

Written evidence submitted by SUFFOLK ENERGY ACTION SOLUTIONS

## INTRODUCTORY SCOPE

This submission focuses on two questions raised by the EAC:

1. How well is the UK industry managing the environmental and social impacts of offshore wind installations, particularly on coastal communities with transmission-cable landing sites? (*EAC's question 5*)
2. How well is Government policy supporting innovation in transmission technology to improve the efficiency of electricity transmission? (*EAC's question 6*)

## EXECUTIVE SUMMARY

Our campaign is called **SEAS** (Suffolk Energy Action Solutions) because our goal is to help the UK Government make the most of the opportunity to establish this country as the world leader in offshore wind power transmission infrastructure in terms of environmental protection and cost efficiencies.

We believe that this is the time for a step change in thinking and the time to devise a well-conceived national strategy for offshore wind power transmission infrastructure.

It is not as complicated as some suggest.

We have created a volunteer team with different skills - zoologists, wind energy engineers, entrepreneurs, farmers, environmentalists, alternative energy pioneers and tourism leaders. We are totally supportive of the shift towards energy renewables and we believe that the UK government should be focusing more on developing an umbrella strategy for offshore transmission infrastructure

around the coast of East Anglia in order to optimise the principal environmental, social and economic outcomes.

We have been working with specialists across Norfolk and Suffolk, and even though our detailed submission concentrates on coastal Suffolk because that is where we live, we have joined together with Norfolk residents and councillors to explore the opportunity for the East Anglia region to be considered as one single area for the optimisation of offshore transmission infrastructure. If we were to be invited to make a presentation to the EAC, we would of course bring a team of both Norfolk and Suffolk specialists to show the plans that we have drawn up indicating an offshore modular grid around the coast of East Anglia.

The UK government has expressed its goal to become world class in its generation of energy renewables. This aim cannot be achieved if the DELIVERY SYSTEM undermines those principal outcomes.

Green energy is no longer green if the delivery system destroys unspoilt, fragile countryside, desecrates medieval villages and ravages rare habitats.

A better alternative is available. We can express this as follows:

- A. Move the plans for new incremental onshore “transmission-cable landing sites” to a holistic offshore modular grid with only two MEGA HUB substation and interconnectors sites located on already industrialised brownfield sites closer to the key urban destinations for this power, one near the Thames estuary and the other near King’s Lynn.
- B. Use the latest technology to construct a sea corridor for this wind power to be pooled and taken to the Grid avoiding environmental catastrophe.
- C. Devise a business model whereby each power company pays a levy to use the corridor, having set up offshore substations, artificial islands, hub platforms and whatever makes most sense to keep the wind power away from fragile coasts of East Anglia. This collective system will be more cost-

efficient because it avoids huge mitigation costs, time delays through judicial reviews (mitigation is not always available) and negative PR for all parties concerned. The tax payer is willing to pay a small premium for having green energy delivered in this way. The legislation needs to be updated in order to enable this holistic strategy to be implemented. This requires political will, quite simply. The COVID-19 crisis has demonstrated that the UK Government and other institutions can move quickly where there is a pressing need.

- D. Establish a realistic but fast track timetable for this holistic project. Our engineer specialists have researched what is being done in other North Sea countries including Belgium, Germany, Holland, Denmark and Norway. This delivery system can be set up in just four years, not ten years as is often quoted by ScottishPower and others. What's more, it will cost no more than £5 billion. The power companies will pay for part of these initial costs and the tax payer will pay for another part.
- E. Within UK universities, energy companies and institutions, we have access to some of the leading researchers and engineers in this field. We recommend that a cross-department task force is set up with representatives from DEFRA, BEIS, National Grid and Ofgem working alongside relevant specialists within an agreed timetable and set of objectives to deliver this holistic strategy.

# CONTENTS

	<i>Page</i>
Introductory Scope	2
Executive Summary	2
The Campaign	6
The 12 Energy Projects	7
The Cumulative Effect	8
The Immediate Threat: SPR Windfarms	9
The Places Affected	11
The Issues	12
The Opportunity for a New Solution	17
Contacts	20

## THE CAMPAIGN

SEAS (Suffolk Energy Action Solutions) was founded in August 2019 as a grassroots campaign to make people aware of the impending onslaught of Energy projects that will descend upon East Anglia in the next 10 to 20 years.

