

A guide to sources and links for key UK strategy documents, version 5

Drawing from revolt news306-314, September 2010 - January 2011

There are several sources set out below. A map of the current grid is at Fig A12 of SYS (section 1 below). It can be compared with the maps showing detailed grid developments arising from offshore wind given in ODIS (section 4 below).

Some proposed developments do not appear on the ODIS maps. For example, a new 95km 400kV line would run from a new 400kV substation at Rowdown (near Croydon) to another new 400kV substation at Lydd on the south-east Kent coast, to link with a new cross-channel interconnector with Belgium, to start in 2017 according to SYS. On the other hand, some proposed lines shown in ODIS are not in SYS. For example two of the three additional 400kV lines from a new substation at Mumby in Lincolnshire. So you have to scour all sources to get a full picture.

(1) National Grid's Seven Year Statement (SYS)

This is a large document in many technical parts, accessed separately. From the home page go to UK electricity and find the link for Seven Year Statement. Then pick 'current' and scroll down this page for the various chapters and appendices and, lower down, individual diagrams. Note the copyright statement and its caveats.

<http://www.nationalgrid.com/uk/Electricity/SYS/current/>

As a helpful starting reference, Figure A12 in Appendix A shows a map with all the existing (at 31-12-09) GB transmission system lines and substations. Names of substations are important in identifying power lines. There are 365 NG substations (one for each day of the year, that's nice) listed at Appendix B.1c. There are more in Scotland listed in other appendices.

New substations after 2009 are not shown in Figure A12 but are named in SYS sections on developments. Table B.7c of "planned developments" gives all planned new NG powerlines and substations from 2009 and continuing beyond 7 years through to 2025-6. There are 307 listed developments, including many upgrades of kit in substations which the public wouldn't directly notice. When you know the relevant substation names it's easy to 'edit/find' relevant developments.

(2) Electricity Networks Strategy Group <http://www.ensg.gov.uk/>

The Energy Networks Strategy Group is a combination of UK industry, regulator and government bodies. It has (more or less privately) formed a 20-year strategy for grid developments to serve the expected growth of renewable energy, especially onshore and offshore windfarms. This strategy will prejudice specific powerline proposals, yet the public has not had a say in its development. From the home page click 'reports' to find links to key documents at:

<http://www.ensg.gov.uk/index.php?article=126>

The "Vision for 2020" published by DECC/Ofgem 4-3-09 is a 31-page pdf document (URN/09/752). Figures 1 and 2 (pages 23-24) give helpful summary maps for transmission proposals in Scotland and for all proposals in England & Wales (+ southern Scotland) respectively. These maps may be a useful starting point for identifying possible developments near you, but more searching will be needed to identify specific proposals or projects.

http://www.ensg.gov.uk/assets/1696-01-ensg_vision2020.pdf

Two other key documents accompany the "Vision for 2020". The 151-page ENSGR 2009-026 gives full technical background and an Addendum Report looks at 2030 generation and demand scenarios.

A further report, ENSGR 2009-22 "Demonstrating the need for electricity infrastructure" of June 2009 can be found on the ENSG site or by google. It slightly pre-dates the final full report ENSGR 2009-026 of July 2009 but the work overlaps. Report 22 includes general strategic discussion and two case studies: north (and mid) Wales; and Hinkley Point C.

ENSGR 2009-22 makes a case for "de-synchronisation" of applications, especially for generation and powerlines. Reasons include time for consent processes and time for construction. ENSG would like infrastructure in place (or at least consented) before it is needed, rather than bogged down with its long time scales. On the one hand there are logistic reasons in favour, but also there are risks of speculative overdevelopment; even so there is some merit in de-synchronisation. However, this should not lead to "pre-determination" where consent for one project strongly prejudices the consideration of another. Also, it should not lead to "fragmentation", where a large strategic project is consented in parts without considering the full impact as a whole.

(3) The Infrastructure Planning Commission (IPC) and National Policy Statements (NPS).

The IPC is the focal body advising Secretary of State on specific powerline and other infrastructure proposals. Although it is to be discontinued in its present form, this role will continue. The IPC web site

<http://infrastructure.independent.gov.uk/>

maintains a list of "all anticipated and live applications". This does not however include all strategic proposals. The page

<http://infrastructure.independent.gov.uk/projects/>

shows a UK map with applications marked. There are some 50 projects listed here in all. Many are for windfarms. Only three are for powerlines as at September 2010.

The IPC must follow policy set out in National Policy Statements, to be finalised.

From revolt news286 of 5-12-09:

The UK Government Department DECC has issued a Draft National Policy Statement for Electricity Networks Infrastructure (EN-5) at November 2009. This National Policy Statement (NPS), taken together with the 'Overarching National Policy Statement for Energy: A Framework Document for Planning Decisions on Nationally

Significant Energy Infrastructure' (EN-1), provides the primary basis for decisions by the Infrastructure Planning Commission (IPC) on powerline proposals.

Revolt's response to the consultation was made as outlined in the Appendix to news293 of 13-2-10, as confirmed in news294.1.

The draft NPS relates to the Vision for 2020 from the ENSG. Revolt's response to the consultation identifies a concern (news293) that, in this way, industry is effectively prejudicing powerline proposals from the strategic stage to the project stage. The Vision for 2020 was determined privately by industry and government, yet it specifies and constrains transmission projects in outline without public consultation.

