FROM **INCEPTION** TO **GENERATION**

res
powering change

WIND ENERGY · SOLAR ENERGY · ENERGY STORAGE · TRANSMISSION · DEMAND SIDE MANAGEMENT


GLOBAL COMPANY WITH
30 YEARS EXPERIENCE
1 6 0
UTILITY-SCALE RENEWABLE
PROJECTS TOTALLING OVER
10 GW

WHO WE ARE

Initially established in the early 1980s, today RES is one of the world's leading privately-owned renewable energy companies. Our mission is to redefine the way we think about energy. This is a vital transition to a future where everyone has access to affordable, low carbon energy.

Drawing on decades of experience, RES has considerable in-house expertise from inception to generation. We provide a diverse and growing range of energy and infrastructure projects and services for onshore and offshore wind, solar, transmission, energy storage and demand side management.

With headquarters in the UK, we have offices across Europe, the Americas, Africa and Asia Pacific. We were awarded our second Queen's Award for Enterprise for growth and success in international markets and have also been recognised for our commitment to health and safety.

As pioneers of wind turbine technology, we are proud to have played a central role in the development of the global renewable energy market, gaining industry-leading skills and expertise, and a reputation for project delivery.

Sustainability lies at the core of our business; balancing commercial, environmental and social concerns to address the world's energy needs in this era of transformational change.

ASSET MANAGERS FOR OVER 1,300 MW

GLOBAL PORTFOLIO EQUATES TO POWERING 6 MILLION UK HOMES


SAVING OVER
10 MILLION
TONNES / YEAR OF OPERATION*
*Assuming our global portfolio was applied to UK figures, a 2 MW turbine could save 2,096 tonnes CO_2 per year (UKWED).

POWERING CHANGE

We are proud of our reputation as a leader in renewable energy and are relentless about finding solutions to today's energy problems.

We are committed to embedding sustainability in every aspect of our operations and supply chain. We want to maximise the environmental good our projects create and minimise adverse impacts – by working openly and constructively with the communities neighbouring our projects.

We ensure that our projects bring benefits to local people and businesses through extensive community consultation covering environmental, economic and social aspects of the development. Communities near our wind farm sites in the UK suggested cheaper electricity was the most practical benefit we could offer. The Local Electricity Discount Scheme (LEDS) was introduced in the UK in response to this consultation.

We support a number of charitable, voluntary and educational initiatives and are a major donor to Renewable World, which improves access to renewable energy in the poorest communities.

Our pioneering low-carbon headquarters embodies our sustainable approach and commitment to corporate citizenship. Using a wind turbine, solar panels, biomass crops and natural cooling, our headquarters were the world's first commercial refurbishment designed to be entirely self-sufficient in renewable energy.

SUSTAINABILITY LIES AT THE CORE OF OUR VALUES

PROVIDING CLEAN
GREEN SECURE ENERGY


INCEPTION TO
GENERATION
✓ DEVELOP
✓ ENGINEER
✓ CONSTRUCT
✓ FINANCE
✓ OPERATE

OUR EXPERTISE

DEVELOPMENT

RES has teams with the wide range of skills required to develop a vast array of renewable projects. These skills deliver initial surveys, resource measurements, environmental assessments and community liaison, to achieve planning consents.

ENGINEERING

Innovation in engineering is fundamental to our business - our teams of electrical, mechanical and civil engineers are some of the most experienced in the industry.

SPECIFY & PROCURE

Maintaining good relationships with the main suppliers in the industry, whilst remaining independent, ensures the latest technological developments are incorporated into our projects to drive down the cost of renewable energy.

COMMERCIAL & RISK MANAGEMENT

Our strong relationships with banks, financial institutions, insurance companies, manufacturers, consultants and legal experts offer the best commercial solutions for projects.

