

Make it a GREAT grid upgrade

HOW TO DELIVER A BETTER, CHEAPER &
MORE POPULAR GRID UPGRADE.

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Introduction



The nation's grid needs upgrading. Yet it must be done sensitively, in the best way possible for communities, consumers, and the environment.

Our own region faces 180km of pylons (with two short stretches of undergrounding) across the three beautiful counties of Norfolk, Suffolk and Essex. These new pylons will cause terrible harm to our region's wildlife and habitats, history and heritage, landscapes and businesses. The project, proposed by National Grid Electricity Transmission, is already causing huge heartache and mental health issues.

We are fed up with hearing that pylons are the only way or the cheapest way. That is simply not true. Better and cheaper ways include an integrated offshore grid, underground HVDC cables and upgrading the existing grid.

We need a GREAT grid upgrade that's good for everyone and the environment.

Rosie Pearson, on behalf of the **35,000 Essex Suffolk Norfolk Pylons action group supporters.**

The grid needs upgrading. But new pylons must be the last resort.

What's wrong with new pylons?

- ❖ Millions of trees and hedgerows will be uprooted
- ❖ The setting of heritage assets will be destroyed
- ❖ Countryside views painted by Constable, Munnings & Gainsborough will be lost
- ❖ Power lines kill birds (177 swans in one incident)
- ❖ Houses become unsaleable without huge discounts
- ❖ Damage to soils & farmland, reducing food security
- ❖ Tourist & other businesses affected

But pylons are cheap, right?! No.

- ✓ It is **cheaper to uprate the existing grid** than build new infrastructure.
- ✓ **Integration** offshore instead of the current piecemeal or radial approach **saves money**.
- ✓ Instead of AC cables, using **underground** High Voltage Direct Current (**HVDC**) **cables** can be cheaper than pylons. Less damaging, too.

And anyway, National Grid has made its pylons proposal look cheaper than it is by not including huge costs such as Community Benefits, Biodiversity Net Gain or house price compensation.

Pylon construction causes enormous destruction

- ❖ 1.8 million trees & 6 million hedge plants on the route
- ❖ a motorway grade haul road the entire length of the project requiring millions of tonnes of aggregate
- ❖ concrete for the 550 pylon bases
- ❖ steel for the 550 pylons
- ❖ countless HGV movements
- ❖ pollution risk to rivers
- ❖ unquantified soil carbon release



Uprate, uprate, uprate

Before we build any new infrastructure we should work our existing grid to the absolute maximum.

In the USA they have got the hang of this. A new Order* requires consideration of Grid-Enhancing Technologies (GETs) such as:

- ❖ dynamic line ratings;
- ❖ advanced power flow controls
- ❖ advanced conductors
- ❖ transmission switching

These Alternative Transmission Technologies (ATTs) are often lower cost than new. We need to do this FIRST.

Case study**

HVDC conversion alternative to new 500kV line may save millions and increase project speed for California Independent System Operator

The California Independent System Operator 2022-23 Transmission Plan proposed a new 180-mile 500 kV line between the Trout Canyon and Lugo substations, with an estimated cost of \$1.5-2 billion. As an alternative, merchant developer [Lotus Infrastructure](#) proposed the “Mead - Adelanto Project Upgrade” (MAP Project) to convert the existing Mead-to-Adelanto 500kV line to HVDC while reusing the existing conductors, towers, and insulators to more than double the line capacity from approximately 1.3 GW to 3.5 GW. The developer says its proposal would materially reduce costs, environmental impacts, and permitting barriers. This project highlights savings that can be captured with other alternatives to new transmission beyond reconductoring with advanced conductors.

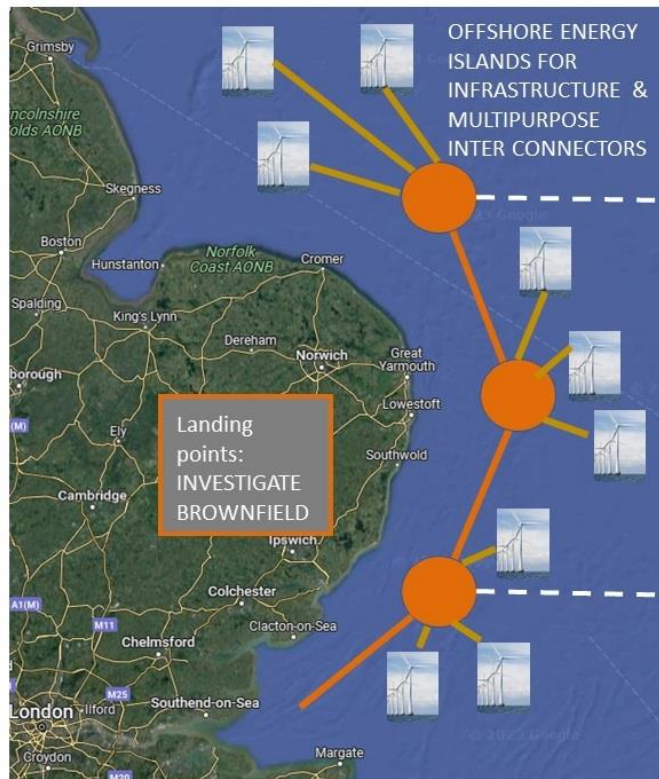
DID YOU KNOW?

National Grid part owns TS Conductor. It builds lightweight, high strength conductors which have 3x capacity during peak generation & demand and 50% reduced line losses. Let's plan to use these in the UK ASAP.