**SEAS is in favour of offshore wind energy farms.**

**SEAS is against the current proposed plans for the onshore delivery of that wind power.**

SEAS's mission is to make the UK Government aware of the uncoordinated plans for up to 12 Energy Projects proposed, in particular, for one small area of East Suffolk, with the inevitable economic and environmental harm they will do, causing untold hardship for its inhabitants, environment and economy.

SEAS believe that the UK Government needs urgently:

- to call for an immediate moratorium to review all Offshore Wind Farm Development Consent Orders (DCOs),
- to call for a cross-departmental inquiry into the adverse impacts of onshore substations, and
- to create a national strategy for offshore transmission infrastructure, which incorporates offshore solutions, such as an Offshore RingMain (ORM), modular grid with substation offshore platforms and Island Hubs.

# THE 12 ENERGY PROJECTS

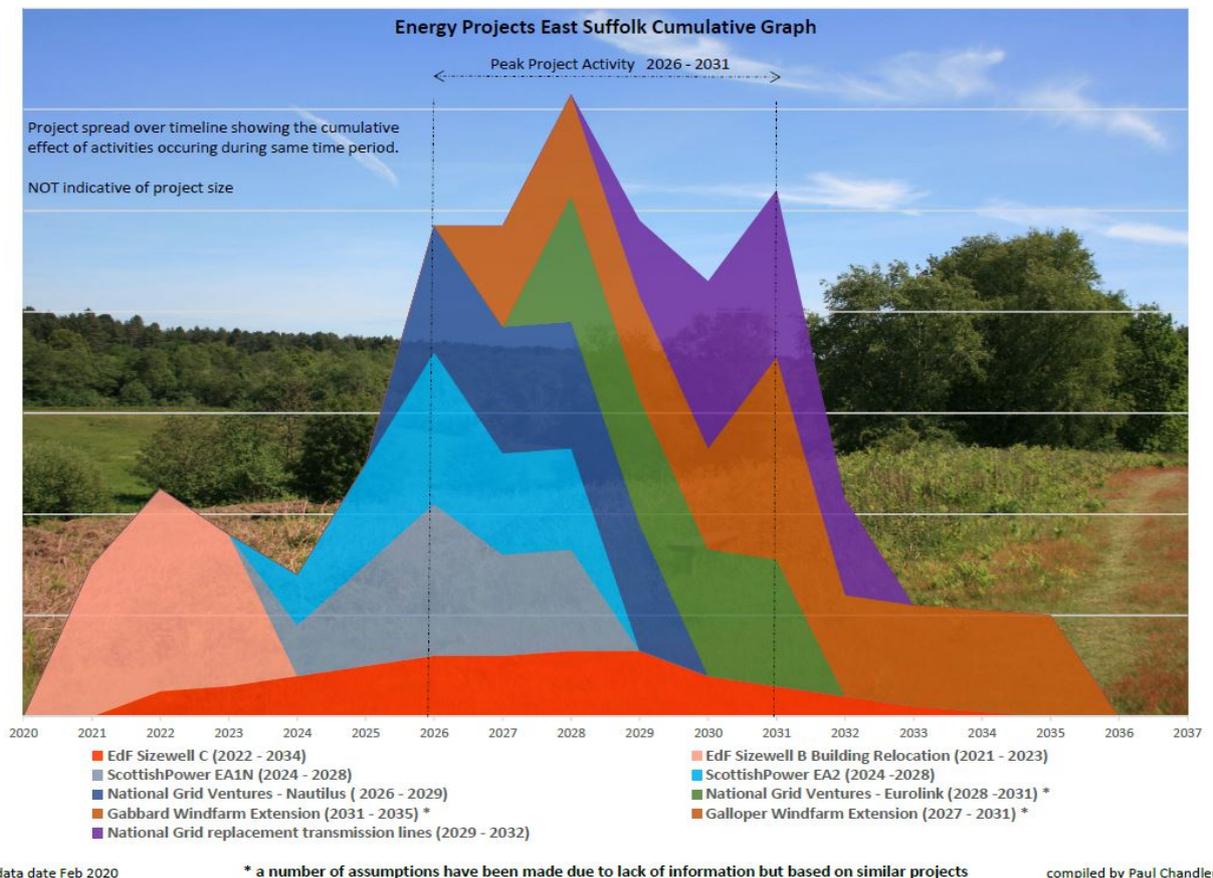
## HERITAGE COAST v ENERGY COAST

East Coast Suffolk has traditionally been called the “Heritage Coast”. Now, it is being renamed the “Energy Coast” through the emergence of 12 energy projects. This is their status:

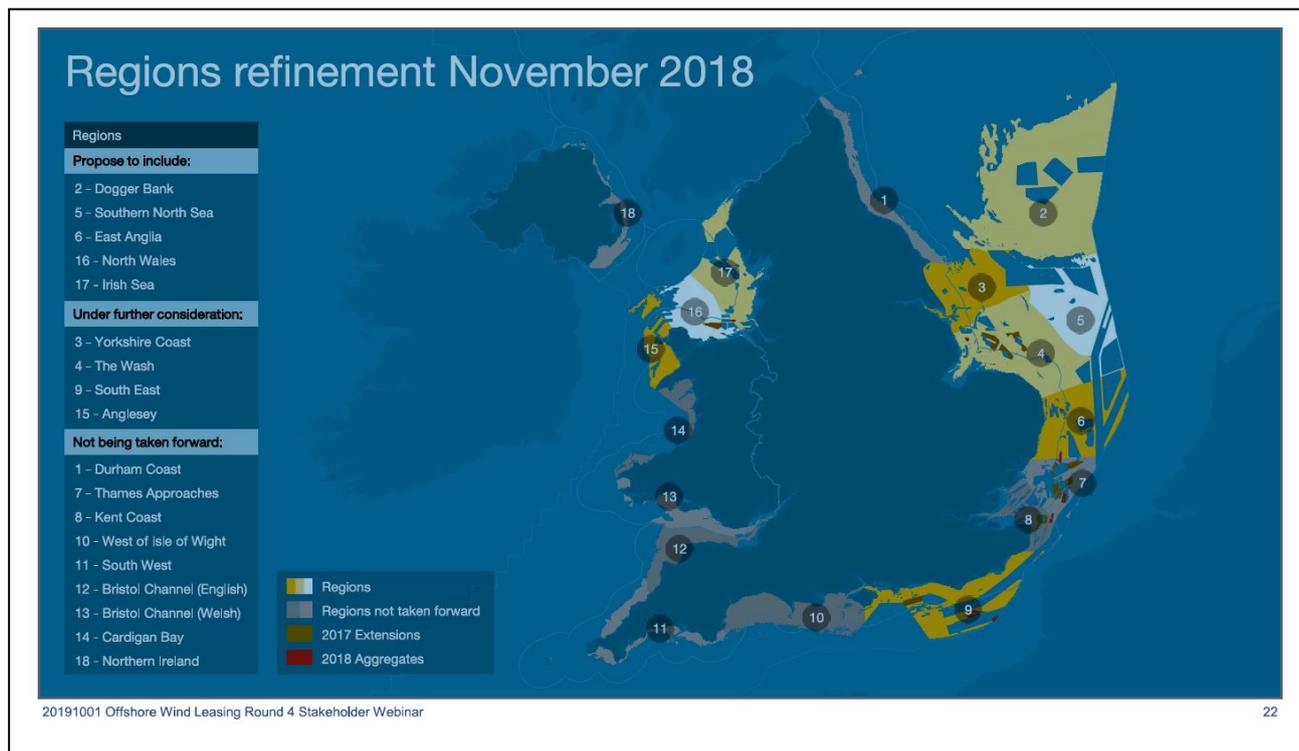
1. ScottishPower Renewables (SPR) EA1 – Wind Farm and Onshore transmission infrastructure completed and now Online
2. ScottishPower Renewables (SPR) EA3 – Wind Farm and Onshore transmission infrastructure completed – yet to go Online
