

Responding to interests highlighted at the October 2016 drop-in exhibitions

Over the coming months, we will respond to themes, ideas and concerns local people raised with us. We'll use different means to do this – including opportunities for discussion informed by data and third party materials at drop-ins and other events, short informative pieces on the website or in the newsletter, vlogs, tweets and film. Here's a flavour of themes raised at the October drop-ins. We'll expand on these at the March drop-ins.

Local benefits and opportunities

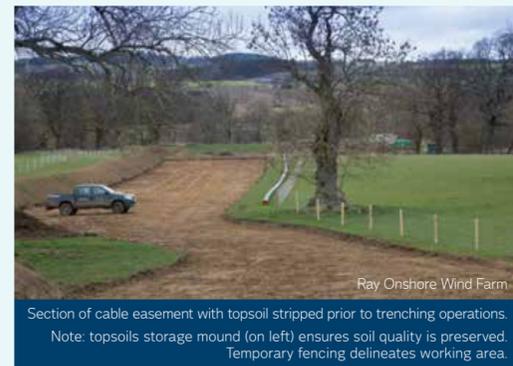
This is a topic that prompted a significant number and variety of responses during our early engagement in autumn-winter 2016. Ideas raised at the drop-ins and in feedback forms included:

- physical benefits developed alongside onshore infrastructure construction, such as improving access to local roads,
- supporting initiatives contributing to local resilience to coastal erosion,
- long reaching education and training benefits,
- maximising the value of local jobs and investment.

We will be developing this conversation with communities over the coming year. Related to this, and a necessity for the successful delivery of both Norfolk Vanguard and Boreas is a supply of appropriately skilled local technicians and engineers to operate and manage the wind farms. There are many other roles that contribute to the development, construction and operation of Offshore Wind Farms too. Sue will be collaborating with local stakeholders to ensure the area is prepared to take advantage of local opportunities.

Burying High Voltage cables

The onshore cable route connecting both Norfolk Vanguard and Norfolk Boreas from landfall to the existing National Grid 400 kV substation near Necton is approximately 60km long, and will, in the main, cross through open agricultural land. The intention is that ducting to accommodate Norfolk Boreas' cables as well as Norfolk Vanguard's would be installed together. At the March Drop-ins we'll showcase our experience of underground cable-laying. At the Ray Wind Farm, Northumberland, trenching and the subsequent cable-pull has been focussed on safely, minimizing disruption and maximizing consideration to landowners and others who may be affected. These works are recent, whereas at our Thanet project we can illustrate the recovery of affected, sensitive saltmarsh environments, within a few years of cable laying.



Ray Onshore Wind Farm
Section of cable easement with topsoil stripped prior to trenching operations.
Note: topsoils storage mound (on left) ensures soil quality is preserved. Temporary fencing delineates working area.



Ray Onshore Wind Farm
Section of cable easement after replacement of topsoil and re-instatement of ground cover.



Virtual Reality at Aberdeen Science Centre Activity weekend for European Offshore Wind Deployment Centre

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Environmental Protection and Offshore Wind Farm (OWF)

At Vattenfall, we are committed to delivering environmentally sustainable projects. Between 2016 and 2019 we are investing close to three quarters of a million pounds in an "Environmental Protection and Wind Power" research programme. The focus areas for the programme, which covers both on- and off-shore wind are shown below.

Bird collisions – onshore	Bird collisions – offshore	Bats	Displacement and barrier effects	Underwater noise
				
Objective Improve knowledge of key sensitive bird species and how they are affected by wind farms.	Objective Improve evidence base for quantifying collision risks for key sensitive species.	Objective Better understanding on bat impacts in different kinds of terrain and landscape. Focus to be able to better predict and avoid bat fatalities.	Objective Quantification of displacement and barrier effects in relation to wind farms.	Objective Improved evidence base on the environmental significance of wind farm noise.
Species – Birds of prey (raptors): golden eagles, white tailed eagles, kite – Nightjar	Species – Gannet – Larger gull species – Nocturnal migration (passerines)		Species – Seabirds: (Divers, Auks, Gannet, Shearwaters, Sea-ducks, Waders) – Nightjar – Reindeer	Species – Marine mammals (porpoises) – Fish (spawning)

Some of the themes you asked about are covered by elements of the research programme. At the March drop-ins, we'll tell you more.

