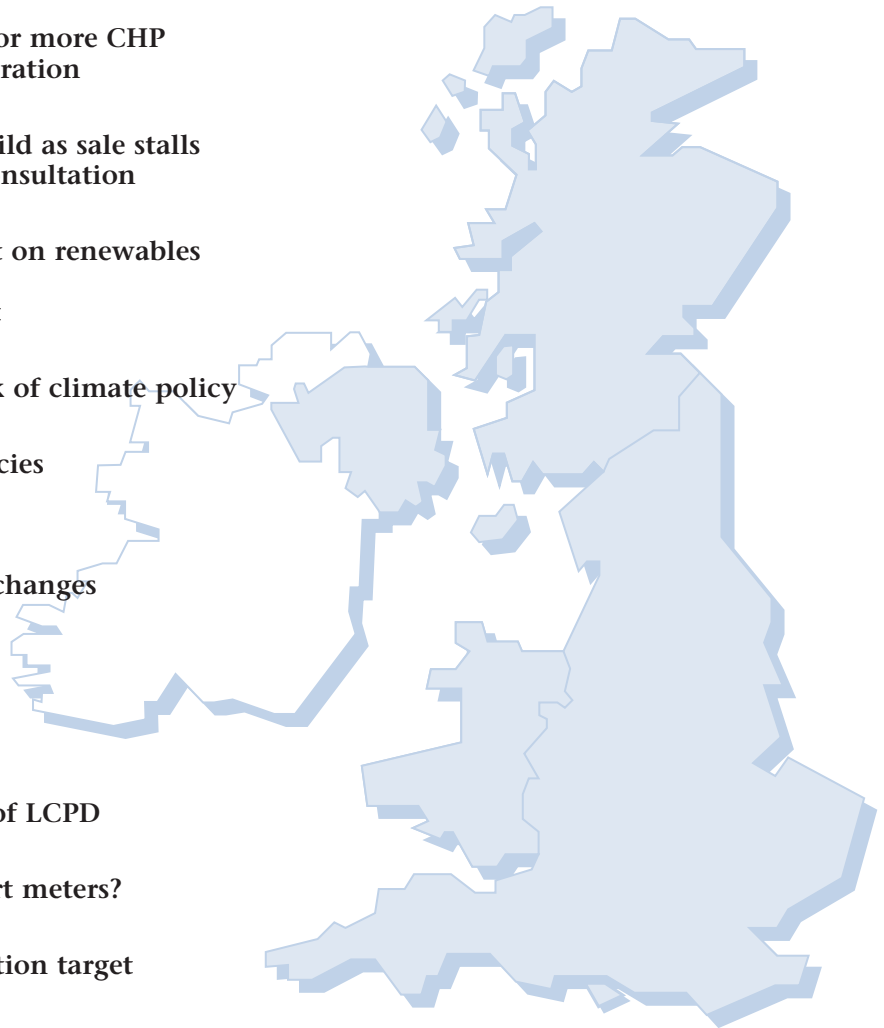


Power UK

- 3 **Generation**
Greenpeace flags up potential for more CHP
Counting the cost of microgeneration
- 9 **Nuclear**
BE consults on Sizewell new build as sale stalls
Government starts waste site consultation
- 12 **Renewables**
MPs urge UK government to act on renewables
Ecotricity takes Defra to court
Court fillip for Prenergy project
- 17 **Environment**
UK and EU need radical rethink of climate policy
- 20 **Politics**
Tories outline more energy policies
- 22 **Scotland**
- 22 **Ireland**
Price probe urges Coolkeeragh changes
- 23 **Regulation**
Ofgem defends inquiry u-turn
- 24 **Book review**
An appeal to reason
- 25 **Transmission**
Warm winter cushions impact of LCPD
- 27 **Metering**
Is there a business case for smart meters?
- 29 **Retail**
Energy price rises torpedo inflation target
- 30 **Prices**
Close shave for NG leads to price 'carnage'
- 32 **News in Brief**
- 33 **Events**
- 34 **Viewpoint**
Is the future of UK electricity dark, dirty and costly?
– REF's John Constable
- 36 **The Power UK interview**
Dorothy Thompson, chief executive, Drax Power



VIEWPOINT

Is the future of UK electricity dark, dirty and costly?

