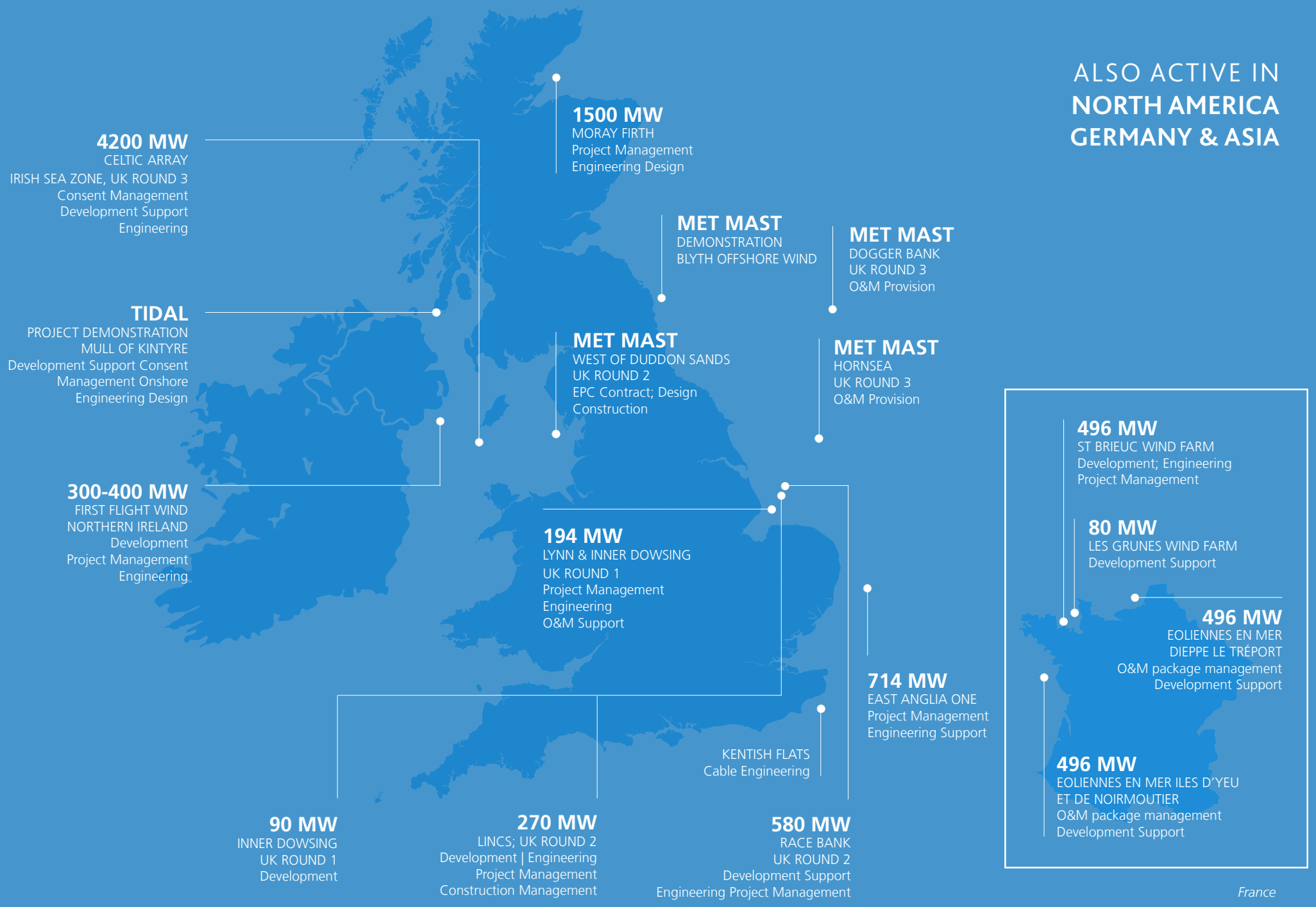
OFFSHORE SERVICES

powering change

END-TO-END SERVICES FOR OFFSHORE RENEWABLES



ALSO ACTIVE IN
NORTH AMERICA
GERMANY & ASIA

France

ABOUT

RES Offshore provides integrated development, engineering, construction and O&M services for utility-scale renewable energy projects. From offshore wind to wave and tidal, we bring to projects the considerable skills and experience acquired over 30 years in the renewables industry.

We have the full range of in-house capabilities required to deliver each of the project phases, thus allowing cost-effective, innovative solutions that can make the difference between project failure and success. We can provide our services as a defined package of work or as part of the owner's project team. We have experience in UK Rounds 1, 2 and 3 and in the development of projects in Northern Ireland and France.

RES Offshore is part of the RES Group, one of the world's leading renewable energy project developers. To date, RES has 10 GW installed capacity in its portfolio, with many thousands of megawatts in development.