3. Sizewell B – Judicial Review on District Council planning decision <https://www.bbc.co.uk/news/uk-england-suffolk-50940974>
4. EA1N – SPR DCO Application submitted and going into the Examination period <https://infrastructure.planninginspectorate.gov.uk/projects/eastern/east-anglia-two-offshore-windfarm/?ipcsection=docs>
5. EA2 – SPR DCO Application submitted and going into the Examination period <https://infrastructure.planninginspectorate.gov.uk/projects/eastern/east-anglia-two-offshore-windfarm/?ipcsection=docs>
6. Sizewell C – preparing for DCO application at end of March 2020 <https://infrastructure.planninginspectorate.gov.uk/projects/eastern/sizewell-c-new-nuclear-power-station/?ipcsection=docs>
7. National Grid Nautilus – Sounding out local Parish Councils, Town Councils other stakeholders and compiling environmental studies. <https://www.nationalgrid.com/document/125601/download>
8. National Grid Eurolink – no information as yet, but will follow the footsteps of Nautilus
9. Greater Gabbard Extension – written to Stakeholders <https://sse.com/newsandviews/allarticles/2019/08/greater-gabbard-extension-successful-in-habitat-regulations-assessment-process/>
10. Galloper Extension - no information as yet, but will follow in the footsteps of Greater Gabbard
11. SCD1 Sizewell Kent interconnector - National Grid – this appears to have been sanctioned without going through the DCO process
12. SCD2 Sizewell Kent interconnector – National Grid say this will quickly follow on from SCD1

