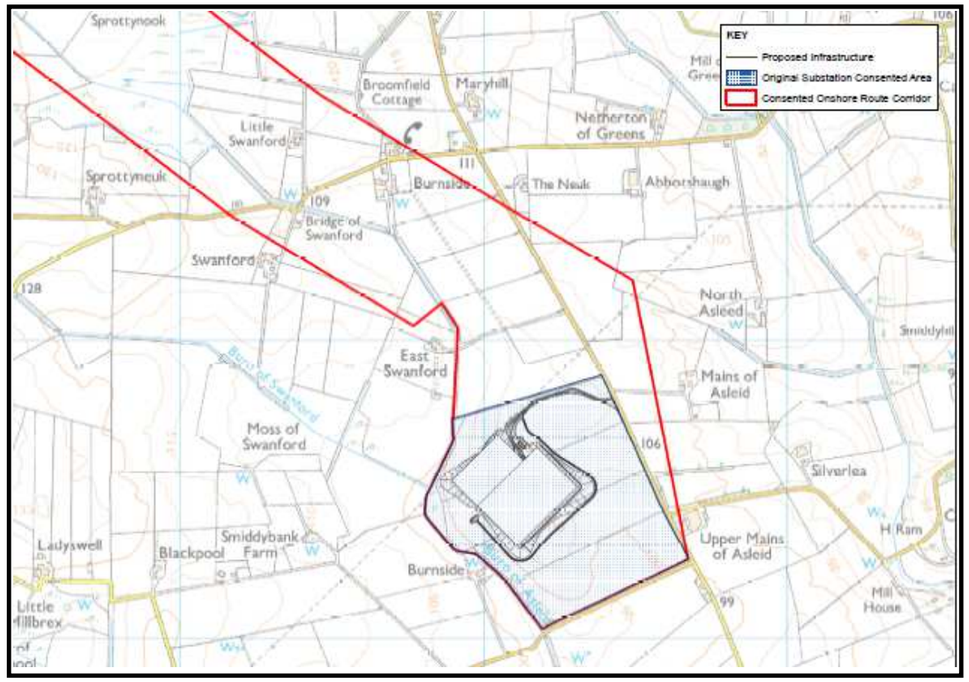
Substation Location



Overview of Infrastructure

Moray East was allocated a grid connection point on the existing two circuit 275kV overhead electricity line south-west of New Deer. This allocation was made following a process run by the electricity transmission system operator (National Grid plc) together with the owners and operators of the local electricity transmission infrastructure, (SHE-T) and Moray East. The power will arrive at the new substation from the wind farm by means of three new underground cable circuits, and will leave the substation on the existing overhead lines for onward transmission to homes and industry.

The new infrastructure is formed of two discreet substations, connected to each other within one site. (1) The part of the new infrastructure associated with the existing transmission infrastructure (the New Deer Substation), owned by SHE-T, and (2) The part of the infrastructure associated with the new wind farm (the Moray East Substation) which for regulatory purposes will be a separately owned asset.

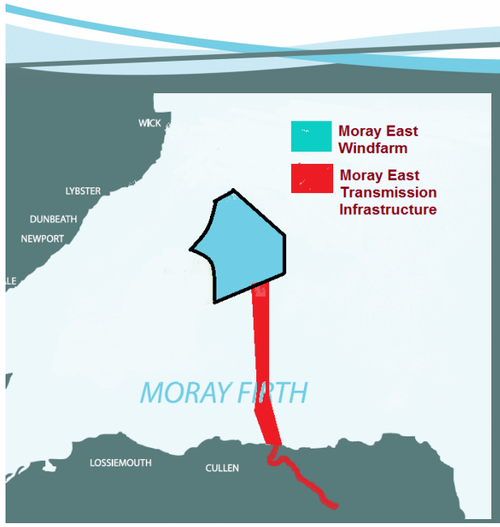
Electricity will arrive from the offshore windfarm at the Moray East substation, and will then be passed to the New Deer Substation, and then to the wider national electricity transmission system, all within the one new site.