CONSTRUCTION MANAGEMENT

We project manage the construction of wind and solar farms, transmission lines and energy storage projects on a turnkey basis. Our track record of delivery on time, to budget and to the client's specification has been demonstrated consistently over the years.

ASSET MANAGEMENT

We continue to optimise the performance of renewable assets through their operational life. With over 20 years' experience, our portfolio which includes our own and clients managed assets and maintenance agreements includes onshore and offshore wind farms, solar parks and energy storage facilities across Europe and North America.

WE HAVE THE EXPERTISE & AN EXCELLENT REPUTATION FOR PROJECT DELIVERY

ONSHORE WIND

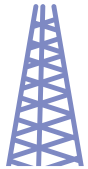
Our in-house skills encompass all aspects of development from site prospecting, assessment and wind farm design, through the planning and construction phases, to the operation and maintenance of a generating wind farm.

Whilst our projects are designed to maximise the power output, we strive to maintain our reputation for delivering a sensitive and consultative approach to the environment and local communities.

Involved in research into renewable technologies since the early 80s our first wind farm began generating in Cornwall in 1992. Within 10 years, we had completed King Mountain in Texas, which at the time was the largest wind farm in the world. We are proud to have one of the largest project portfolios in the renewable industry at over 10 GW capacity.

We own and operate our own assets as well as a portfolio for our clients, who benefit from our ability to optimise all aspects of wind farm operations. This includes daily site management, 24 hour remote monitoring, data analysis and maintenance planning. Importantly we manage the complexities of compliance for commercial and safety issues as well as stakeholder relations throughout the lifetime of the project.

GLOBAL PROJECTS
> 5000 TURBINES



INSTALLED OVER
600 MET MASTS
IN 18 COUNTRIES

1992
WE BUILT OUR
FIRST WIND FARM


EXPERTISE FROM
TURBINE TO GRID
SINCE THE 90s

OFFSHORE WIND, WAVE & TIDAL

RES has been involved in the offshore wind industry since its inception in the early 90s. We provide integrated development, engineering, construction and asset operation and maintenance (O&M) services for utility-scale projects internationally: for offshore wind, wave and tidal projects.