# THE CUMULATIVE EFFECT

Offshore wind projects cannot (as currently) be assessed in isolation. There is a cumulative impact from the numerous, consecutively occurring, energy projects on and around the Suffolk coast. Any proposals need to take into account the known 12 Energy Projects. Whilst all projects are considered in isolation by the planning inspectorate, local communities and environments are left vulnerable to the cumulative effects.



The Crown Estates Round 4 leasing of more North Sea bed will cause a further tsunami of windfarms and associated onshore development. Where will they land?



## THE IMMEDIATE THREAT: SPR WINDFARMS

### EAST ANGLIA ONE NORTH and EAST ANGLIA TWO

ScottishPower Renewables (an indirect subsidiary of Spanish multinational electric utility company, Iberdrola, SA) has submitted two applications to the Planning Inspectorate for two separate development consent orders (DCO) for the construction and operation of the East Anglia ONE North (EA1N) and East Anglia TWO (EA2) Offshore Windfarms. These were submitted to the Planning Inspectorate in tandem. Development consent for EA1N and EA2 is required to the extent that the development is or forms part of a Nationally Significant Infrastructure Project (NSIP). As NSIPs, the projects fall within the remit of the Secretary of State. If these two projects are approved, they open the flood gates for a raft of other energy projects, industrialising and concreting over currently unspoilt countryside in Coastal Suffolk.

It is unprecedented to have two DCOs assessed in tandem and to date this has caused immense confusion not just for the community but for the Planning Inspectorate, which has to duplicate all its inspection processes.

The proposed location for the offshore windfarms is in the southern North Sea, approximately 36 km and 32.6 km respectively from the Suffolk coast at its nearest point and would occupy an area of up to 208 /218 km<sup>2</sup>. The landfall connection for both works will be located through the fragile cliffs north of Thorpeness, and the onshore substation and overhead line realignment works will be located in the vicinity of Grove Wood, Friston.

