A summary of the experience of wind energy support through the NFFO

Wind Energy Fact Sheet 6

This Fact Sheet provides details of the development of the wind energy market in the UK and the success of schemes supported under the Non-Fossil Fuel Obligation. For more detailed information on current Government policy and incentives in this area see Fact Sheet 2.

Government support mechanisms

The incentive for the UK Government to provide support for renewable energy technologies lies in their potential contribution to secure, diverse and sustainable energy supplies. Recently the role of renewable energy in helping to achieve targets[1] for decreasing greenhouse gas emissions has grown in importance. These incentives have led successive Governments to examine the potential role of renewable energy in UK energy supply and, since 1989, to support its market development. The support was initially in the form of the Non-Fossil Fuel Obligation (NFFO), which has been key to the development of the UK renewables market to date.

In 2000 the Government proposed a new renewables support mechanism, the 'Renewables Obligation', aiming to increase the rate of renewables deployment. The Renewables Obligation is a market-based approach. It puts an obligation on all electricity suppliers to secure a minimum proportion of supplies from renewable sources, subject to the cost to the electricity consumer not being excessive. The proportion of renewables required is scheduled to rise every year to a target of 10% by 2010. The Obligation is designed to stimulate investment, and to give industry the confidence to develop renewable energy.

The NFFO

The Non-Fossil Fuel Obligation (NFFO) was introduced as part of the privatisation of the electricity supply industry, through the Electricity Act in 1989. The system operated by the payment, to generators, of a premium price for a set period of time under a NFFO contract. Parallel arrangements operated in Scotland (the SRO - Scottish Renewables Obligation) and Northern Ireland (the NI-NFFO).

Each Renewables Order set out several different renewable energy technology bands, and contracts were awarded to the most price-competitive schemes within each band. Technologies supported in this way included: wind; small-scale hydro; sewage gas; landfill gas; municipal and industrial waste; energy from waste using CHP; energy crops; and

[1] The Government has set targets to reduce greenhouse gases by 12.5% from 1990 levels over the period 2008-2012 and carbon dioxide by 20% from 1990 levels by 2010.

agricultural and forestry wastes. Although there will be no more Orders under NFFO, it is still important as some contracts still have a number of years to run.

The NFFO encouraged demonstration of those renewable energy technologies that are approaching commercial competitiveness, by assisting their entry into the electricity generating market. It is hoped that, once established, these technologies will be viable without further support. One of the underlying principles was that the premium price payable for power generated by the NFFO schemes was reduced under successive Orders, in order to encourage convergence with the market price. The NFFO mechanism was very successful in driving down the cost of wind energy as illustrated in the table below. This table summarises the "contracted" (contracts issued) and "live" (projects built and operating) wind energy projects under the NFFO (England & Wales), SRO (Scotland) and NI-NFFO (Northern Ireland NFFO) schemes (as at December 2000).