Despite much talk about a new nuclear renaissance in the UK, the prospects of a new nuclear station being commissioned before 2020 look slim. Some believe that, between 2010 and 2020, there is likely to be extended tightness of plant margin caused by lack of generating capacity and, or, tightness in the supply of gas. **John Constable*** believes that the government should act now.

For over a decade we have had a well-meaning energy policy and since the White Paper of 2003 the good intentions have been underpinned by the belief that a growing international order of mutually compatible goals was steadily coalescing into a single reciprocally beneficial globalism. A parallel optimism confidently estimated that fossil fuels would remain cheap for the foreseeable future but would nevertheless be progressively eschewed for reasons connected with climate change.

However, sectional, regional, populational, and national interests have neither disappeared nor converged, and their inevitable resurgence under conditions of constrained resource availability and high fossil fuel prices has resulted in a scenario for which the United Kingdom is poorly prepared.

This is particularly true in the electricity sector where government has vocally endorsed renewables while neglecting nuclear and coal and so, as if in a fit of absence of mind, driving the market towards an overwhelming dependency on gas-fired generation—the fuel for which is increasingly imported and by 2020 will be predominantly so.

The speed with which gas plant will be drawn in is still too little understood, largely because government underestimates the rate at which electricity capacity will retire in the next decade. While EdF and E.ON UK both see a large proportion of UK generating capacity as becoming unavailable by 2015 (32 GW and 26 GW respectively), the Department of Business, Enterprise and Regulatory Reform (BERR) maintains the view that only 20 GW will retire by 2020.

Specifically, it seems that government has not appreciated the impact of the European Union's Large Combustion Plant Directive (LCPD) on the UK's inefficient and technically obsolete coal fleet, particularly in regard to NOx emissions, and so has not seen that much less of this plant will be available after 2016 than is currently believed. While illegal plant might be permitted to run, force majeure, this would not only be humiliating but would also create trading distortions for LCPD compliant

generators, who would otherwise be expecting to see their investments rewarded.

Renewable optimism

Compounding these problems, there has been a prevailing optimism not only with regard to the energy (MWhs) likely to be contributed by renewable generators but, more significantly, with regard to the contribution of firm power (MWs) from a large and dispersed wind fleet.

National Grid has, at least until recently, assumed that this contribution would be roughly the square root of the proposed installed capacity (eg. 25 GW yielding 5 GW firm) while other analyses suggest, based on European experience and meteorological data based power flow models, that the contribution could be very much smaller.

Should this be the case, the capacity margins will be eroded still more rapidly. The significance of this can be readily appreciated from National Grid data (see *chart*) projecting the composition of new additions to the capacity margin from the present day up to 2021.

Clearly, wind is here envisaged as a major capacity contributor, more or less in line with NG's assumption hitherto that this technology would provide some 35% of its installed capacity at the instant of peak load. However, NG is now reporting that historic wind load factors at peak vary between 0% and 90%, while at winter peak in 2007/8 it delivered only 8% of capacity. NG concludes that "we cannot depend with a high degree of confidence on a mean output contribution from wind generation at the time of peak demand."

Gas the only option

If, as has been suggested above, conventional plant retires more rapidly than is expected, and wind offers less, then only gas, already providing the majority of new firm capacity, could make up the shortfall, and indeed there is some 20 GW currently in various stages of planning.

However, international demand for gas appears to be rising faster than global export production, and

competition for LNG is already sharp enough to give concern even to states with a very powerful bargaining position.

Reviewing the prospects for the United States, Michael Morris of American Electric Power recently remarked that 'I don't see us winning the battle with China and Japan on LNG'.

The UK, in spite of its potential as a trading hub, is extremely vulnerable in this arena, and appears to be already failing in the struggle: the Grain LNG terminal has received no cargoes since January 2008, due to the willingness of the major industrial economies in the Far East to pay very high prices, and the UK faces "considerable supply uncertainties" for the winter 2008/9. The longer term outlook gives still greater cause for concern.