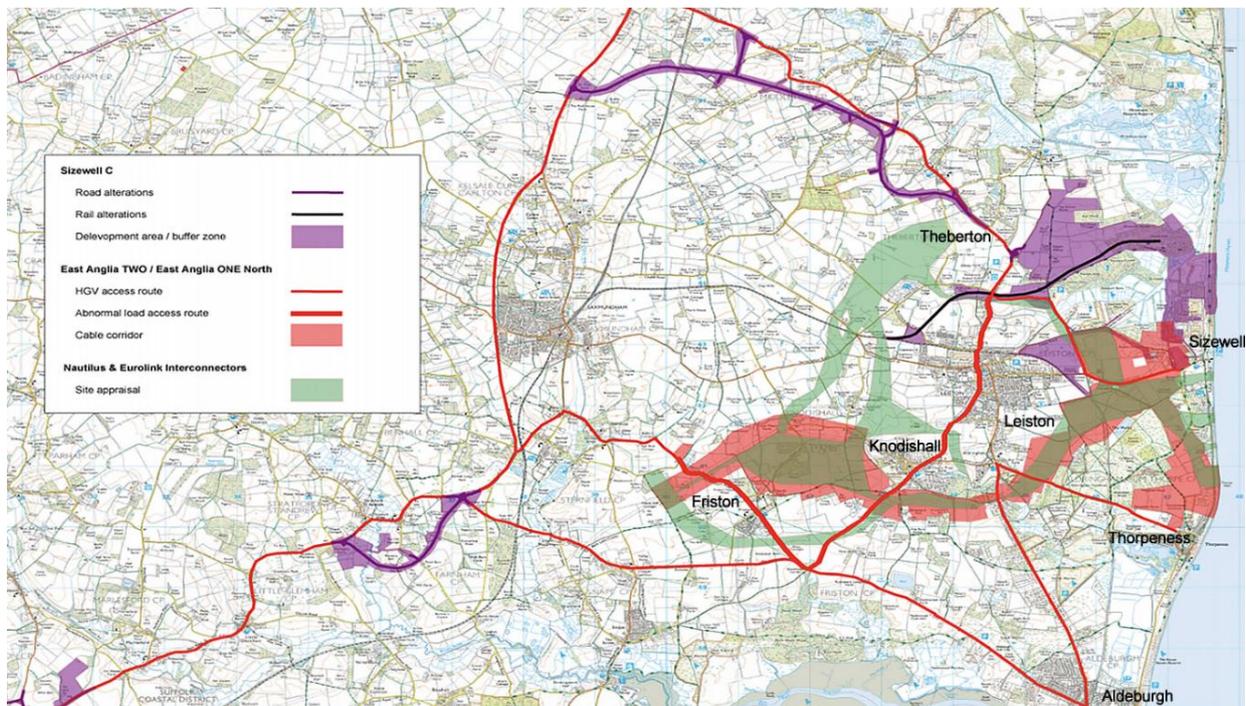
The Development Consent Order would, amongst other things, authorise:

1. Up to 67 offshore wind turbines and their foundations for EA1N and 75 for EA2;
2. One offshore meteorological mast and its foundations for each project;
3. Subsea cables for each project connecting the wind turbines and the offshore platforms;
4. Up to one offshore construction, operation and maintenance platform and its foundations for both projects;
5. Up to four offshore electrical platforms and their foundations for both projects;
6. A network for each project of subsea platform link cables;
7. Up to two offshore subsea export cables to transmit electricity from the offshore electrical platforms to landfall located north of Thorpeness in Suffolk for each project;
8. Two sets of landfall connection works north of Thorpeness;
9. Two sets of onshore cables commencing at landfall and running to the onshore substation in the vicinity of Grove Wood, Friston;
10. A new EA1N onshore substation in the vicinity of Grove Wood, Friston and a second for EA2 in close proximity;
11. Overhead line realignment works in proximity to Grove Wood, Friston, including permanent realignment of a short section of the northern and southern overhead line circuits including the reconstruction and/or relocation of up to two pylons, and construction of up to one additional pylon in order to realign the northern overhead power lines and the reconstruction and/or relocation of up to one pylon in order to realign the

- northern overhead lines and the reconstruction and/or relocation of up to one pylon in order to realign the southern overhead lines;
12. Temporary diversion of the northern and southern overhead line circuits;
  13. Temporary construction of up to three permanent cable sealing end compounds (one of which may include circuit breakers) and underground connectors;
  14. A new National Grid Substation covering an area of 30 acres approximately 18m high; and
  15. Associated development comprising such other works as may be necessary or expedient for the purposes of or in connection with the relevant part of East Anglia One North and East Anglia Two.