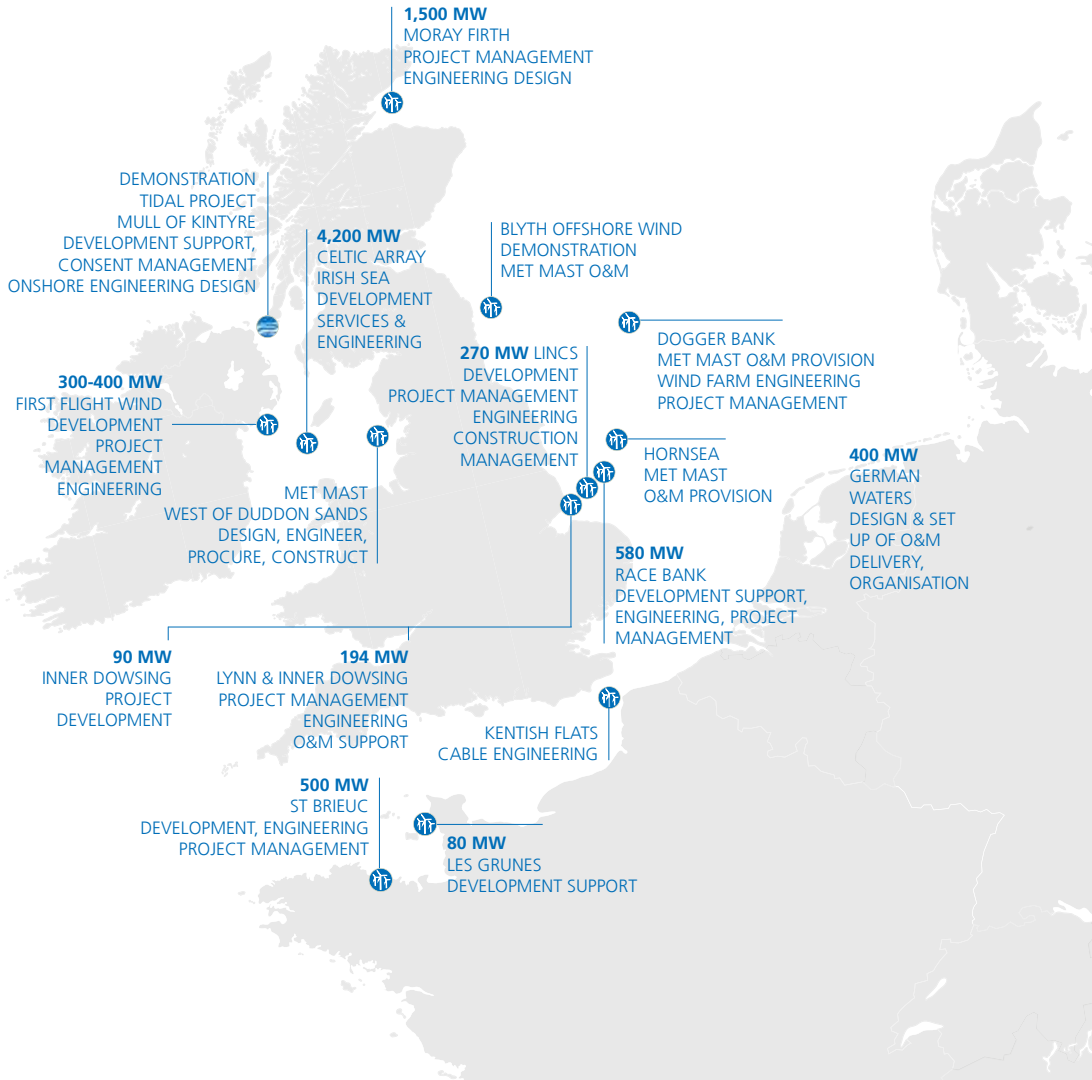
Our wealth of in-house experience is built on our participation in UK Rounds 1, 2 and 3 and in the development of projects across Europe and America.

Our dedicated team provides bespoke end-to-end solutions, as an integrated part of the owner's team, or with defined packages of work at every project phase.

Acting as owner's engineer, we manage relations with suppliers, manufacturers, utilities, statutory authorities and investors, and provide performance reporting.

Whether developing a comprehensive O&M strategy or delivering specialist knowledge, our experience of operating in complex marine environments ensures we deliver cost-effective, innovative solutions.

ALSO IN NORTH AMERICA AND ASIA



www.res-offshore.com


1,300 MW
DEVELOPMENT
PORTFOLIO

SOLAR

Solar energy has huge untapped potential to provide for global energy needs. Enough solar energy reaches the Earth's surface every hour to provide the world's power needs for a year.

We are involved in the development of medium to large-scale solar farms, particularly in the North American and Mediterranean areas. Our technical and engineering expertise and project management capabilities allow us to develop, construct and operate solar farms connected to the grid.

