

DUDGEON

Offshore Wind Farm

Operated by Equinor

Spring 2019

for just under 30% of all electricity generated in the UK, coming second only to gas. This move away from fossil fuel energy generation has resulted in carbon emissions which are 43% lower (2017 figures) than the 1990 base line, and 75% of that emissions reduction since 2012 has come from the power sector.

By December 2018 the UK had 7,899MW of installed offshore wind capacity, which is the largest installed capacity of any country in the world. The UK government is now aiming to increase that to 30GW by 2030, a figure which is calculated to be in excess of one third of the UK's total electricity demand by that date.

Dudgeon Offshore Wind looks forward to continuing to play an important role in the UK's achievement of its climate change targets ■

Ofgem has now granted a 20 year license to TC Dudgeon OFTO plc to own Dudgeon's transmission assets, during which time the operation and maintenance of those assets will remain the responsibility of Dudgeon Offshore Wind Farm personnel ■

Contents

- Page 2 ▶ An interview with...
Sonja Chirico Indrebø,
Dudgeon Power Plant Manager
- ▶ Dudgeon working with the
fishing industry
- Page 3 ▶ News from aboard Esvagt Njord
- ▶ Some new arrivals in the
Dudgeon team
- Page 4 ▶ Dudgeon in the Community
- ▶ About the owners
- ▶ Contact details

Dudgeon's power success



Photo: Jan Arne Wald / Woldcam

▶ The Dudgeon Offshore
Wind Farm off the coast of North Norfolk

By generating 1.60TWh of electricity during 2018, the Dudgeon Offshore Wind Farm not only supplied sufficient electricity to power around 380,000 UK homes, but also played an important part in the growing success of offshore wind power in the UK's energy mix.

The Climate Change Act of 2008 sets the UK's emissions reduction targets at 80% by 2050 against the 1990 baseline. Currently, renewable energy in all its forms is responsible

Dudgeon completes OFTO transfer



▶ Necton substation

Ofgem is the UK government regulator of gas and electricity markets, and one of its functions is to regulate and licence the transmission of electricity generated at 132kV or above in the UK's territorial waters.

In order to avoid marketplace monopolies, offshore wind farm developers and operators are required to transfer the assets used to distribute the electricity to the National Grid into independent ownership. These assets include all offshore and onshore substations and transmission cables.

Transmission Capital Partners, a consortium comprising International Public Partnerships Limited, Amber Infrastructure Group and Transmission Investment, was selected by Ofgem through a tender process in which bidders compete to become Offshore Transmission Owners (OFTOs).



▶ Sonja Chirico Indrebø

An interview with... Sonja Chirico Indrebø, Dudgeon Power Plant Manager

Sonja Chirico Indrebø qualified as an Electrical Engineer at the University of Surrey in the early 1990's. Since joining Equinor in 1998 she has undertaken a variety of roles, most recently leading the development of renewable energy strategy and innovation for its New Energy Solutions organisation from Stavanger, Norway.

Sonja joined the Dudgeon Offshore Wind Farm as its Power Plant Manager in October 2018, and is finding it an exciting but challenging role, saying:

"I have to ensure that we have a strong team which creates a safe environment in which we can maximise the output of electricity from the wind farm at the lowest possible cost. I see this as being an important contribution to the local electricity infrastructure."

"With around 90 employees and contractors involved in the business, I like to start each day in the Control Room; it is the heart of the operation and it is from there that I get an overview of everything that is happening. The remainder of the

day can involve me in many different aspects of the organisation.

"The first four months I have been in Great Yarmouth has been amazing. I have been warmly welcomed by everyone I have met, and I really loved going out to the field and being part of the actual turbine activities. I hope I can bring my previous experience to the table and together with the organisation make Dudgeon a fantastic electricity generating asset and a great place to work."

Sonja is keen to ensure that the Norfolk community understands the opportunities that the Dudgeon Offshore Wind Farm

will bring to the region during its lifetime.

"I think we all have a duty to be role models for future generations. I understand that I am one of the first female Power Plant Managers in the UK offshore wind energy industry, and I am keen to encourage girls to look at careers in renewable energy. This is why the Dudgeon Community Fund STEM Programme is so important, as I believe it will stimulate young people's interest in science and technology. I enjoyed visiting local schools that participated in the 2018 challenge and hope to visit many more in the next couple of years" ■

Dudgeon working with the fishing industry

The Dudgeon Offshore Wind Farm is situated in waters that have been fished commercially by generations of Norfolk fishermen, and today the small number of fishermen working in and around the Dudgeon site sail typically from Kings Lynn and a number of ports and harbours along the North Norfolk coast.

