



CHATHAM HOUSE

Nuclear Energy for the UK?

Malcolm Grimston, Chatham House

Who will keep the lights on?

Mineral Engineering Society UK Energy Symposium, Nottingham, October 15 2010

What we need from our energy industries

- Secure supplies
- Economic supplies
- Environmentally acceptable supplies
- Politically (and socially) acceptable supplies.



1990s in the UK

The 'dash for gas' was ticking all the boxes.

- Secure supplies – North Sea gas, large number of new CCGT plants built.
- Economic supplies – CCGT efficient, gas price low.
- Environmentally acceptable supplies – switch from coal to gas delivered considerable reduction in carbon dioxide emissions per unit electricity generated.
- Gas relatively uncontroversial.



2000/2001 in the UK

Slight frisson of danger.

- Petrol protests September 2000 – blockade of oil terminals, country ground to a halt within a week.
- Oil price rose to nearly \$30 per barrel from below \$10 in 1998.
- California power crisis.

But all proved short-lived. Common pattern – people mistake a short-term crisis for the beginning of the long-term problem, and so mistake the short-term crisis going away for the long-term problem being an illusion.



2003 Energy White Paper

‘Nuclear power’s ... current economics make it an unattractive option for new, carbon-free generating capacity and there are also important issues of nuclear waste to be resolved. Before the building of new nuclear power stations there will need to be the fullest public consultation and the publication of a further white paper setting out our proposals.’

