

Stop the pylons: Alternatives to the “East Anglia GREEN” transmission line proposal

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The best solutions to our energy future don't require massive new electricity grids

National Grid is proposing to build “a new 400,000 volts (400 kV) electricity overhead transmission line” across East Anglia and is presenting it as a ‘green’ solution: “a crucial role and pivotal in turning the UK’s net zero ambitions into reality.” ***The real question is whether this is needed.***

The National Grid proposal:

They say:

The existing network in East Anglia currently carries around 3,200 megawatts (MW) of electricity generation. Over the next decade we expect more than 15,000 MW of new generation and 4,500 MW of new interconnection to connect in the region.

That is, they say their network needs to carry **SIX times the power it does now**. Imagine the current set of pylons and the lower voltage feeder networks around East Anglia expanded by a factor of six. A large and growing number of people are very upset by this prospect and rightly so. National Grid present this six times expansion as a necessary fact, and are consulting only on the details of the proposed new transmission line, such as whether it should go east or west of Roydon. But of course, it isn't a fact, it is a fantasy, and a dystopian fantasy too. It is applying 20th century thinking to a 21st century problem, but a much better 21st century vision is available that is much more environmentally sound.

The real alternative:

There are two major differences between the old system and a sustainable one:

1 Renewable energy sources are distributed all over, not concentrated in large discrete places

The 20th century electricity system was made up of a relatively small number of very large power stations – coal, oil, gas, hydro and nuclear – with the energy distributed to where it was needed by a large grid and smaller feeder networks. Basically the National Grid now projects a similar system, but with large offshore wind farms and more nuclear electricity as the main sources. In addition, there is currently a large gas grid, and road-based distribution of oil-based transport fuels, much of which will be eventually be replaced by electricity, which forms part of the claimed need for a huge expansion of electricity.

But renewable energy is not concentrated in a few places, it is everywhere. Solar panels for electricity and heat, and wind turbines, especially onshore wind, are now its cheapest sources and are being built in very large numbers. The environmentally sound vision envisages a vastly increased use of solar panels on houses and commercial and public buildings so they are nearly ubiquitous, and local onshore wind wherever possible. (Probably community owned to diffuse opposition.) This would be supplemented by other sources, such as small scale hydro, hydrogen, some biomass and others to provide diversity.

Much of the electricity generated would go directly to its users, rather than being transported long distances by the grid. There will be a need for a smaller, residual electricity grid to pool the various sources and balance excesses and shortfalls locally and regionally, but not a hugely expanded grid. The current grid, or smaller expansion might be sufficient.

For National Grid, this could mean using the money that the new grid expansion will cost to fund rapid expansion of solar electric and solar heating panels on as many roofs as possible, and also a campaign to insulate houses and generally reduce energy consumption.

2 Renewables are more variable and cannot follow electricity demand

The other major difference between the old system and one based upon renewables is that while fossil-fuel based energy can be controlled to follow the very large daily peaks and troughs in

electricity demand, renewables cannot do this very well. (And nuclear energy is the worst: The output of a nuclear plant is normally kept quite constant. To make nuclear electricity viable required the invention of such demand management devices as storage radiators, to heat houses at night when least needed, plus the cheap Economy 7 tariff.)

An electricity system made up mostly of renewables inherently requires two features:

1 a large amount of storage to match the variations both in demand and also in supply, which is very weather dependent. That need for storage is an integral part of the renewable vision. Fortunately, the growing use of electric vehicles brings with it a huge storage capacity which can also serve as part of this storage system. A large amount of additional storage will also be needed, from various sources.

2 extensive management of demand: In a future in which energy is scarce, its use needs to be controlled to reduce peaks (just as train and airline tickets are more expensive at peak times). That means avoiding larger uses at peak times. For example, at peak times, some electric car batteries can change from charging to supply.

Living well on much less energy

Beyond these changes to the electricity supply system, a renewable future needs to see energy as a scarce resource and organise to use less. National Grid's documents do take this into account to a considerable extent, but on a largely business-as-usual social vision.

We now have a wasteful, throwaway society that is built upon cheap energy, and with very little sense of community and local mutual support. We can reverse this and build a frugal, but modestly comfortable society, with much lower energy consumption, but with much more local community activity providing support and active social lives. Some examples:

1 Campaigns to substantially increase local food, so that it forms a large part of people's diet. Imagine a partnership between local farmers and gardeners, more farm and garden helpers, lots of local cooks and processors supplying their neighbours, all done using regenerative forms of farming and with minimal and reusable packaging. This reduces not only the transport now used in our global food system, but the use of energy in agriculture.

2 Car sharing and community transport and delivery, to reduce the need for transport. We can build local transport networks using largely electric vehicles, but that includes bicycle-based technology including cargo bikes and trailers.

3 Campaigns for repair, up-cycling, re-use of as much stuff as possible. Backing from government to require goods to last longer and to be repairable, with re-usable and recyclable parts would help. This means much less has to be manufactured, reducing overall energy demand.

4 Community energy businesses that provides solar panels and also home insulation and better use of controls. It would need a better regulatory environment from government to be financially viable.

5. Support for more local production of whatever is possible.

All of these also create lots of local jobs, providing serious help in the coming economic storm. The best part of it is that while support from governments, local and national, would help hugely, these can all be started and managed from the community level.

Conclusion: The sensible way to build a sustainable future, which will avoid the need for a massive expansion of the electricity grid, has as its centre social change to promote reduced energy use through community coordination. We call on the National Grid, who have the expertise, to modify their approach by promoting much more emphasis on local distributed energy sources, by building and encouraging much more storage, and by promoting community-based campaigns to live frugally but with much more community support.

