

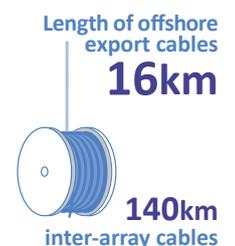
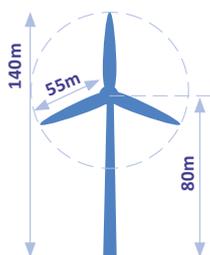
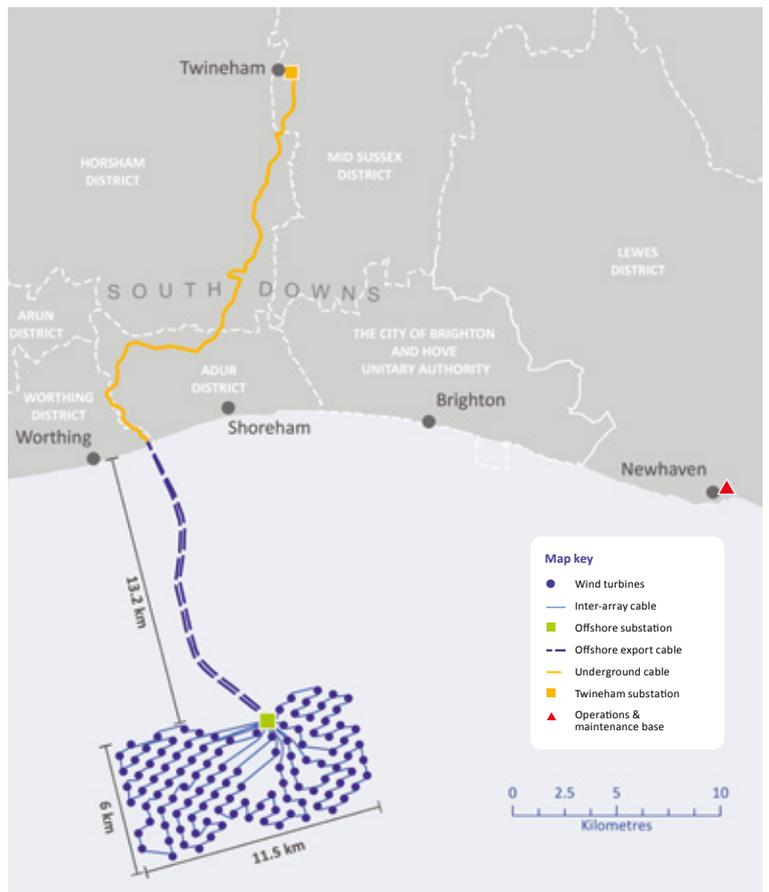
The south coast's first offshore wind farm

The Rampion Offshore Wind Farm comprises 116 wind turbines that each sit on top of a foundation fixed into the seabed.

With an installed capacity of 400 megawatts (MW), it will generate 1,400 gigawatt hours (GWh) of green power each year, equal to the amount used annually by around 350,000 UK homes¹, or almost half the homes in Sussex. It will reduce CO₂ emissions by nearly 600,000 tonnes a year.

The wind farm site covers 70 square kilometres, so it is larger than the island of Guernsey, and is located in the English Channel between 13 and 20 kilometres off the Sussex coast.

Rampion is operated and maintained from a purpose-built facility at Newhaven Port, and continues to act as a catalyst for the regeneration of the port area.



¹ Based on an average annual domestic household electricity consumption of 3,938 kWh (BEIS).

Construction time frame

Construction of the Rampion Offshore Wind Farm began in September 2015 and first power was delivered to the grid in November 2017. It will be fully operational in 2018, with the final completion date being largely dependent on logistics and weather during the construction period. Reinstatement of the onshore cable route will be completed in 2018 and monitored for up to 10 years. The wind farm itself will have a lifespan of 20 to 25 years.



All in a day's work for Rampion's wind turbine technicians



View from the top

Rampion Offshore Wind Farm

Rampion features 116 turbines, each rated at 3.45 MW. The turbines are made up of an 80 metre (m) tall tower, a nacelle for the gear box and generation equipment and a hub connected to three 55m long blades. When vertical, the tip of the turbine blade reaches to 140m, which is just taller than the Brighton i360's viewing pod at its top height.

The turbines sit on top of foundations, comprising single steel monopiles and bright yellow transition pieces, designed so they integrate together perfectly. There are 12 rows of 9 to 10 turbines that are connected by array cables taking the power to a single offshore substation. A total of 140 kilometres (km) of array cables are buried in a network under the seabed. Laid end to end, the array cables would stretch from Brighton to London and back.

The wind turbines generate power at 33 kilovolts (kV) and the main role of the offshore substation is to transform this up to 150kV, to reduce any losses as it is transmitted to shore.

The 2,000 tonne substation topside houses the electrical components at the heart of the wind farm including transformers, switchgear and control systems. It sits on a four-leg jacket foundation, fixed into the seabed and weighing around 900 tonnes.

Electricity is transmitted from the offshore substation along two 16km subsea export cables, which come to shore at the beach, next to Brooklands Pleasure Park in East Worthing. From landfall, 27km of buried onshore cables transport the power to a new onshore substation in Twineham, Mid Sussex.

The cables were installed in ducts laid in trenches that were backfilled before the cables were pulled through. Horizontal directional drilling was used at four landmarks along the route – under the A27, the River Adur and A283, railway line, and the

A259 and Lancing Beach. By drilling under each of these, traffic and trains were not interrupted, the beach could remain open and environmental impact was minimised. Reinstatement of the land and vegetation along the cable route will continue during 2018.

At the new substation, the electricity is transformed from 150kV to 400kV and then transmitted to the existing National Grid substation. From there it enters the national grid for use by homes, businesses and the wider community.



Rampion Operations and Maintenance Base at Newhaven

The wind farm will be operated from a new dedicated operations and maintenance base built at Newhaven Port. This is home to the 60-strong team of wind turbine technicians, apprentices, engineers, marine workers and administrative staff, who manage the day-to-day running of the wind farm and ensure it runs as efficiently as possible.

The story behind the name

The Rampion name was entered into a schools' naming competition by Davison High School for Girls, and went on to win the public vote. The logo is a stylised version of the Rampion flower, the county flower of Sussex.