Installation Works

Construction of the substation will commence with enabling works that include: establishing access from the public road network, stripping topsoil, building temporary storage landscape bunds, establishing temporary construction compound areas and then constructing a level platform onto which the substation equipment will be installed. Once enabling works are complete then the equipment and control building foundations will be installed. Equipment including switchgear and transformers will then be delivered to site and subsequently installed onto the foundations. Construction of the GIS switchgear and control building will include the erection of structural steel and cladding that has been designed to minimise the contrast with the electrical infrastructure and backdrop. A commissioning phase shall be undertaken to ensure that all the plant and equipment is functional and capable of transmitting power from the wind farm onto the national grid via the SHE-T New Deer substation.

During construction, the site will include temporary construction compounds and topsoil storage. After construction, the construction compounds will be removed, reinstatement undertaken and soft landscaping established.

MORAY EAST
OFFSHORE WINDFARM



Onshore Transmission Infrastructure Proposals For Installation

(Substation)

Moray East is a 950MW offshore wind farm which began development in 2010, was awarded planning consent in 2014 and won a contract to supply electricity in 2017. Construction will commence in 2018 and when complete it will be capable of meeting the electricity requirements of at least 950,000 average UK homes.

The offshore wind farm will be connected to the national grid at a new electricity substation south of New Deer. This leaflet details the main aspects of the works associated with the new substation.

Progress To Date

In 2014 Moray Offshore Windfarm (East) Limited, known as Moray East, was granted planning permission in principle for the onshore infrastructure which will take the electricity generated by offshore turbines (located more than 22km from shore at the closest point) to the national grid for onward transmission to homes and industry.

This infrastructure includes three underground cable circuits, coming ashore through buried ducts near Inverboyndie and continuing underground to a new substation south of New Deer.

Since being granted planning permission in principle, considerable work has been done to develop the engineering solution for bringing the cable ashore, to define the onshore underground cable route and to develop the design of the onshore substation.

Land Rights

Following positive engagement and dialogue with numerous different landowners, the necessary land rights have been secured and associated conditions agreed with all of the known private landowners along the route.

Key Elements Of Substation

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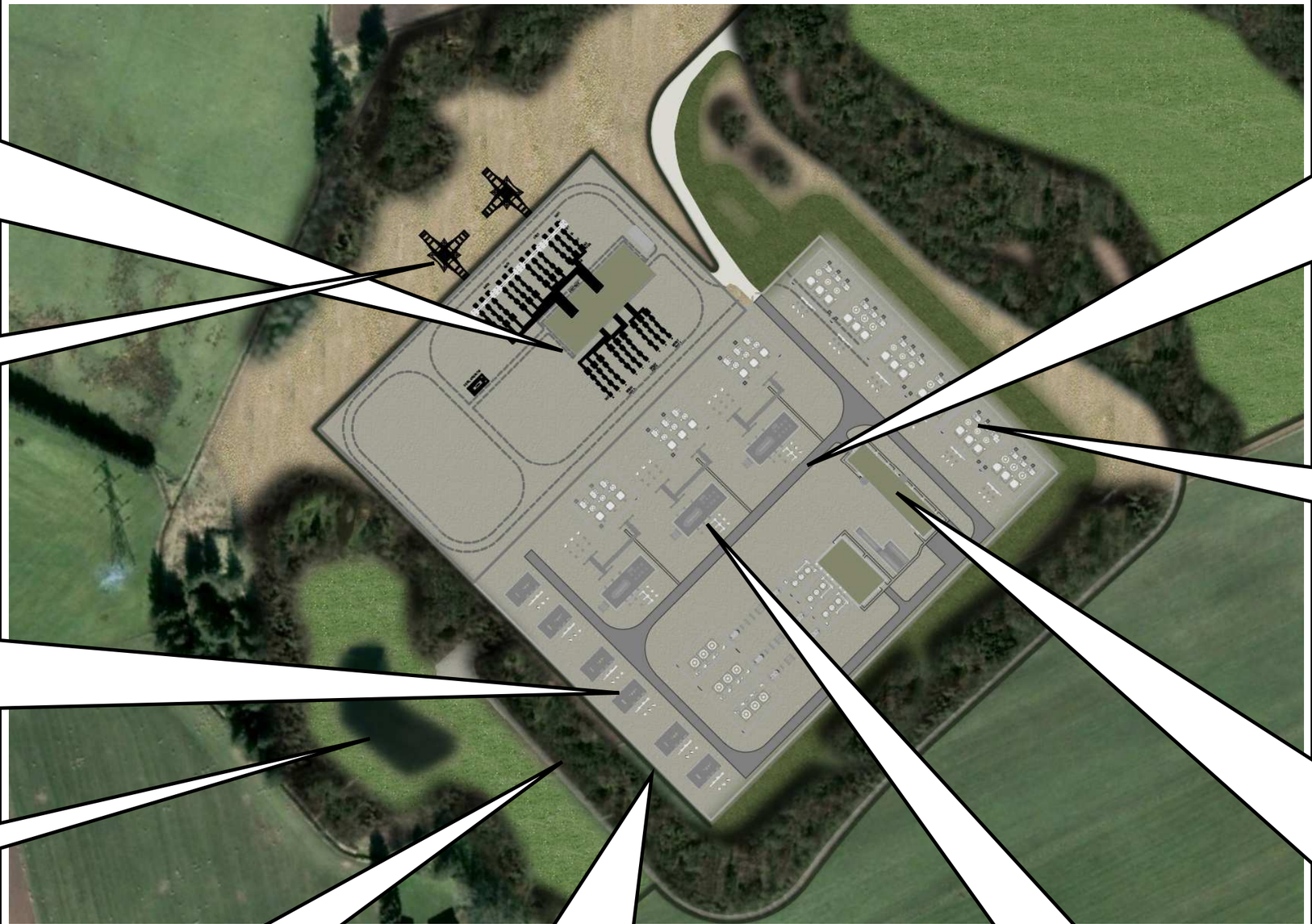
New Deer Substation - Scottish Hydro Electric Transmission Limited (SHE-T) Infrastructure
To connect the electricity from the new offshore wind farm into the grid, the conductors from the existing overhead line will require to be connected to new infrastructure on the ground. There, new switchgear will be installed to control power entering and leaving the substation via the existing lines. This part of the new substation will become part of SHE-T infrastructure.