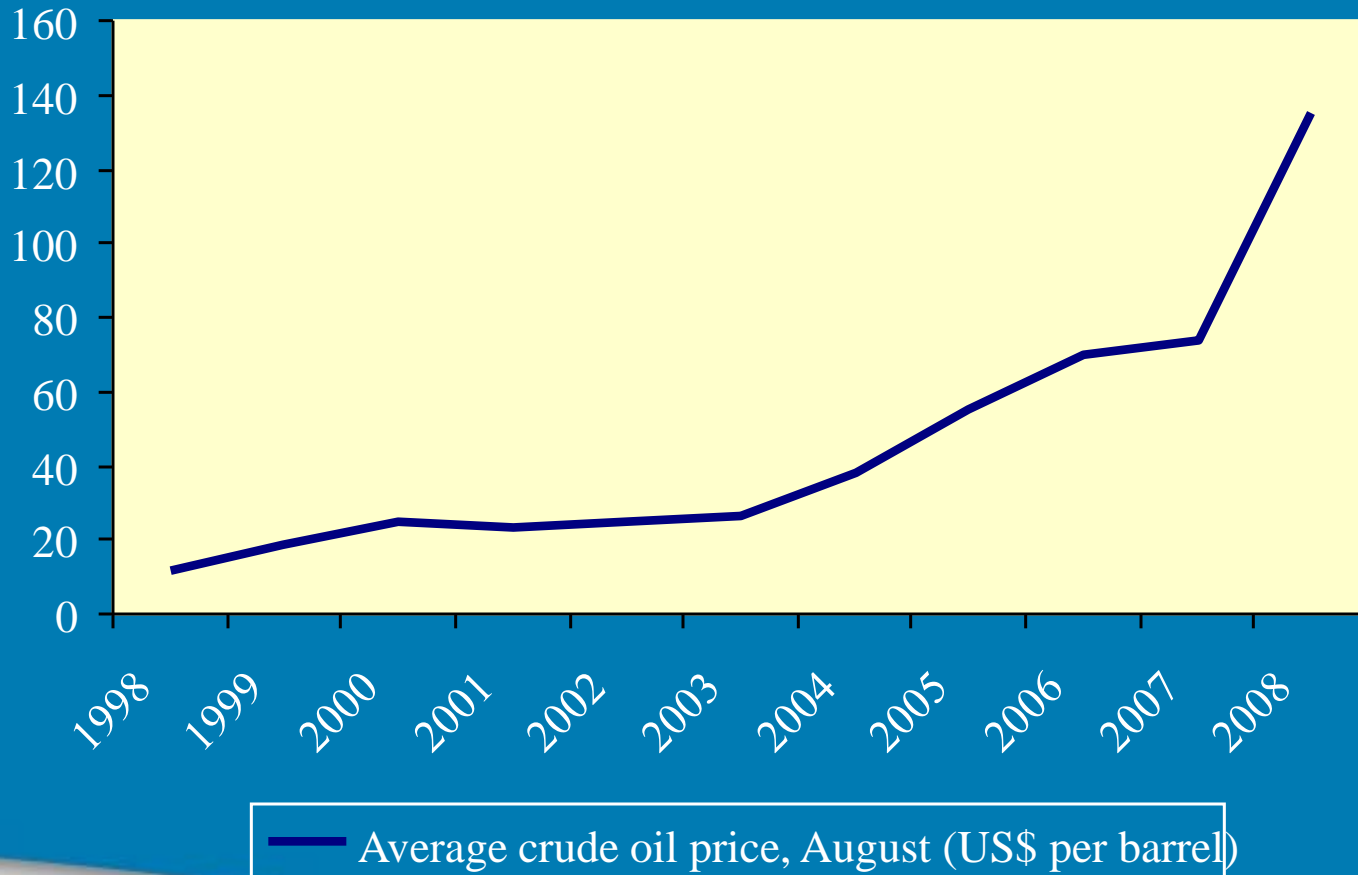


2008 in the UK

- Secure supplies under threat – need for new power stations (30-35 GW by 2030), North Sea gas running short, concerns about reliability of Russian/Middle Eastern gas.
- Economic supplies – global energy prices soaring (oil price below \$10 per barrel in 1998, \$147 per barrel in July 2008, c. \$85 per barrel October 2010).
- Environmentally acceptable supplies – concerns over climate change growing, UK emissions falling very slowly though Kyoto commitment looks secure.
- Politically (and socially) acceptable supplies – spectre of power cuts.