Integrate, integrate, integrate

Better for:

- Environment
- Communities
- Consumers
- Resilience



Stop the piecemeal / radial approach! It is the most damaging and expensive way to connect North Sea wind farms to the grid.

Instead of offering each wind farm its own connection, the grid needs to be coordinated offshore.

Three independent reports since 2011 have shown the benefits of integration. The most recent, by National Grid ESO in 2020 found that the approach shown here would save £2billion by reducing infrastructure by 50%.

(Underground) HVDC

National Grid ESO's East Anglia Study 2024* found that **HVDC undergrounding scored very highly.**

HVDC undergrounding even outperforms pylons if built by 2034!

Option description	Delivery date	Deliverability and operability ranking	Environmental ranking	Community ranking	Economic rating (on-time delivery)	Economic rating (2034 Delivery)
Onshore option (Pylons)	2030	Red	Amber	Red	£0 bn	£1.6 bn
Onshore HVDC Option	2034	Red	Amber	Amber	£1.0 bn	£1.0 bn



*High Voltage Direct Current <https://www.nationalgrideso.com/document/304496/download>

(Underground) HVDC

Did you know? When AC cables (as proposed with Norwich to Tilbury by National Grid) are put underground, they require a trench 120 metres wide?

This means that in the Dedham Vale National Landscape a swathe as wide as a football pitch is long will see total habitat destruction. Instead, we should use HVDC cables. Fewer are needed and they are more closely spaced.

HVDC benefits: * Reduced transmission losses
* Stability & control * Flexibility * Cost effectiveness for long distances * Lower EMF * Fewer technical challenges * Lower visual impact * Lower environmental impact than AC trenching *

Case Study, Germany.

Germany favours underground cables to mitigate public opposition, protect natural landscapes, and address concerns about the visual and environmental impact of overhead lines. This approach has been essential in gaining public support for these large-scale infrastructure projects

Prysmian Group* uses powerful ± 525 kV HVDC underground cable technology.

This makes it possible to transmit more power over long distances, especially from sources like offshore wind farms.

It also allows for a reduced quantity of underground cable to transmit the same power (if compared to ± 320 kV), requiring less space, narrower trenches and less disruption to residents when installing the system.

Compensate, compensate, compensate

Residents, land-owners and business owners must be compensated for any financial impact arising from grid infrastructure.

So-called 'Community Benefits' barely scratch the surface. **Benefits are not compensation.**

Full equivalence must be paid both inside and outside the draft orders (online and offline).
No-one should be out of pocket.

National Grid must be required to have a Discretionary Purchase Scheme*



Consult, consult, consult

Government will need to bring communities along. That means engaging with all stakeholders before decisions are made.

It is imperative that the planned **Strategic Spatial Energy Plan (SSEP)** is created with stakeholders. That is the only way a grid upgrade will get community buy-in.

Community buy-in will result in a less antagonistic and quicker infrastructure delivery process.

Case study: Engage, Deliberate, Decide

This is how Germany* did it... The energy transition is broadly popular in Germany but that doesn't mean everyone wants power lines and other infrastructure built in their neighborhood. Public support was key.

The solution was, instead of Deciding Announcing & Defending a project (as in the UK), the Germans consulted first. A software solution that streamlined the consultation and feedback cycle between all parties was created. That's known as Engage Deliberate Decide. EDD instead of DAD.

By letting the people become active participants in the development process, the construction of an important piece of Germany's energy transition started in a way that is beneficial to everyone involved.

Why take the dinosaur approach?



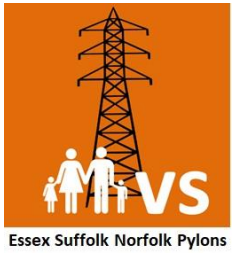
Why do THIS to our cherished landscapes, important habitats and beloved wildlife when there are better, cheaper and more popular ways?

- ❖ Change the National Policy Statements.
- ❖ Require upgrading of existing network first.
- ❖ Use newer, cheaper and less damaging approaches such as offshore integration and underground HVDC cables.
- ❖ Make Ofgem insist upon use of the Treasury Green Book.
- ❖ Compensate fully
- ❖ Consult before decisions are made, to bring communities along

Great Grid election pledges

Ask all your election candidates, “Will you pledge to...?”:	YES / NO
<ul style="list-style-type: none"> • Seek a PAUSE to Norwich to Tilbury to investigate alternatives 	
<ul style="list-style-type: none"> • Seek to ACCELERATE offshore integration & talk to wind farms (looking to 2050) 	
<ul style="list-style-type: none"> • Ensure NO EXTRA infrastructure due to offshore coordination scheme 	
<ul style="list-style-type: none"> • Put PRESSURE ON OFGEM & insist on Treasury Green Book 	
<ul style="list-style-type: none"> • Insist on genuine community engagement BEFORE decisions are made, including insisting on public consultation on Strategic Spatial Energy Plan 	
<ul style="list-style-type: none"> • REMOVE pylon presumption from the National Policy Statements 	
<ul style="list-style-type: none"> • Fight for COMPENSATION for homeowners & businesses impacted by the Great Grid Upgrade 	
<ul style="list-style-type: none"> • Lobby for increased LOCAL energy generation, e.g solar on rooftops, improved insulation and other methods of reducing need for big infrastructure 	

Candidate name:..... Party:.....



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