On 18-10-10 the coalition government issued a 300-page response to the consultation on the Energy National Policy Statements (NPSs), together with revised versions put out for further consultation (closing 24-1-11) in view of the changes. For comment see news310. For details see <http://www.energynpsconsultation.decc.gov.uk/>

The government response defends overhead lines and announces that National Grid, with government support, has commissioned an independent review of lifetime costs of underground and undersea alternatives. The government response also says "it is open to the IPC to require undergrounding where it considers that such an approach is justified".

From revolt news310 of 19-10-10: Regarding the government-industry group ENSG determining strategic options through its 2020 Vision and other reports, the government response claims, predictably, that this is neither a plan nor a programme and therefore exempt from Strategic Environmental Assessment (SEA), but that "the AoSs for the draft NPSs under the Planning Act 2008 have been designed to comply with the requirements" for SEA. This still excludes stakeholders from the stage of developing strategic options.

(4) Sources relating to UK offshore grid developments.

Offshore grids have been discussed both in terms of EU supergrids and for UK offshore wind connection (news295.1-4). The former are "fairly speculative" (news295) although the HVDC North Seas Countries Offshore Grid Initiative has 9-country support. The latter, i.e. for UK wind, tend to be minimal and radial rather than looped, though they can be bunched into larger connections running to large onshore substations. Costs may generally preclude offshore grid redundancy which the onshore grid provides to cope with worst-case outages of two circuits. However ENSG strategy documents include some long-distance subsea HVDC cables essentially to supplement the onshore grid.

Following the start of allocation of offshore windfarm rights in Rounds 1, 2 and 3, firm proposals are emerging for connections to the onshore grid, sometimes in new substations with new overhead line implications. An underpinning analysis was commissioned by DTI in 2006: "Grid Integration Options for Offshore Wind Farms",

with reference to specific UK wind farms and grid connections.

<http://www.berr.gov.uk/files/file36129.pdf>

A further study relating to Round 3 was produced in December 2008 for the Crown Estate by National Grid and others. It presents “an indicative set” of offshore and onshore grid reinforcements for 25GW of offshore wind generation. The purpose is to help determine the offshore zones for Round 3 development.

http://www.thecrownestate.co.uk/round3_connection_study.pdf

Wind industry body EWEA co-ordinated a 2009 document including comment on EU supergrids and a map from a Greenpeace-commissioned 2008 study showing 9 onshore HVDC substations on the east UK for North Sea grids. Again, these are necessarily speculative and not firm proposals.

<http://www.wind-energy-the-facts.org/documents/download/Chapter2.pdf>

National Grid has Offshore Development Information Statements (ODIS). The 2009 version is in the archive section. The 2009 ODIS shows maps of onshore and offshore reinforcements. For example, page 43 shows the new (“Mumby” in SYS) Lincolnshire substation with three sets of 400kV double circuit lines: one to Grimsby West, one to Bicker Fen and one direct to Walpole near King’s Lyn.

<http://www.nationalgrid.com/uk/Electricity/ODIS/>

The 2010 ODIS is now available at the link below. It shows some radical new possible developments including taking a 2GW undersea HVDC link from Anglesey on to Pembroke.

<http://www.nationalgrid.com/uk/Electricity/ODIS/CurrentStatement/>

(5) Ofgem

For further background, Ofgem has its ProjectTransmit review of grid charges to new generators already underway, and has published (October 2010) its decision on the RIIO basis for network regulation. Ofgem’s Project Discovery (Feb 2010) set the scene. www.ofgem.gov.uk

(6) CPRE

The Campaign to Protect Rural England (CPRE) has a campaign on “*electricity pylons and wires*” under its “*natural resources*” section:

<http://www.cpre.org.uk/campaigns/natural-resources/electricity-transmission>

This page has links to

- A map of National Grid lines in England with all National Parks and AONBs
- Possible location of new transmission lines

(7) EWIS (see revolt news318)

The European Wind Integration Study (EWIS) lists grid reinforcement projects across Europe to integrate wind generation.

<http://www.wind-integration.eu/downloads/library/EWIS-Grid-Reinforcement-Projects.pdf>

Project 111 is the Norway – UK connection presently commercially stalled, but EWIS says its installation is expected 2017-2020.

Project 135 is the new Rowdown (Surrey) substation (news312, 315) which is strategically to increase cross-border capacity “to support additional interconnectors” and is here related to integrating wind power across Europe.

Project 136 lists Deeside-Hunterston 360km sub-sea HVDC as “planned” and expected 2015.

Project 137 lists Peterhead-Hawthorn Pit 365km sub-sea HVDC as “planned” and expected 2018, together with Project 138 to upgrade a 275kV Hawthorn Pit – Norton line to 400kV. The NG SYS does not mention any new development at Hawthorn Pit but does mention a new substation at Brine Field to be connected into the Lackenby-Norton line for a new CCGT (gas-fired) power station. EWIS and SYS seem to be at odds here.

Project 141 is a new Harker-Quernmore double-circuit 400kV line for 2020 as well as upgrading the existing line. That is roughly from Carlisle to Lancaster, some 100km or 70 miles. This new double-circuit line appears not to be mentioned in SYS future developments (Appx B7-c). Then project 142 takes the new double-circuit line on to Padiham (roughly near Skipton) across some of the most beautiful parts of the Pennines. SYS does mention this new line with extra new “substations as required” for 2020.

Project 144 for a second Pentir-Trawsfynydd circuit gives commissioning date 2015, some 5 years ahead of SYS.

(ends)

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www.revolt.co.uk