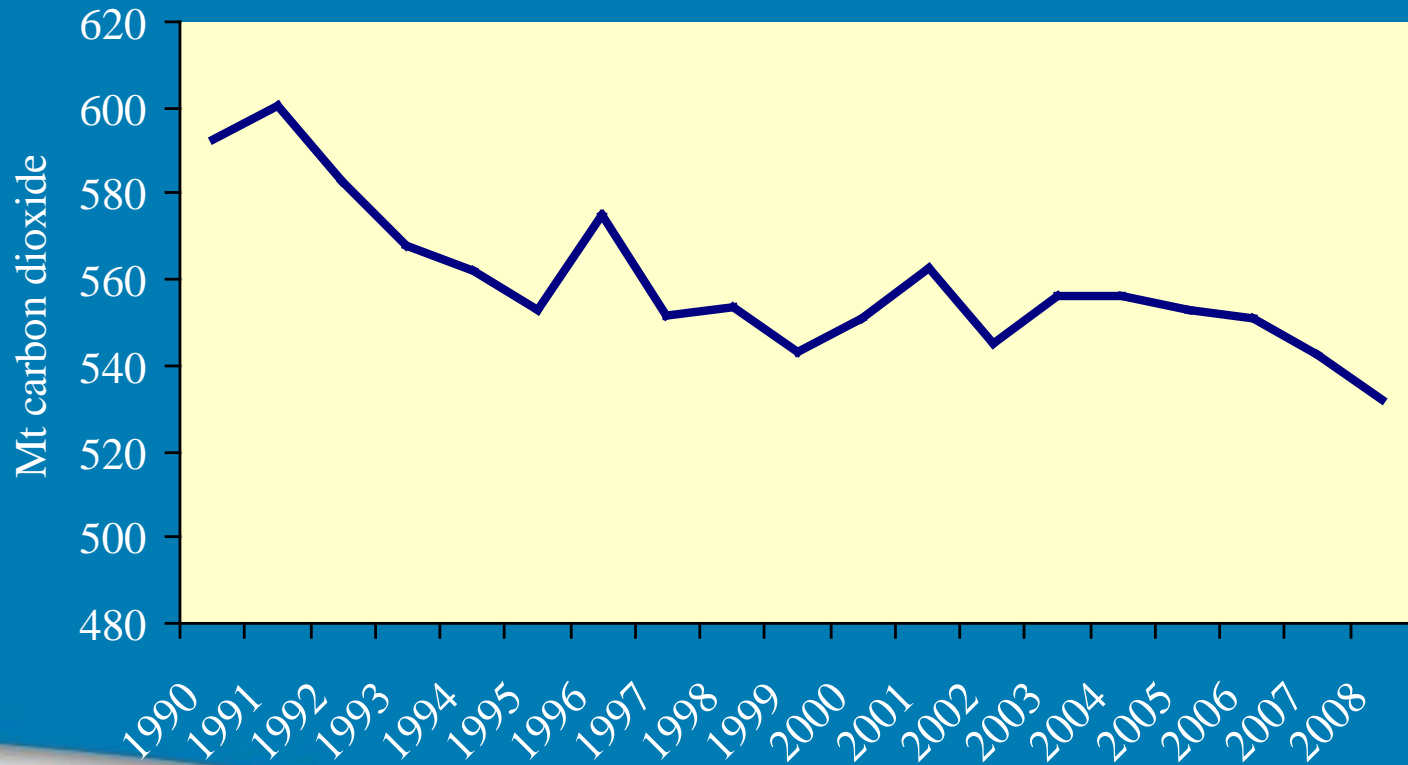


Oil price



2008 in the UK

UK carbon dioxide emissions 1990-2008



2008 Nuclear White Paper

‘The Government has today concluded that nuclear should have a role to play in the generation of electricity, alongside other low carbon technologies. We have therefore decided that the electricity industry should, from now on, be allowed to build and operate new nuclear power stations, subject to meeting the normal planning and regulatory requirements. Nuclear power is a tried and tested technology. It has provided the UK with secure supplies of safe, low-carbon electricity for half a century. New nuclear power stations will be better designed and more efficient than those they will replace. More than ever before, nuclear power has a key role to play as part of the UK’s energy mix.’



Carbon budgets

UK carbon budgets set limits on UK emissions for each of three five year periods (until 2022) in order to remain on course for the government's long-term target of an 80% reduction by 2050.

- 2008-2012 – 22% reduction in greenhouse gas emissions below 1990 levels.
- 2013-2017 – 28% reduction.
- 2018-2022 – 34% reduction.

Targets to be achieved through domestic effort without the use of international offset credits (i.e. invoking the Clean Development Mechanism of the Kyoto Protocol) aside from the EU Emissions Trading System.

60% reduction target (announced in the 2003 Energy White Paper) remains in place.

Committee on Climate Change has recommended that this should be 80%, irrespective of developments at the Copenhagen climate change conference in December 2009.



Role of government?

A bit confused? Previous government.

- 'It would be for the private sector to initiate, fund, construct and operate new nuclear plants and cover the costs of decommissioning and their full share of long term waste management costs.'
- 'The Government has today concluded that nuclear should have a role to play in the generation of electricity, alongside other low carbon technologies.'



Role of government?

Coalition agreement

- Liberal Democrats have long opposed any new nuclear construction. Conservatives, by contrast, are committed to allowing the replacement of existing nuclear power stations provided they are subject to the normal planning process for major projects (under a new national planning statement) and provided also that they receive no public subsidy.
- We have agreed a process that will allow Liberal Democrats to maintain their opposition to nuclear power while permitting the government to bring forward the national planning statement for ratification by Parliament so that new nuclear construction becomes possible.

This process will involve:

- the government completing the drafting of a national planning statement and putting it before Parliament;
- specific agreement that a Liberal Democrat spokesman will speak against the planning statement, but that Liberal Democrat MPs will abstain;
- clarity that this will not be regarded as an issue of confidence.