OVER **30 YEARS**
RENEWABLE INDUSTRY

10 GW PORTFOLIO
WORLDWIDE

COMMITTED
TO WORK SAFELY

"We are committed to working safely and to collaborating with those around us to make this happen." Jim Sandon, COO Offshore

PROJECT DELIVERY

A project can be broken down into a number of discrete and sequential phases each of which can be undertaken as a separate package of work. Our approach leaves our clients with maximum flexibility. Since our expertise covers all the project phases, we can get involved in a project at any point in its development and can adjust the scope of work to suit the client's specific needs.

Development

- Development and consent management
- Detailed site evaluation
- Grid connection feasibility
- Cable routing and landfall studies
- Offshore met masts and metocean data collection
- Wind speed and metocean data strategy and analysis
- Preliminary design and project definition for consent
- Construction and operation planning for consent
- Energy yield prediction
- Cost and financial evaluation
- Due diligence support

Pre-Construction and FEED

- Procurement and contracting strategy
- Site assessment including climatic and metocean data and seabed conditions
- Front End Engineering Design (FEED) - structural, electrical, cables and SCADA
- Major equipment and systems selection for turbines and Balance of Plant
- Contract preparation, tendering and contractor selection
- Construction programme and capital expenditure evaluation
- Operations strategy, O&M base specification and operating cost evaluation
- Turbine layout and energy yield analysis
- Financial modelling support
- Due diligence support

Construction Management

- Health, safety and environmental management
- Project management
- Procurement and tender management
- Contract preparation and negotiation
- Contract financial management
- Survey engineering management
- Client's engineer
- Detailed design
- Interface and risk management
- Quality assurance and site representation
- Met mast Engineer, Procurement and Construction (EPC) delivery
- Marine logistics management
- Onshore and offshore site works
- Project planning and control
- Post construction performance analysis

Asset Operations and Maintenance

- Strategy development and performance optimisation
- Health, safety and environmental management and monitoring
- Environmental survey management
- Stakeholder relations management
- Performance and production reporting and optimisation
- Reliability monitoring and down-time evaluation
- Condition monitoring and maintenance planning
- Equipment failure investigations
- Grid code compliance monitoring
- Data management
- Contractor selection and management

Providing end-to-end or individual services to utility-scale renewable energy projects

CASE STUDIES

LYNN & INNER DOWSING, UK ROUND 1, WIND FARM

The Lynn and Inner Dowsing UK Round 1 projects are located off the east coast of England and together comprised the largest offshore wind farm in the world at the time of construction. RES developed and secured consent for Inner Dowsing prior to sale of the asset to Centrica and subsequently had a leading role in procurement, engineering, construction and operation of the overall project.

Status	Operational 2009
Installed Capacity	194MW
Turbines	54 x Siemens SWT-3.6-107v
Developer	RES (Inner Dowsing) / AMEC (Lynn)
Constractors	Siemens T&D, Nexans, Subocean, M T Hojgaard, RES (management support), MPI
Owner	GLID Wind Farms Topco Ltd (Centrica, TCW)
Services	Project management, engineering, O&M Support

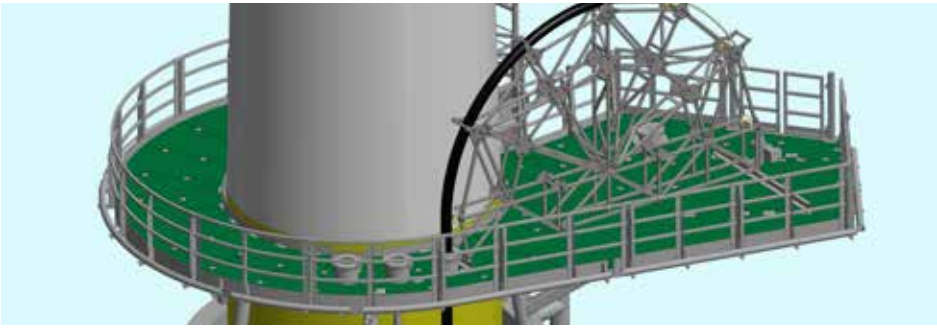
LINCS, UK ROUND 2, WIND FARM

RES has had an end-to-end involvement in the Lincs project, taking the lead on the consenting process and supporting the FEED, procurement and construction phases as an integrated part of Centrica's project delivery team. RES has provided core technical services including energy yield assessment, electrical design and structural design, as well as key personnel including onshore and offshore site representatives, project engineers and senior members of the project management team.