In conclusion, examination of current system data indicates that from 2010, possibly earlier, right through to 2020, there is likely to be extended tightness of supply caused by lack of generating capacity and, or, tightness in the supply of gas. The period ca. 2015 will be especially critical. Due to fragile capacity margins and high gas prices any firm or predictable non-gas generator is likely to enjoy high prices. Generation or electricity storage capacity able to enter the peaking market may be extremely well rewarded even by the sector's lucrative standards. This can only lead to significantly higher prices for consumers.

Action needed

While many of the risks outlined above are now unavoidable, their severity can be mitigated in the medium term if prompt and determined action is taken by government to rectify the faults of the energy policy prevalent during the previous ten to fifteen years.

The principal of these faults is the disingenuous manner in which government has consistently claimed to favor the free market in energy, while in fact distorting the market with clumsy and covert intervention, for example by sponsoring coal from

1997–2000, by damning nuclear with faint praise in the 2003 White Paper, and throughout, counterproductively, by over-subsidising renewables at a time when they would have benefitted from exposure to the tempering fires of competition.

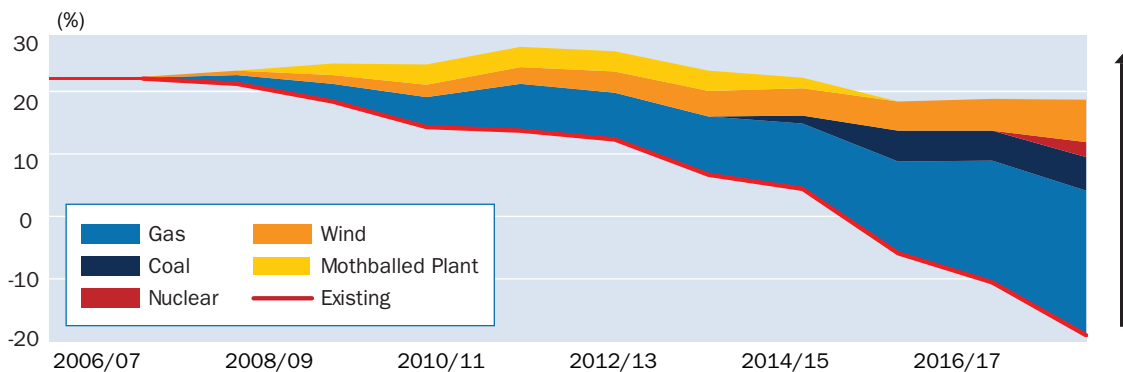
This disingenuous interventionism has combined with complacency towards the flaws in the electricity market system (BETTA) and resulted in a decade during which many billions of pounds of assets have been written down, the nuclear industry almost bankrupted, and an imprudent over-commitment to gas generation compounded.

In my view the only way of ensuring rapid remedial action is for government to actually rather than apparently withdraw from the system, so liberating energy market participants to respond commercially to the situation as it now stands. This opinion is not informed by doctrinal libertarian affection for the free market but rather a practical recognition that no government or any single market participant can gather and assimilate sufficient information to design and realise a satisfactory outcome. Only the intellectual action of the market in aggregate, and through competition, has a reasonable chance of producing an optimal result.

Nevertheless it should be recognised that the difficulties ahead are considerable, and even assuming perfect information and flawless market reasoning, the United Kingdom and its people are now inevitably vulnerable to price shocks and perhaps to disruptions of supply. Bearing this in mind it seems reasonable to suggest that government should intervene with strengthened social policies to prevent hardship and to maintain order.

** John Constable is director of policy and research for the Renewable Energy Foundation, a UK registered charity publishing data and analysis on the renewable and general energy sectors, including monthly load factors for all 900 plus generators registered under the Renewables Obligation. REF's latest document, Electricity Prices in the United Kingdom, on which this article is based, is available for free download from www.ref.org.uk.*

National Grid's projection of capacity margin composition (2007-2021)



Source: National Grid