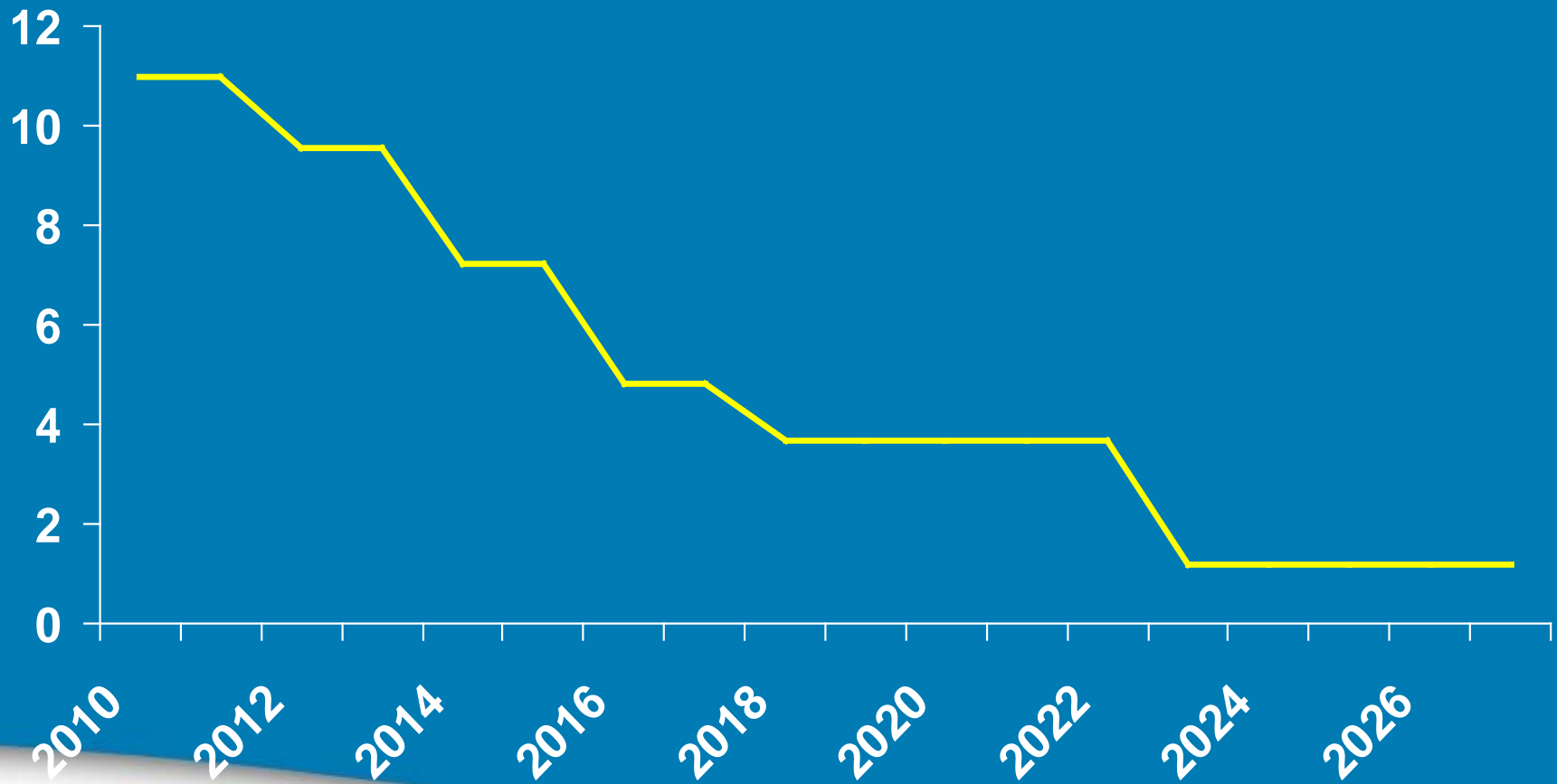
Role of government?

Coalition government

However, the rest of the energy and environmental policy published by the coalition government, while promising some new approaches in detail, maintained the broad direction of that of its Labour predecessor. 'We will reform energy markets to deliver security of supply and investment in low carbon energy, and ensure fair competition.' Once again there seems to be a fundamental lack of clarity as to whether electricity is to be delivered by a competitive market, or whether government will intervene on a regular basis to ensure, or seek to ensure, the delivery of a series of social and industrial goals.