Status	Operational 2013
Installed Capacity	270MW
Turbines	75 x Siemens SWT-3.6-120
Developer	RES/Centrica
Contractors	Siemens Wind Power, Siemens T&D, Nexans, Technip, MT Hojgaard, MPI
Owner	Lincs Wind Farm Limited (Centrica, DONG Energy, Siemens Project Ventures)
Services	Development support, engineering, project management, construction management

CASE STUDIES

KENTISH FLATS, CABLE INSTALLATION ENGINEERING DESIGN



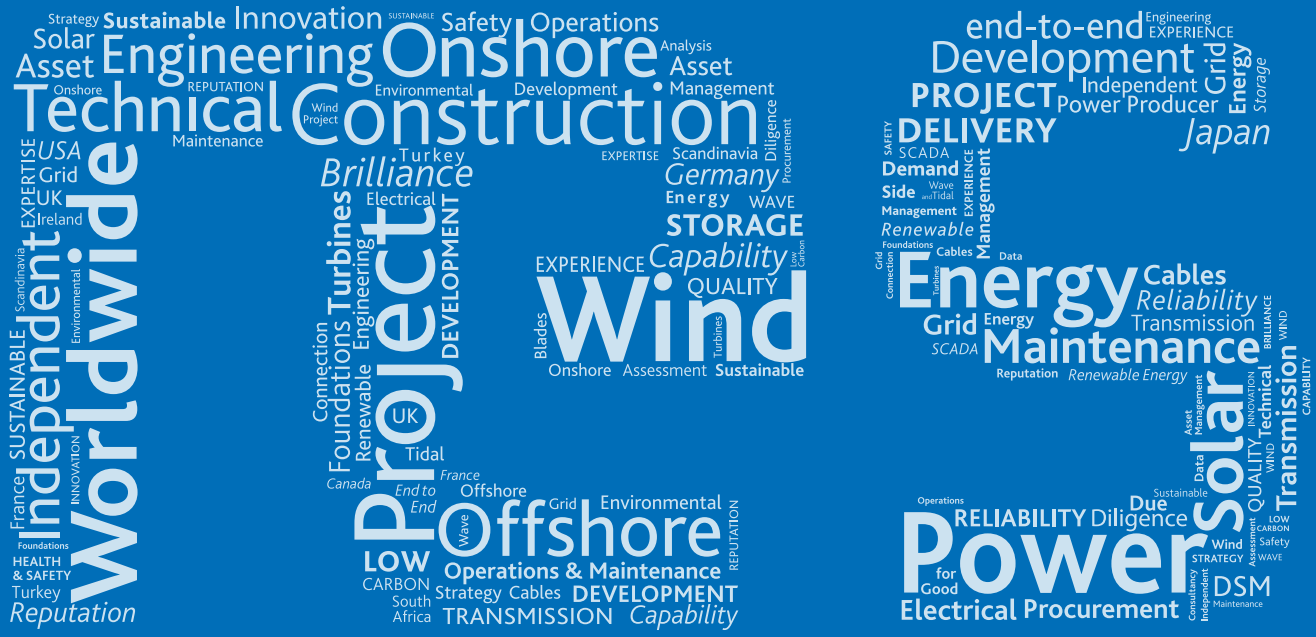
Using our innovative engineering design capabilities, RES designed a flexible Cable Protection System (CPS) for the cable installation contractor, for cable pulls for the Kentish Flats Extension wind farm. We designed two cable pulling quadrants to support the array and export cables throughout the cable pull-in operation, adhering to the minimum bend radius and the allowable tensile load of the cable. RES also developed installation and access / logistics methodologies and procedures for the CPS, including "Installation Story Boards" as a unique visual means of communicating the complex installation sequence.

Status	Construction (cable installation)
Owner	Vattenfall
Client	Bohlen & Doyen (cable installation contractor)
Services	Concept studies, Detailed Design, Engineering, Logistics and Story Board Drawings

WODS MET MAST EPCI, IRISH SEA, UK

In June 2013, RES Offshore was awarded the Engineer, Procure, Construct and Install (EPCI) contract for a power performance meteorological mast for the West of Duddon Sands Offshore wind farm. RES worked closely with CarlC to design a bespoke lattice tower for this offshore application. From the outset an integrated design approach was taken, with RES carrying out FEED level design for the entire structure, and detailed design for monopile, grouted connection and transition piece. Lloyds Register verified each stage of the final design.

Status	Commissioned (June 2014 - within 12 months of contract being awarded)
Foundation	Monopile / TP / Platform
Lattice Tower	CarlC, bespoke design with RESv
Power Supply System	PV, micro wind turbine, diesel stand-by
Client	ScottishPower Renewables and DONG Energy
Services	Project management, engineering, construction



Renewable Energy Systems, Faraday House, Station Road, Kings Langley, Hertfordshire, WD4 8LH, United Kingdom
+44 (0)1923 608 200 | info@res-offshore.com | www.res-offshore.com

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