## THE PLACES AFFECTED

Ten communities will be hemmed in by the construction of haul roads, cable routes, substations, connectors and interconnectors for up to 15 years and probably more, as shown in the map below.



1. **THORPENESS** – A residential and tourist destination with hospitality outlets affected by Landfall.
2. **SIZEWELL** – A residential and leisure destination affected by the cable corridor and compounds.
3. **ALDRINGHAM** – A residential area affected by the cable corridor crossing the B1122 and the River One Hundred.
4. **LEISTON** – the main town that will be impacted from the massive influx of temporary workers (the adverse social impact from the construction of Sizewell B is well documented).
5. **THEBERTON** – Residential area and Farmland affected by Sizewell C Haul Road.
6. **KNODISHALL** – Residential area and Farmland and a pinch point for HGV traffic.
7. **FRISTON** – Substations and Interconnectors – the industrialisation of a medieval village.
8. **SAXMUNDHAM** – Residential and main grocery shopping area.
9. **ALDEBURGH** – The main tourist town with consequential impact on retail, hospitality and leisure activities.
10. **SNAPE and SNAPE MALTINGS** – these are accessed predominantly from the A1094, the main HGV access road from the A12.

Other villages and towns from Ipswich to Lowestoft will be adversely affected by the heavy traffic and congestion caused by the increased load of HGVs and other commercial vehicles required to bring about the proposed onshore infrastructure projects. These include the popular seaside destinations of Southwold and Walberswick and the local market towns of Woodbridge and Wickham Market.

## THE ISSUES

There are a number of issues that need to be considered fully within the remit of a formal review. These are the salient issues with amplifying comments:

### 1. SITE SELECTION AND ALTERNATIVES

- It is unclear why a coastal area rich in wildlife and exceedingly rare habitats was chosen over brownfield sites more suited to industrialisation. Alternatives, such as ORM or Island Hubs also appear to have been overlooked in the Application.
- National Grid has not answered many of the community's questions and appear to have been absent during the consultation and the application process
- Ofgem, as a consumer cost regulator, has failed since the area chosen will cost more in cabling and mitigation each time new infrastructure is built, than alternative offshore solutions and/or a brownfield site would cost - costs which will be passed on to electricity consumers.

**2. THE CUMULATIVE EFFECT** on local communities and environment of up to 12 energy projects occurring consecutively over 12 to 15 years has not been fully taken into account: See above for maps and graphs.

### **3. LANDFALL**

- Unsuitability of Landfall site due to fragility of Thorpeness Coralline Cliffs, shifting tidal shoreline, coastal erosion, and climate change.
- The Landfall site will affect the England Coast Path and the first National Trail in Suffolk which are anticipated to bring health and economic benefits

### **4. ENVIRONMENT**

- 11 km of cable trenches 50m wide destroying environmentally sensitive areas of AONB, SSSI, SPA, including The Sandlings and Fens heaths:
- UK has 20% of the planet's lowland heathland which is internationally recognised as a 'rare habitat'. It should be actively protected and not destroyed.

### **5. WILDLIFE**

- Threat to wildlife: it is not possible to mitigate damage to habitats of protected or endangered wildlife such as bats, badgers, barn owls, nightingales, red deer and many species of migrating birds that live along

the line of the intended cable route. For non-volant species, the destruction and modification of wildlife habitats, eg ground disturbance, is highest (Lovich & Ennen, 2013): soil compaction from heavy machinery can collapse burrows and crush small wildlife. There is no empirical research into how to mitigate any of these impacts on wildlife during construction.

- Cabling: this will sever the Suffolk Coast and Heaths AONB and therefore the wildlife corridor, in turn undermining the safe haven for migrating species.