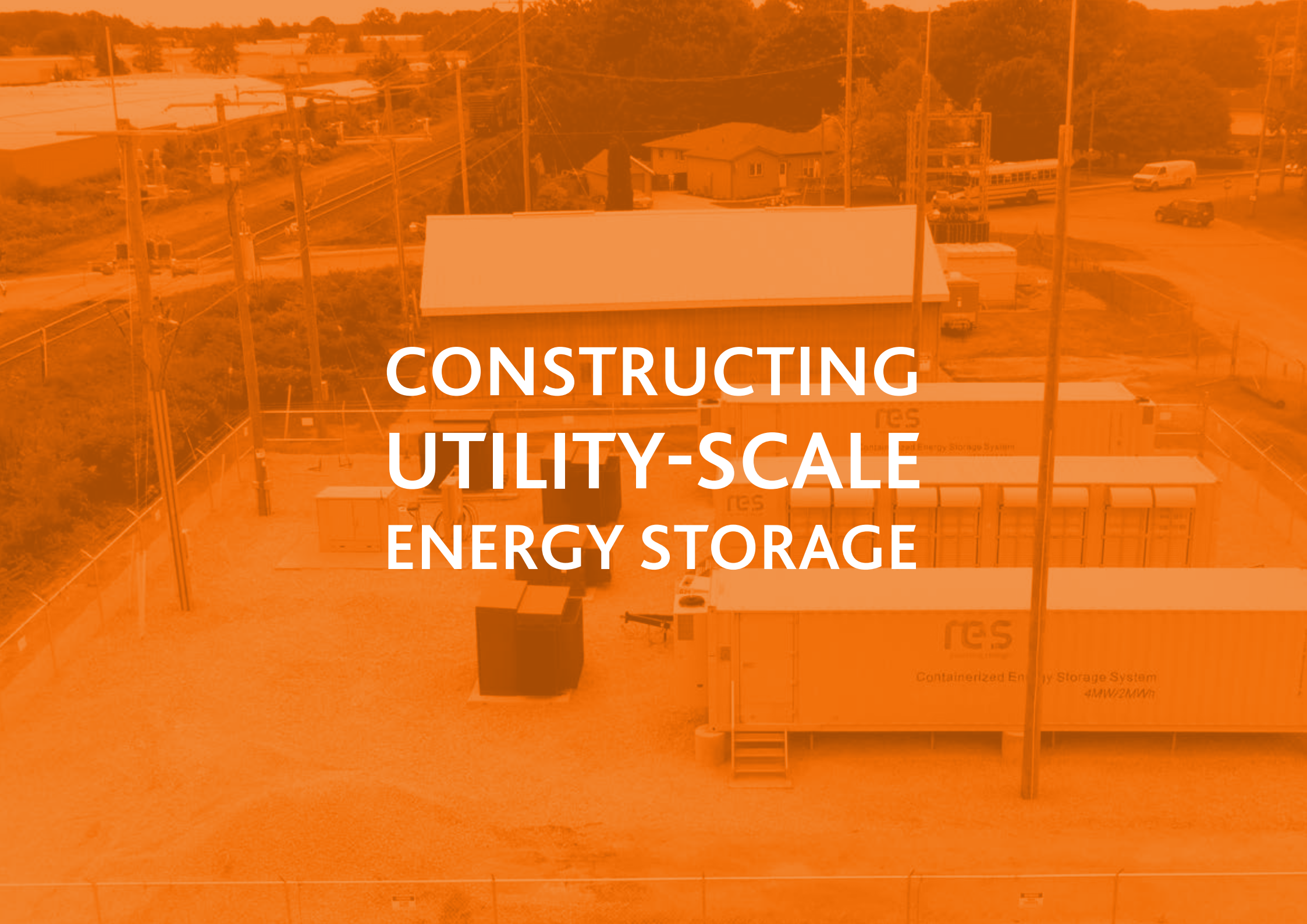
For clients interested in generating their own energy, RES have experience of building integrated solar for the commercial, industrial and public sector. This can be combined with Energy Storage and Demand Side Management to further reduce energy costs and emissions and to balance electricity supply and demand.

We provide feasibility, detailed engineering design and grid connection, project management, construction, finance and full asset management.

WE HAVE INSTALLED
700,000 SOLAR PANELS

WE ASSET MANAGE
11 SOLAR FARMS

> 5,000 HOMES
POWERED BY
WEBBERVILLE SOLAR TEXAS



CONSTRUCTING UTILITY-SCALE ENERGY STORAGE

ENERGY STORAGE

RES are pioneers in the delivery of grid scale energy storage and energy management systems. Battery energy storage has multiple applications – it helps increase reliability, quality and availability of grid power at a lower cost and without the emissions of conventional generators.