Dates for your diary

Please join us at the following events. Do encourage others who may have an interest in helping to shape and improve these important clean energy projects and the benefits and opportunities they can bring to Norfolk.

Date	Monday 20 March	Tuesday 21 March	Wednesday 22 March	Thursday 23 March	Friday 24 March	Saturday 25 March	Thursday 30 March	Friday 31 March	Saturday 1 April
Location	Dereham 6th Form College	Norwich, Blackfriars Hall	Aylsham Town Hall	Happisburgh Village Hall	Necton Village Hall	North Walsham High School	Reepham Town Hall	Great Yarmouth Assembly Rooms	Bacton Village Hall
Address	Crown Road, Dereham, NR20 4AG	St Andrews & Blackfriars Hall, St Andrews Hall Plain, Norwich, NR3 1AU	Market Place, Aylsham, NR11 6EL	Blacksmiths Lane, Happisburgh, NR12 6EL	Tuns Road, Necton, PE37 8EH	Spenser Avenue, North Walsham, NR28 9HZ	Church Street, Reepham, NR10 4WD	Town Hall, Hall Plain, Great Yarmouth, NR30 2QF	Coast Road, Bacton, NR12 0ES
Exhibition Start Time	1pm	1pm	1pm	1pm	1pm	11am	1pm	1pm	11am
Close	7pm	7pm	7pm	7pm	7pm	4.30pm	5.30pm	7pm	4.30pm

Vattenfall's commitment to Norfolk is deepening. In this edition, you'll find items on:

- Norfolk Vanguard – eight hundred people participated in our October Drop-in events, helping to refine our search area
- Norfolk Boreas – Vanguard's sister project
- Your Local Liaison Officer and Skills & Training Champion
- Community interests – Local opportunities, how to bury high voltage cables, environmental protection
- March Drop-ins – Have your say on Norfolk's world class offshore wind projects



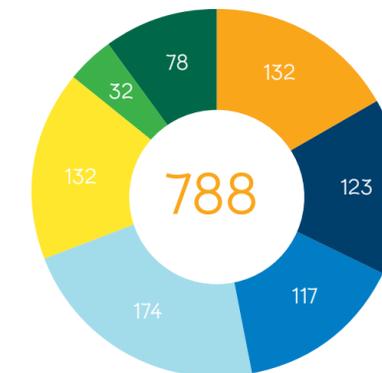
Norfolk Vanguard - community feedback helps refine the project

Last October, we received a lot of valuable feedback, with more than eight hundred people taking part in our local drop ins. Participants made comments, asked for more information on key topics, and shared their extensive knowledge of the area to make sure we are aware of issues of local importance. You can read more in the summary report we've prepared, or read all the feedback in the full report. <http://bit.ly/NVdocs>

The Vanguard project team have refined our onshore search areas for the best landfall, cable relay station location, onshore cable corridor and onshore project substation location, based on feedback from communities, local experts and Statutory Consultees, desk-based research, technical and environmental considerations. We look forward to reviewing the map with you at the March Drop-ins and working with you to site onshore infrastructure, and associated works.

Drop-in event attendance

- Aylsham
- Happisburgh
- Dereham
- Necton
- North Walsham
- Great Yarmouth
- Norwich



The graph above shows 788 people signed into the October Drop in Events.

Environmental surveys are underway

Following contact with landowners, environmental surveys have been underway in the area shown on the map inside. You may see ecologists taking photographs and noting habitats and species. Their work helps us understand ecological constraints at an early stage, so that the development can be designed to limit or avoid harm to protected species such as newts, badgers, reptiles and birds. The information gained will be included in an Environmental Impact Assessment (EIA)¹, a key component of the Norfolk Vanguard consent application.