## **6. FARMLAND, WOODS, HEDGEROW**

- Loss of 83 acres of Grade 2 and 3 agricultural land at a time where the UK should be more self-sufficient.
- Loss of woodland and hedgerows with inadequate mitigation. If not replanted with mature trees/hedgerows it can take a further 10 years (on top of the construction years) for them to mature and hide 18metre high infrastructures.
- The Woodland Trust are concerned about Grove Wood, which is designated as 'ancient' on Natural England Ancient Woodland Inventory.

## **7. ROADS**

- The local road network is unsuitable for the high traffic levels of construction HGVs, associated service vehicles and workforce vehicles. The increased traffic on roads will endanger cyclists, walkers and residents.
- There will be inevitable delays of Emergency Services and should there be a Nuclear incident the evacuation routes would be severely hampered, both endangering lives.
- Impact on tourism, The DMO survey says traffic congestion and related issues would deter tourists from coming to the area.

## **8. PUBLIC RIGHT OF WAY (PRoW)**

- The Application fails to address the impact on the amenity value of the 26 PRowWs that will be permanently or temporarily closed.
- There is a lack of detail on PRowW closures leading to disruption of the network, thereby leaving local walkers with very limited or no access at all.
- The Landfall site will affect the England Coast Path and the first National Trail in Suffolk which is anticipated to bring economic benefits to the region

## 9. TOURISM

- SPR's media continually promote the job opportunities, this might be the case in Lowestoft with offshore jobs, but there are no benefits to the local community. There will be no additional local jobs, and the loss of tourism will impact Aldeburgh, Thorpeness, Snape Maltings and the surrounding villages.

## 10. LOSS OF JOBS

- The recent DMO survey states that the energy projects “could impact the local visitor economy by up to £40m per year” and has not been addressed in SPR's application.
- Typically, small businesses operate on tight margins and these businesses may not survive.

## 11. LAND USE

These figures are an estimation of ScottishPower Renewables EA1N and EA2's impact on the land use of the area. They are derived from SPR document: EA2 Land Use Cumulative Impact Assessment with the Proposed East Anglia ONE North Project - Source: Preliminary Environmental Information for East Anglia TWO Offshore Windfarm, Appendix 21.1 Volume 3 Document Reference – EA2-DEVWF-ENV-REP-IBR-000816\_001

[https://www.scottishpowerrenewables.com/userfiles/file/EA2\\_PEI\\_Chapter\\_21\\_Appendix\\_21-1-CIA.pdf](https://www.scottishpowerrenewables.com/userfiles/file/EA2_PEI_Chapter_21_Appendix_21-1-CIA.pdf)

<b>sq metres</b>	<b>acres</b>	<b>Ha</b>	<b>Cable Corridor</b>
635,000.00	156.91	63.5	Cable Route
205,000.00	50.66	20.5	Cable Route CCS's
82,000.00	20.26	8.2	Temp. Roads
<b>922,000.00</b>	<b>227.83</b>	<b>92.2</b>	<b>TOTAL</b>
			<b>Substation Complex at Friston</b>
51,000.00	12.60	5.1	CCS x 3
72,000.00	17.79	7.2	Permanent footprint for 2 SS
12,000.00	2.97	1.2	Access Road
79,000.00	19.52	7.9	NG Substation CCS
45,000.00	11.12	4.5	NG Permanent footprint*
<b>640,002.60</b>	<b>64.00</b>	<b>25.9</b>	<b>TOTAL</b>

*\*Unclear whether this is included in NG Substations CCS*

From these proposals, we can deduce that 118 Ha of agricultural, woodland and recreational land will be appropriated during construction and at least 20 Ha removed permanently.

This would be for one project only. For six wind farm transmission infrastructure projects, these numbers would increase proportionately.

## 12. POLLUTION

- Light pollution from substations, compounds and construction areas with 24hr security lights will result in the disappearance of Suffolk's unpolluted dark skies.
- Noise pollution from traffic, construction and the substations' constant noise during its operational life span will destroy coastal Suffolk's valued peace and tranquillity.

- Air pollution from traffic and trenches excavated through Suffolk's light sandy soil will lead to loss of visibility and cause respiratory health issues.