We can assist at any stage to deliver energy storage projects, on time and budget. Years of experience gained from monitoring and operating renewable energy projects and understanding the network requirements enables us to efficiently integrate and operate storage schemes.

We have provided battery energy storage for fast frequency response in the USA and Canada. RES is currently constructing the largest energy storage projects in the US.

ENERGY STORAGE PORTFOLIO TOTALS 77 MW

LEADER IN THE DEVELOPING ENERGY STORAGE MARKET

UNLOCKING RENEWABLE DEPLOYMENT


BRINGING POWER
WHERE IT'S NEEDED

TRANSMISSION

Our transmission development and construction capabilities help provide a robust grid for improved safety and reliability, supporting the increased deployment of renewable energy by enabling renewable resources to be integrated with the existing grid.

We offer a bespoke and integrated service of transmission development and construction capabilities. We know that transmission grids require exceptional co-ordination, monitoring and regulation to ensure a reliable network. With our decades of experience providing utility-scale grid connected renewable energy projects, our engineers have all the skills and expertise from development to grid connection.

From surveying and project feasibility analysis, environmental assessment, planning and consent, to technical analysis, engineering design, project management, legal review and financing, our reputation for project delivery is second to none.

OVER 1,000 KM
TRANSMISSION LINES BUILT

2013
COMPLETED 300 MW 345KM
US - CANADA TRANSMISSION LINE

GRID INTEGRATION FOR RENEWABLES


UNIQUE
SECURE
FLEXIBLE
SUSTAINABLE

DEMAND SIDE MANAGEMENT

We create value from assets that until now have only been a cost. Our Demand Response solution controls electrical equipment in seconds, without disrupting clients' operations: to create abundant, flexible energy capacity.

If you manage commercial buildings, processes or refrigeration, then we have the technology, which operates remotely, to create value. It reduces your exposure to expensive grid charges and by co-ordinating multiple isolated appliances, builds either capacity or electricity which is of value to you or the grid.

Our knowledge of European and North American electricity markets allows us to navigate the complex and changing regulatory structures for your benefit. No capital investment is required by clients. Our costs are covered by a share in the increased revenue generated by demand response.

SHIFT ENERGY
EARN REVENUE

CLOUD BASED
HARDWARE FREE

OPTIMISES ENERGY USE
BY FLEXIBLY CONTROLLING
MILLIONS OF DEVICES

CASE STUDIES

HILL OF TOWIE, UK

Hill of Towie wind farm in Moray, northern Scotland was developed, built and continues to be fully asset managed by RES. Construction started in 2009 and began generating clean, green renewable energy in 2012. This is equivalent to the annual needs of approximately 26,000 homes every year – a third of the households in the Moray region. The community fund established by RES will provide over £78,000 per annum, to support local community projects during the lifetime of the wind farm. The site is now owned by The Renewables Infrastructure Group, the listed fund for which RES is the operations manager.

Installed capacity	48.3 MW
Number of turbines	21
Turbines	2.3 MW Siemens
Developer	RES
Construction	RES
Owner	The Renewables Infrastructure Group
Electricity generation	Approx. 26,000 homes equivalent p.a.
Commissioned	2012

OFFSHORE WIND, FRANCE

In 2011, EOLE-RES and Iberdrola formed the Ailes Marines joint venture to develop a 500 MW project located 20km off the coast of Brittany. Technical, environmental, geophysical and wind speed assessments are being undertaken, along with consultation with local government, residents and the fishing industry. It is anticipated the project will create 2,000 jobs, improve port infrastructure and generate permanent revenues for local communities.