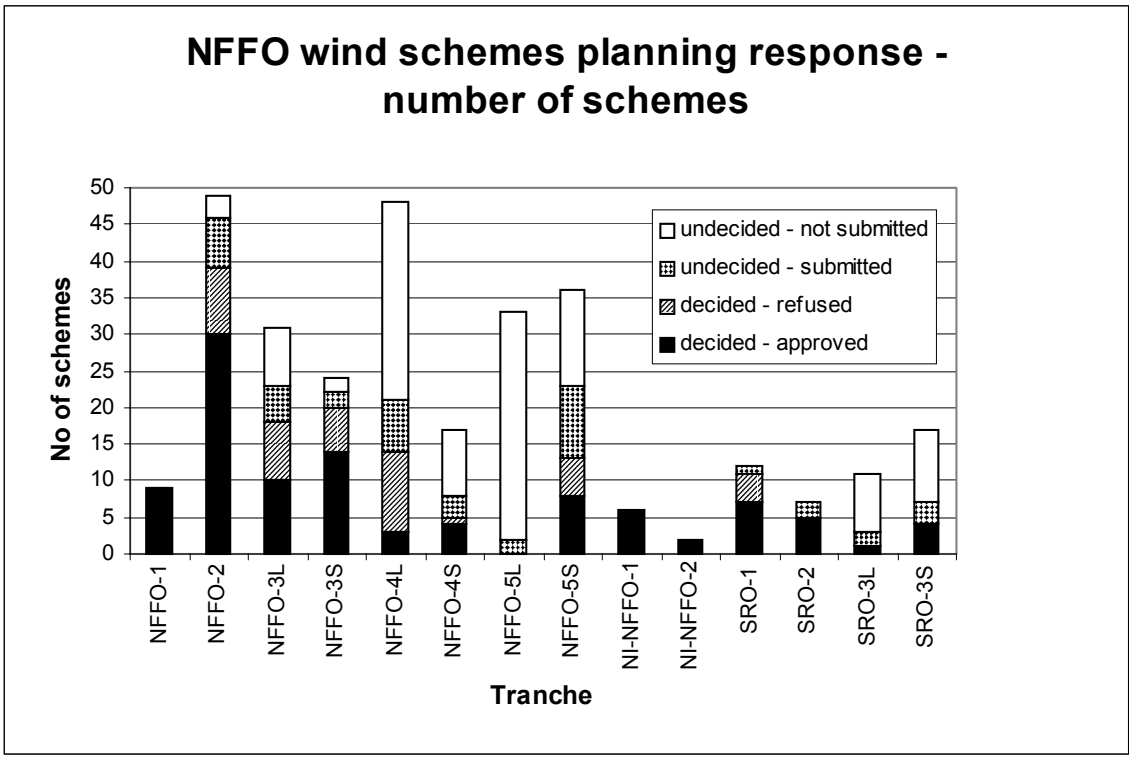
Wind farms	Contracted			Live projects	
	Number	Capacity (MW DNC)	Capacity weighted average price (p/kWh)	Number	Capacity (MW DNC)
NFFO-1	9	12.211	10.0[1]	7	11.664
NFFO-2	49	84.431	11.0[2]	25	56.361
NFFO-3L	31	145.918	4.32	9	36.807
NFFO-3S	24	19.708	5.29	9	7.931
NFFO-4L	48	330.359	3.53	1	2.528
NFFO-4S	17	10.326	4.57	4	2.755
NFFO-5L	33	340.161	2.88		
NFFO-5S	36	28.672	4.18	2	1.690
ALL NFFOs	**247**	**971.786**		**57**	**119.736**
SRO-1	12	45.600	3.99	7	25.130
SRO-2	7	43.630	2.86		
SRO-3L	11	63.430	2.19 (highest)[3] 1.89 (lowest)[3]	1	8.290
SRO-3S	17	14.060	3.38 (highest)[3] 2.63 (lowest)[3]	2	1.62
ALL SROs	**47**	**166.720**		**10**	**35.040**
NI-NFFO-1	6	12.664	6.00[4]	6	12.664
NI-NFFO-2	2	2.567	4.00[4]	2	2.567
ALL NI-NFFOs	**8**	**15.231**		**8**	**15.231**
SUM TOTALS	**302**	**1153.737**		**75**	**170.007**

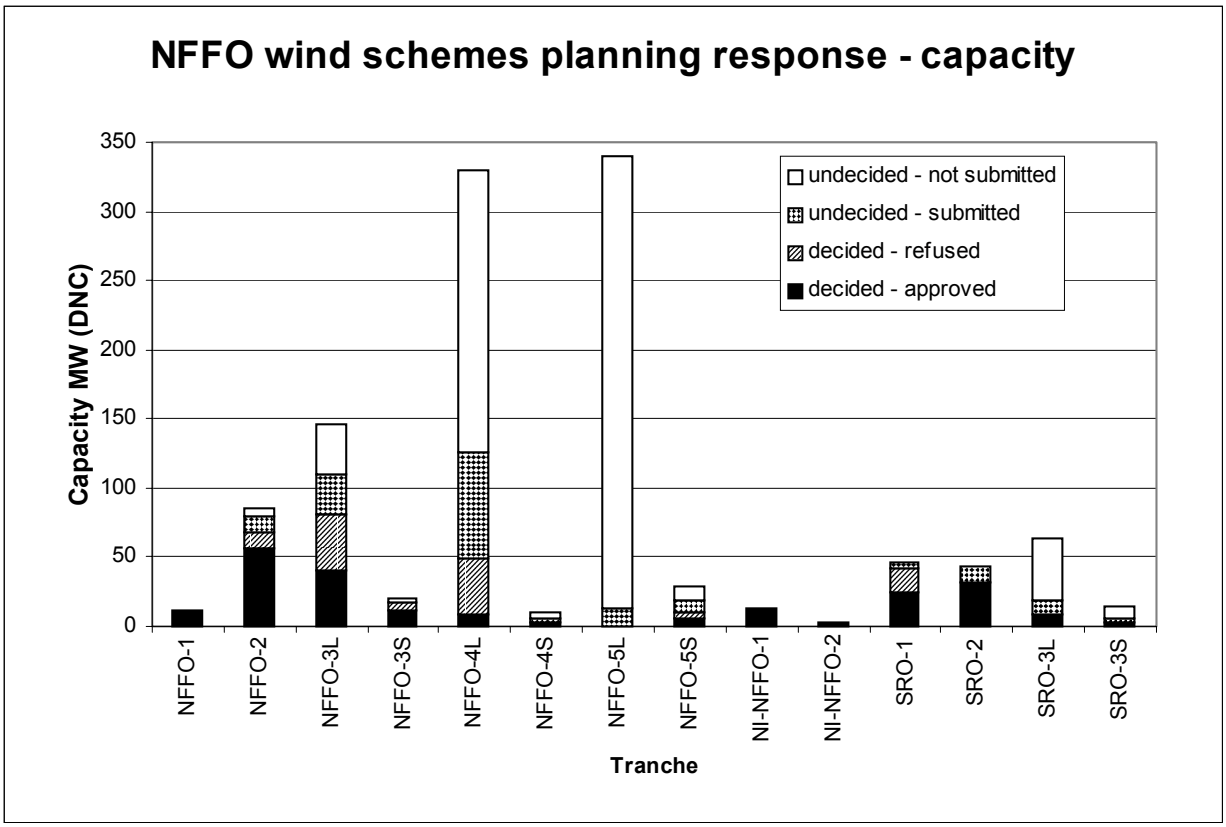
L = Large, S = Small

[1] Maximum price
[2] Single strike price
[3] Highest and lowest prices are available rather than the capacity weighted average price
[4] Prices are the average of those awarded across all technologies