# THE OPPORTUNITY FOR A NEW SOLUTION

## A NATIONAL STRATEGY FOR OFFSHORE TRANSMISSION:

The UK is a world leader in offshore wind power. However, this will be undermined by the absence of a national strategy for transmission infrastructure.

[The Crown Estate](#) and [Crown Estate Scotland](#) maps projecting the offshore wind leasing potential of the UK's sea beds are a matter for concern. Within 50 years the UK could be surrounded by hundreds of windfarms. The present offshore 'point to point' transmission system would carve up precious land at an alarming rate destroying the land required for people to live, work and play in. New innovative solutions have to be found without delay.

A recent industry [report from SSE](#) stated that the present 'point to point' offshore transmission grid connection system is not sustainable and offshore solutions should be put in place. This is not a new idea. Reports stating this were published for review by Ofgem, National Grid and Government in 2008, 2011 and 2015. National Grid's input to the 2008 report titled: "[UK Offshore Energy Strategic Environmental Assessment](#)" was prophetic: Para 193. ***"Indeed, if coordinated development does not occur and projects are considered on a piecemeal basis, the overall network design and substation extension requirements are certain to lead to a sub-optimal solution with significant increase in the impact on the onshore network."***

The UK should collaborate closely with other North Sea countries on the development of a meshed North Sea grid, which would seek out common goals to develop more renewable energy achieved more efficiently. The European Commission report on hybrid offshore wind projects found the potential of a 10% saving.

The North Sea Wind Power Hub ([NSWPH](#)) has made massive technological advances within the last two years and has invited the UK and Norway to join them in the development of offshore energy islands.

Here is an opportunity for the UK Government, National Grid, Ofgem and Developers to work together to trial an offshore transmission energy island. Legislation appears to be the bottle neck. This should not be so, during WWI and WWII legislation was swiftly put into place to help the nation fight the war. Today, new legislation has been passed to counteract COVID-19 and enable Nightingale hospitals to be set up in a matter of weeks. It is therefore within the power of this majority Government to bring in new legislation expeditiously.

We propose, as a matter of urgency, that the necessary legislation is put in place to allow the pooling of wind power from diverse developers into a main arterial corridor (a modular grid or ORM) bringing the power to a single Mega Hub closer to the Thames Estuary with a landfall on an already industrialised site, a brownfield site, thereby negating the need for incremental onshore substations around the East Anglian coast. According to our research of other North Sea countries and their plans, the construction of offshore modular grids with offshore substation platforms can take as little as four years to implement. Currently, the principal excuses for not going ahead with these more innovative solutions are the lengthy process (“it will take ten years”) and cost. We challenge both assertions as being incorrect. The collective corridor approach proposed by SEAS is faster than a prolonged judicial review and cheaper than the currently proposed outdated approach of onshore incremental substations. The cost efficiencies gained by the pooling of wind power and by the convergence into one single Mega Hub are quantifiable.

We propose the formation of a new task force or committee, with representatives from the various relevant institutions: the National Grid, Ofgem, wind power engineers, academics specialising in step change technology, DEFRA, BEIS, developers with a focused brief, to set out the trajectory to establish an offshore

solution transmission infrastructure within five years, and with a business model requiring a levy to be placed on each participating developer together with a small premium for paying customers.

This is a win-win-win concept. The environment benefits, the economy benefits and the wind power industry benefits from a more efficient and sustainable collective approach. The evolving optimisation of our renewable energy delivery system requires a national strategy, not the current adhococracy.

# CONTACTS

**For more information please contact:**

Fiona Gilmore: 07788 870823

Email: [info@suffolkenergyactionsolutions.co.uk](mailto:info@suffolkenergyactionsolutions.co.uk)

Web: [www.suffolkenergyactionsolutions.co.uk](http://www.suffolkenergyactionsolutions.co.uk)

Related Suffolk campaign groups:

Web: <http://sases.org.uk/>

Web: <https://www.saveoursandlings.org.uk/>

Related Norfolk campaign group:

Facebook: Necton Substations Action Group

Yes, to Offshore Wind  
Energy,  
Let's Do It Right