Ecologists undertaking environmental surveys

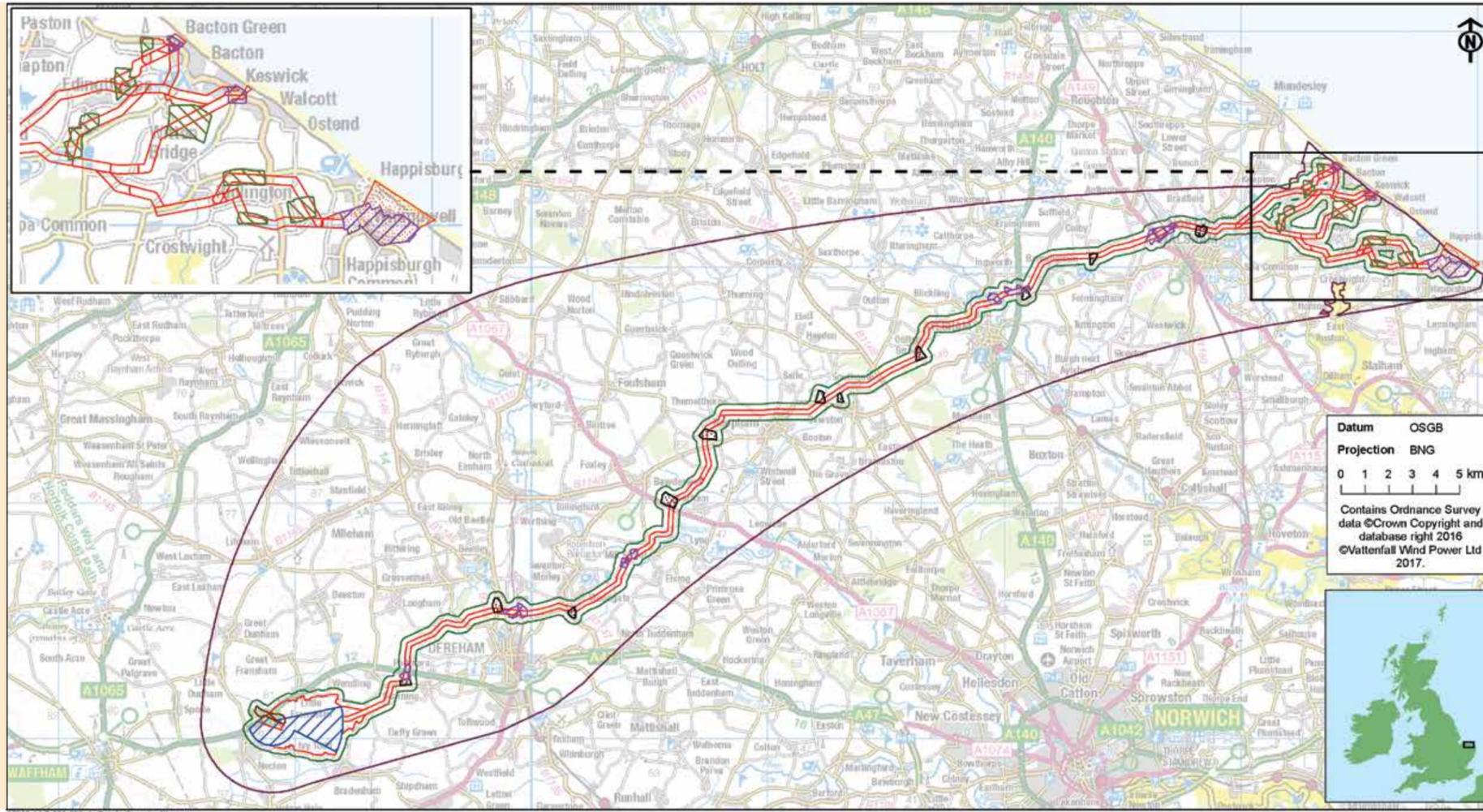
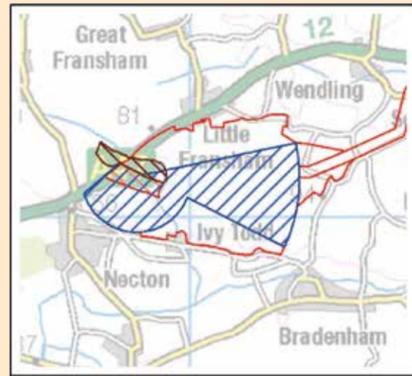
Tired of reading?