Installed capacity	500 MW
Turbines	62 Areva 8 MW
Developer	Ailes Marines
Electricity generation	Equivalent to approx. 840 000 people
CO_2 savings	Approx. 100 000 tonnes
Development	Commenced 2012

CASE STUDIES

MARSANNE, FRANCE

The Marsanne wind farm is 520m above sea level in the communal forest of Marsanne in the Rhône-Alpes region of France. It was commissioned in 2008 after a development process that involved wide-ranging consultation with stakeholders and experts. This led to adaptations to the design and resulted in a project with minimal environmental impact. EOLE-RES are leaders in the French market with over 400 MW installed capacity.

Installed capacity	12 MW
Turbines	6 Vestas V80 2 MW
Developer	EOLE-RES
Construction	EOLE-RES
Owner	CEPE de Marsanne
Electricity generation	Equivalent to the annual demand of 16,000 people
CO_2 savings	Approx. 11,900 tonnes per year

HAVSNÄS, SWEDEN

Havsnäs wind farm is Sweden's biggest operational onshore wind farm, providing electricity for 50,000 homes. For this award winning project, Nordisk Vindkraft, a wholly owned subsidiary of RES, obtained the largest wind power project finance in the Scandinavian market. The project took 18 months to construct and overcame the many challenges of cold climate construction. Also developed and constructed, is the 144 MW Sidensjö wind farm which could provide enough electricity to power 160,000 homes.

Installed capacity	95.4 MW
Turbines	48 Vestas V90 2.0 MW
Owner	Nordisk Vindkraft 25% HgCapital 75%
Electricity generation	Equivalent to the annual demand of 50,000 homes
CO_2 savings	Approx. 250,000 tonnes per year
Commissioned	2010

CASE STUDIES

LOWER SNAKE RIVER, WASHINGTON, USA

Lower Snake River wind project in Washington State, USA, represents just one of the many large schemes developed and constructed by RES in the valuable North American market. The 300 MW project near Pomeroy was developed by RES Americas and is owned by energy utility Puget Sound Energy (PSE). RES secured the Balance of Plant construction rights, making it the fifth project RES has constructed for PSE.

Installed capacity	343 MW
Turbines	149 Siemens 2.3 MW
Developer	RES Americas
Construction	RES Americas - Balance of Plant
Owner	Puget Sound Energy
Commissioned	2012

PUITS CASTAN, FRANCE

Initiated in 2007, this is the first solar farm developed and constructed by EOLE-RES. It is located 15km north of Carcassonne on an area of barren land of no previous value, reclaimed from the former Salsigne gold mine. The Solar farm will now save nearly 2,000 tonnes of CO_2 annually and provide clean, green electricity to meet the needs of approximately 2,400 people every year.

Installed capacity	5 MW
Number of panels	21,760
Panel Rating	230 watts
Construction	EOLE-RES
Estimated annual energy production	Approx. 6 million kWh
Electricity generation	Approx. 2,400 people
CO_2 savings	Approx. 1,900 tonnes per year

CASE STUDIES

BATTERY UTILITY OF OHIO, USA

The battery system in Ohio is one of the first of its kind, offering a modular, highly reliable system built on standard building blocks that can be expanded in the future. Using safe and reliable Lithium batteries, the storage system, with its superior speed of response and emission free output, provides both real and reactive power in response to grid events.

Power capacity	4 MW
vEnergy capacity	2.6 MWh
Location	Sunbury, Ohio
Technology / Chemistry	Lithium Iron Phosphate

TRANSMISSION LINE, MONTANA TO ALBERTA

In 2013, RES Americas completed construction of the Montana-Alberta 345km, 300 MW, 230kV electrical transmission line, allowing both countries efficient and economic access to existing and new sources of renewable power. Transmission infrastructure developments help provide a robust grid for improved safety and reliability, and support the increased deployment of renewable energy. This helps reduce environmental pollution by enabling renewable resources to be integrated with existing generation sources.

Capacity	300 MW
Voltage	230 kV
Length	214 miles / 345km
Constructor	RES Americas
Owner	Montana Alberta Tie Ltd, subsidiary of Enbridge Inc.
Operational	2013

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