During the construction phase, the wind farm site was closed to all fishing activity for reasons of health and safety, but since construction was completed in late 2017 the waters of the Dudgeon Offshore Wind Farm have once again been open for fishing. However, fishermen are asked to observe a 50m exclusion zone around each wind turbine generator in order that their shanks of pots and other gear do not get entangled with the wind farm's work vessels.

Dudgeon's marine and logistics management team seeks to maintain regular contact with all the fishermen known to work the Dudgeon fishing grounds to ensure they have regular updates regarding the work schedule

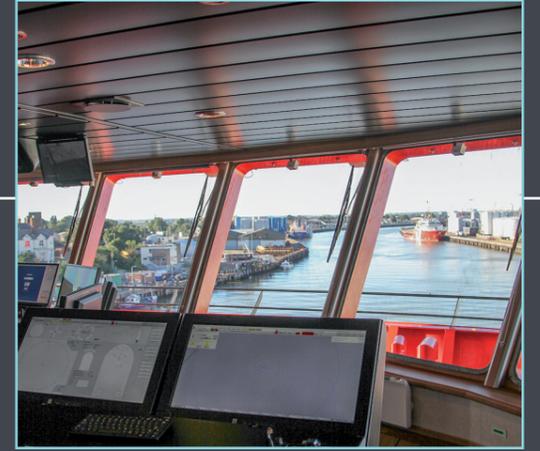


▶ Fishing vessels in Wells harbour

of the "Esvagt Njord" SOV and other vessels around the wind farm. Regular Notices to Mariners are also issued to fishermen as well as being posted on the Dudgeon Offshore Wind Farm website (www.dudgeonoffshorewind.co.uk)

Alan Cooper, who is based in and around Wells-next-the-Sea, continues to be the Fishing Liaison Officer (FLO) for the Dudgeon Offshore Wind Farm ■

News from aboard Esvagt Njord



▶ Esvagt Njord

Since 'Esvagt Njord' came in to service at the Dudgeon Offshore Wind Farm in September 2016, it has always been a busy life for the technicians aboard this impressive SOV (Service Operations Vessel), and 2018 was no exception.

During the course of the year, 5,662 Uptime walk-to-work gangway passenger transfers from the vessel to the wind turbines were performed, with 2,044 cargo lifts to the wind turbines also being undertaken. In addition, 3,927 passenger transfers, and 2,273 cargo lifts, were made from 'Esvagt Njord' to crew transfer vessels, and all these transfers and lifts took place WITHOUT INCIDENT.

"Esvagt Njord is one of the key elements of daily life here at the Dudgeon Offshore Wind Farm O&M base", said Glynn Fereday, Dudgeon's Operations and Maintenance Leader.

"The technicians who live and work on the SOV play a critical role in ensuring that Dudgeon's 67 wind turbine generators are available to generate electricity for the greatest possible percentage of time on a 24/7 basis."

"Dudgeon was the first UK offshore wind farm to bring an SOV into service to support its operations and maintenance phase and, as is evidenced by our energy generation figures, it is working very well" ■

Some new arrivals in the Dudgeon team

A number of new appointments have been made at the Dudgeon Offshore Wind Farm, and a warm welcome is extended to:

Jake Smith, who joined Dudgeon in October 2018 as an Offshore Operations and Maintenance Technician, is based on "Esvagt Njord" working a 2 week on/2 week off rotation. His responsibilities include daily routine operation and maintenance tasks associated with the wind farm's 6MW wind turbine generators.

Jake lives in a small village outside Great Yarmouth and motorcycles and aerial photography occupy him during his 'off' time. He said: "I consider myself very fortunate to working in such an enjoyable position for Equinor at the Dudgeon Offshore Wind Farm".

Andrew Kirby has been with Dudgeon since August 2018, working in the Control Room at the Great Yarmouth O&M base as Senior Engineer System Operation and Safe Working. He is responsible for the safe co-ordination of all work activities and personnel on all sites, and the operation and safety of all Dudgeon's equipment on the high voltage electrical network. He has also recently taken on the role of safety representative for all Dudgeon's on-shore shift workers.