At the March drop-in events and on our website, we invite you to explore visual and interactive aids providing information participants requested, and showing how we've used your input to date.

¹There is an explanation of the Environmental Impact Assessment (EIA) and other useful background information on the boards we displayed at the October drop-ins http://norfolkvanguard.vattenfall.co.uk/sites/default/files/2016-10/117.006_Vattenfall%20Boards%20AW%20LR%20%282%29.pdf

In case you missed the October drop-ins, our site selection process for all onshore infrastructure is guided by the following criteria:

- Residential properties and sensitive areas (e.g. schools)
- Designated sites and protected species
- Important habitat, trees, ponds, agricultural ditches and hedgerows
- Landscape setting and viewpoints
- Existing land uses
- Flood risk
- Archaeology and heritage assets
- Engineering requirements and feasibility
- Highway access
- Utilising open agricultural land in flat terrain, and along field boundaries
- Crossings, e.g. road, river and rail
- Underground services e.g. gas pipelines / utilities
- Consultation and feedback



	Cable relay station zones	Areas where a cable relay station could be located
	Horizontal directional drilling zones	Areas where a construction technique (HDD) could be used to drill underground
	Landfall zones	Areas being considered where the cables from the offshore wind farm could come ashore. There are currently three options being considered – Bacton Green, Walcott Gap and Happisburgh South.
	Mobilisation zone	Areas where construction equipment could be temporarily stored during the construction works
	National Grid substation extension zone	Area where the National Grid substation extension works may need to take place
	Onshore cable corridor	A wide corridor area of search in which the cable route could be located
	Onshore project substation zone	Area where the onshore substation could be located
	Overhead line modification Zone	Area where the reconfiguration of the existing 400kV overhead lines will take place
	Environmental survey area	Areas for surveying habitats and species
	Original search area for onshore works	

Introducing Norfolk Boreas – Vanguard’s sister project

Back in 2010 Vattenfall acquired rights from The Crown Estate, in a joint venture with Scottish Power Renewables, to develop the East Anglia Offshore Wind Farm Zone. Early in 2016, The Crown Estate issued agreements for each developer to progress their interests independently. Vattenfall immediately began developing Norfolk Vanguard and now, from early 2017, we’re developing a second Norfolk project, Norfolk Boreas, also named after a famous ship in Admiral Lord Nelson’s fleet.

Why Norfolk? Why two projects?