Connection to Existing Overhead Lines
The existing two circuit overhead lines will be connected to new switchgear and a new SHE-T substation.

Reactive Compensation
Moray East’s connection will be designed to ensure stability of voltage levels on the UK national grid. The reactive compensation equipment will be used to regulate the amount of reactive power imported and exported onto the grid. All generators connected to the UK national grid operate in this way to ensure that the voltage on the grid stays within a safe operating range.

Drainage Attenuation Pond
A civil engineering feature which will manage drainage from the substation site.



Bunds
Earthen bunds which will provide visual screening. These will be constructed as a broader package of landscaping features including sympathetically selected mixed native trees and shrubs in a range of maturities appropriate to the Buchan region and sourced from local suppliers and nurseries.

Security Fencing
Standard 2.4m high security fencing will be provided for the safety and security of the public and the infrastructure. The fencing will enclose both the SHE-T and Moray East infrastructure as one site.

Transformers
These raise voltage from 220kV to 275kV to match the voltage used on the national transmission network.

Moray East Substation - Moray East Transmission Infrastructure
Electricity from the new offshore wind farm will arrive at the new substation by three underground cable circuits, operated at 220kV. It will then pass through transformers which will increase the voltage to 275kV to match the voltage level of the existing overhead lines. The power will then pass to the co-located adjacent new New Deer SHE-T substation. Switching and control equipment will be installed at the Moray East substation which will be in communication with the wind farm by dedicated fibre optic links.

Harmonic Filters
These ensure that the electricity supplied at the UK’s 50Hz standard has a harmonic distortion content that is within the standards of the UK electricity supply industry

Gas Insulated Switchgear (GIS)
By using modern equipment insulated by inert SF6 gas, high voltage switching can be undertaken by equipment which is much smaller than conventional air insulated switchgear. This enables a significant reduction in the land area required and a reduction in the substation’s footprint in comparison with conventional air insulated switchgear. Using GIS means that much of the equipment can be enclosed within a building, using typical agricultural building materials designed to integrate with the electrical infrastructure, reducing visual impact. These advantages mean that GIS is commonly used in modern electricity installations in towns and cities across the UK where space is limited.