In his leisure time, Andrew enjoys running, as well as some golf and fishing, and he is a regular in his local gym ■



▶ Jake Smith



▶ Andrew Kirby

Dudgeon in the community:

Grant applications to the Dudgeon Community Fund

Dudgeon Offshore Wind Farm has committed to a yearly investment of £100,000 to its Community Fund for the lifetime of the wind farm, and in 2019 the STEM Programme will once again target projects which will encourage pupils to go on and study the STEM (science, technology, engineering and maths) subjects in either Sixth Form or Technical College. The objective is for this is to inspire students to consider a future with STEM at the core – either through employment or further education.

The Dudgeon Community Fund is administered by the Norfolk Community Foundation and full details of the grant application criteria can be found at: www.norfolkfoundation.com/funding-support/grants/groups/dudgeon-community-fund ■

Dudgeon STEM Programme – progress report

Story 1: Greenpower Education Trust



▶ Matt Buck (kneeling) with a single seat F24 electric kit car. Image courtesy of Town Close School

As reported in the last issue of this newsletter, the grant to Greenpower Education Trust will see each of ten secondary schools in Great Yarmouth, North Norfolk and Breckland districts of Norfolk build a single seat F24 electric kit car and race it in a 2019 inter-school challenge.

Importantly, support for this exciting Dudgeon Community Fund initiative has come from Lotus Cars which has agreed to host the inaugural F24 Norfolk events at its historic Hethel test track on 8th June 2019.

Matt Buck, Greenpower Ambassador in

Norfolk, is delighted to have gained support from Lotus Cars, saying: “F24 is taking off at schools across Norfolk just as Lotus is looking to an expanding and dynamic future.”

As a result of a number of promotional activities undertaken by Greenpower in Norfolk, including attendance at the Norwich Science Fair in October 2018, six schools – Caister, Academy, Cliff Park Ormiston Academy, Dereham Neatherd High School, Litcham School, Northgate High School and Wayland Academy – had already purchased their car by the end of January 2019, and news of the last four schools to join the Programme is expected shortly. It is anticipated that around 200 students will participate in this initiative.

Four further schools from other parts of Norfolk have also been awarded car grants from other funders ■

Story 2: Sheringham High School

The innovative robotics development programme at Sheringham High School which has received funding from the Dudgeon Community Fund is a project which is expected to encourage today's students to become tomorrow's engineers.

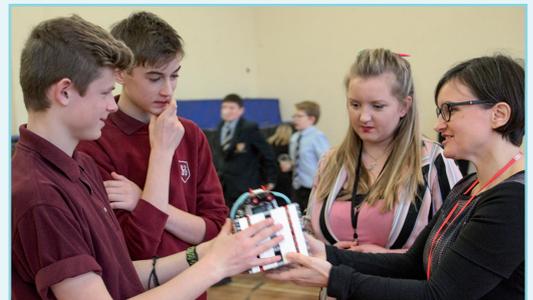
The project is designed to give students opportunities to observe and develop the STEM skills beyond the classroom curriculum, and to increase student uptake in GCSE and A-Level STEM subjects.

It will also expose students to the 2019 Robotex Expo international robotics competition in Estonia that will feature technology and engineering companies from all over the world. In preparation for the format of this competition, the 2018/19 project requires students to use Lego EV3 kits to develop sumo wrestling and line-following robots (known as 'bots').

Charlotte Gardener is the Science Teacher at Sheringham High School who is co-ordinating the project; the other participating schools being Alderman Peel High School, Cliff Park Ormiston Academy, Fakenham Academy, Nicholas Hammond Academy and Stalham High School.

She commented, “Late last year we hosted a practice session at Sheringham High School, and it was obvious that there is a huge amount of enthusiasm for this project from teachers and students alike. Some strong computer programming by many of the students has given them an impressive command of their individual robots.”

Up to 75 students are expected to participate in this STEM project in the 2018/2019 academic year ■



▶ Students discuss their 'bots' with science teacher Charlotte Gardener (2nd right) and Sonja Chirico Indrebo

About the Owners

Dudgeon Offshore Wind Farm is owned By Equinor, Masdar and China Resources.

Equinor is an international energy company headquartered in Norway, with 21,000 employees and operations in 36 countries. Building on 40 years of experience from oil and gas production, the company is committed to accommodating the world's energy needs responsibly, applying technology and creating innovative business solutions.

Masdar is Abu Dhabi's renewable energy company advancing the development, commercialisation and deployment of clean energy technologies and solutions. The company serves as a link between today's fossil fuel economy and the energy economy of the future.

China Resources is a diversified holding company registered in Hong Kong made up of seven strategic business units covering consumer products, power, real estate, cement, gas, pharmaceuticals and finance. All its investments through those business units are self-operating businesses, which have more than 450,000 employees ■

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