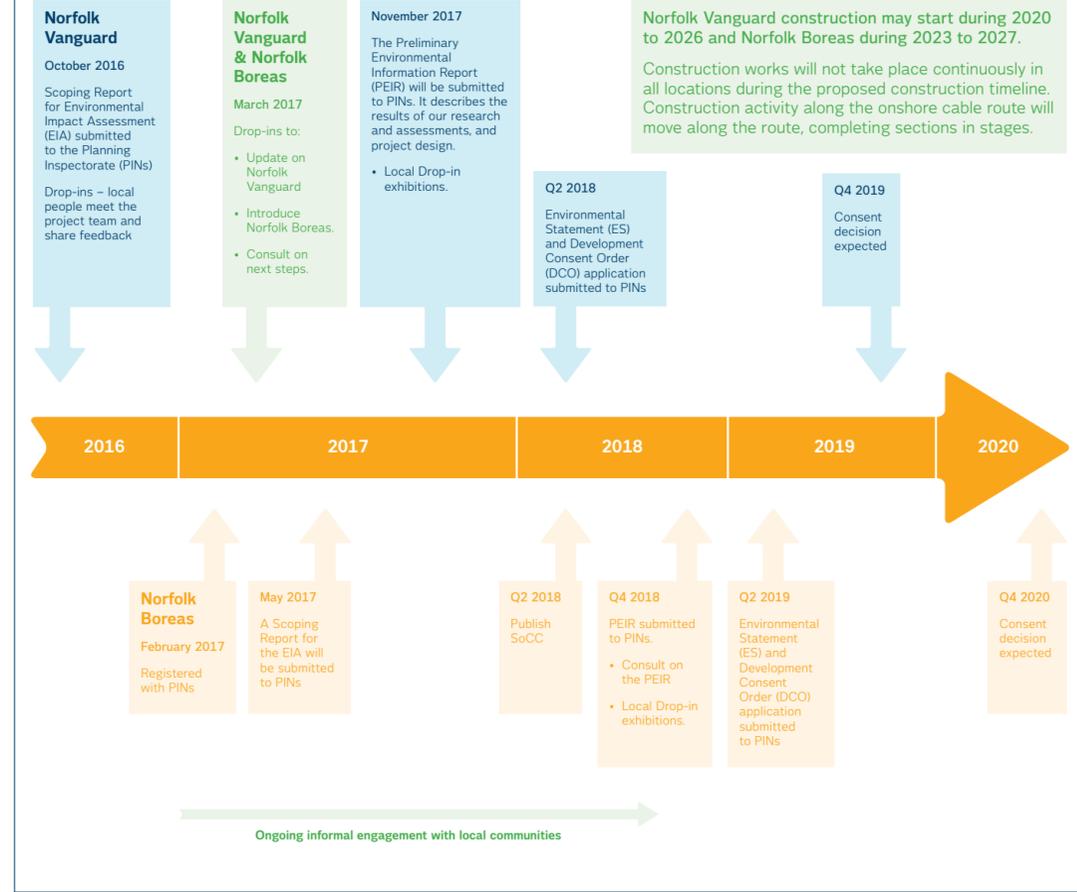
Norfolk was selected for a number of reasons:

- There is plenty of offshore wind
- The waters are shallow, which makes it easier to carry out construction
- There are a lot of port facilities along the Norfolk coast, like Great Yarmouth

Two projects – why it works:

- Together, the projects will have a combined installed capacity of 3.6GW – a significant contribution to the UK’s carbon reduction targets
- Vattenfall are experienced developers of clustered projects, which assist the delivery of low cost renewable energy for the consumer, through shared infrastructure and improved knowledge of constructing and operating in the area
- Having one project follow the other allows more time for local stakeholders to shape the projects, and identify opportunities for synergy and avoidance/reduction of cumulative effects
- A strategic, phased approach to development, construction and operation of Norfolk Vanguard and Boreas can enable the local workforce and supply chain to optimise opportunities, while the project and consumers benefit from deployment of the latest technology and innovation

Consultation timeline



Sue Falch-Lovesey Local Liaison Officer and Skills & Training Champion

In her own words

As Vattenfall’s Local Liaison Officer for Norfolk I am excited to be able to combine two great passions of mine – Norfolk and sustainable development.

Over many years I have been involved in partnership projects to enable environmental and outdoor learning. I have a special interest in ensuring that Norfolk’s young people are actively engaged and empowered to shape the plans that will influence them into the future.

It’s important that the views of Norfolk people are fully considered early on and throughout the development of the Norfolk Vanguard and Boreas projects because that makes these major developments so much more valuable for the area. I very much look forward to supporting this and to meeting many of you.

Contact: info@norfolkvanguard.co.uk