NB Declared Net Capacity (DNC) is used to provide a rough comparison of the output of different renewable energy technologies with that from conventional plant. The DNC for wind is calculated by multiplying the net installed capacity (ie the capacity allowing for on-site losses) by 0.43.

The main reason schemes with contracts under the earlier NFFO tranches were not built was failure to secure planning permission. The status of the UK NFFO schemes in the planning system as at September 2000 is summarised below in two figures with values for each NFFO tranche. The first figure shows the split by number of projects, the second by capacity (in DNC). The figures show that there are still many wind energy schemes that have an uncertain future, but that could contribute to energy supply in the UK.





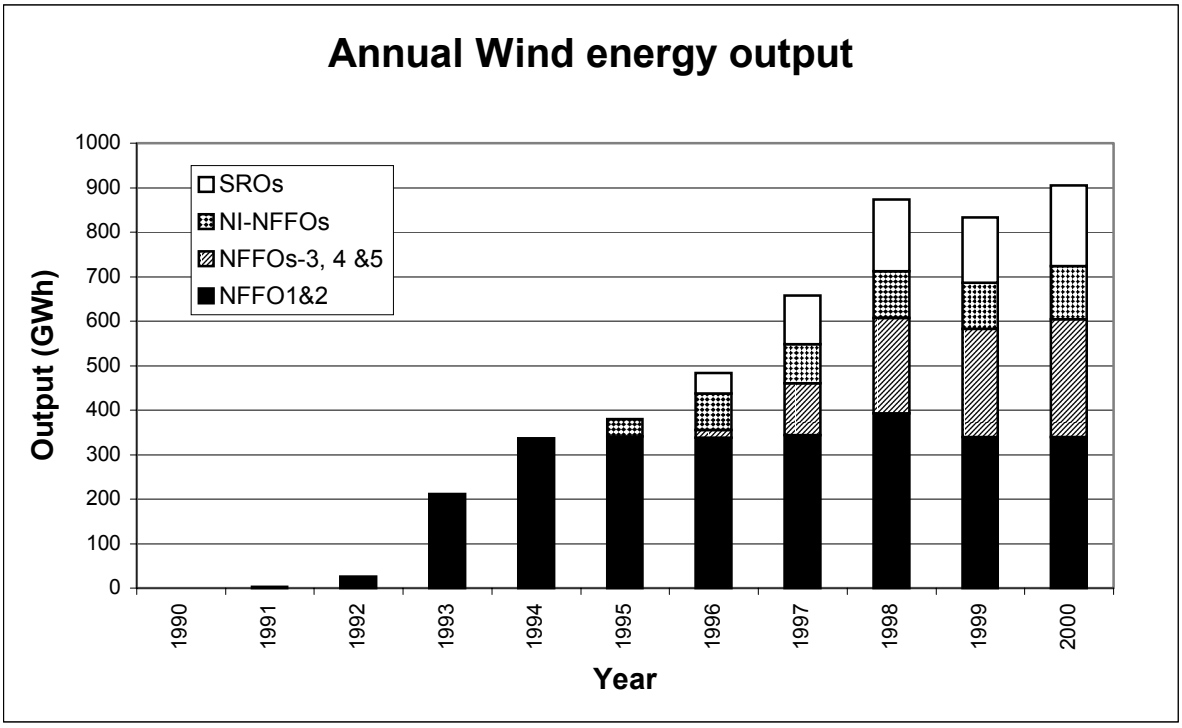
Wind farms in the UK

For a list of all the wind farms operating in the UK see Fact Sheet 5.

Performance of wind turbines

The technical performance of turbines to date has been good, with most developers reporting high levels of reliability (turbines available to operate for around 98% of the time) and energy production either matching or exceeding expectations. Only one wind farm has been decommissioned (for economic reasons) and it was replaced by another at the same site with larger turbines (this is known as 'replanting').

The following graph shows the annual wind energy output from 1990 to 2000.



NB NFFO-1 and -2 contracts ended at the end of 1998 so outputs for subsequent years are estimates.

Energy output varies from year to year due to both increasing capacity and varying wind speeds. As shown in the graph total UK output has increased year on year with the exception of 1999. This is due to a combination of relatively few wind farms being built in 1998 and 1999 and higher than average wind speeds in 1998.

Further information

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