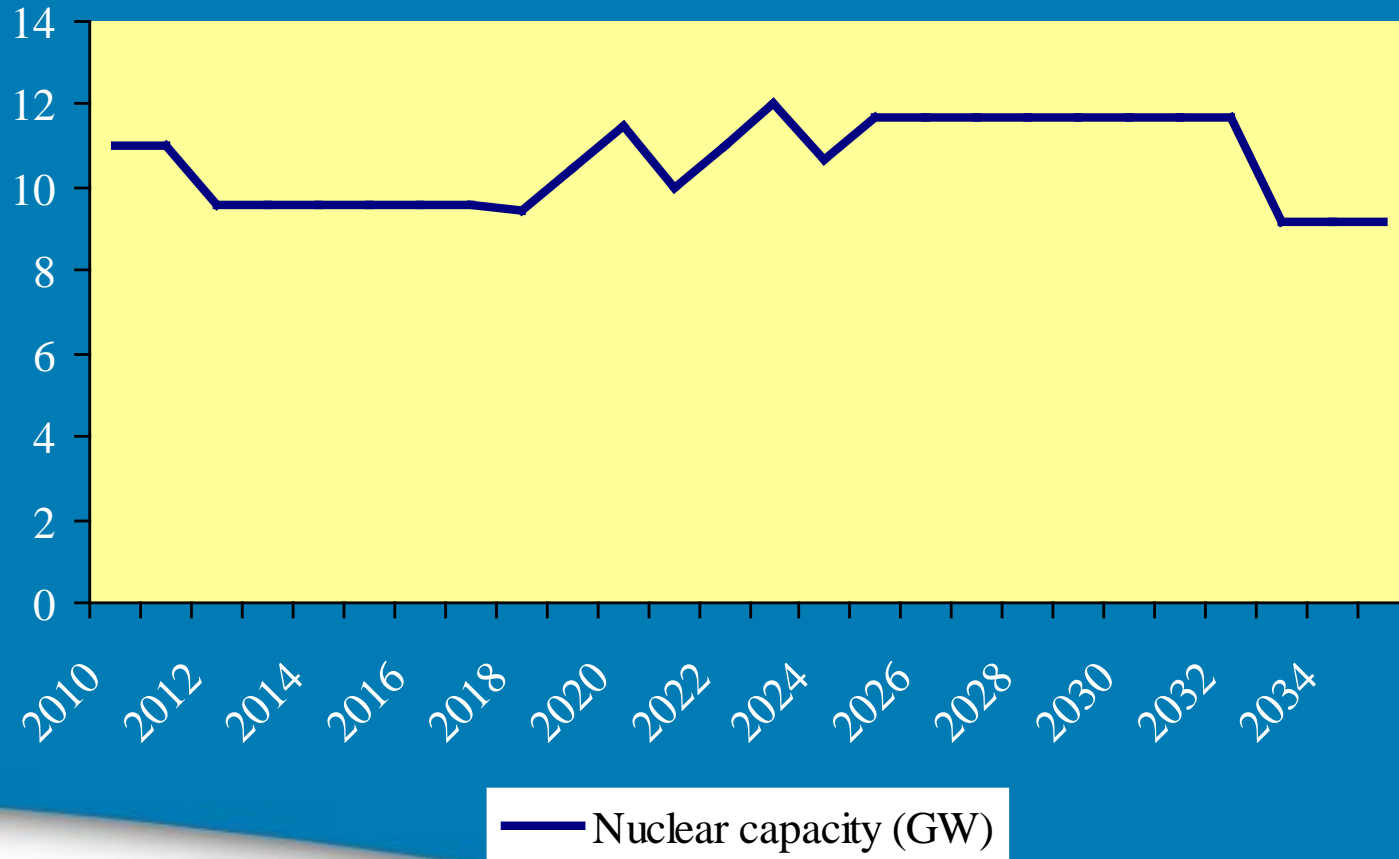


UK future nuclear capacity (GW)



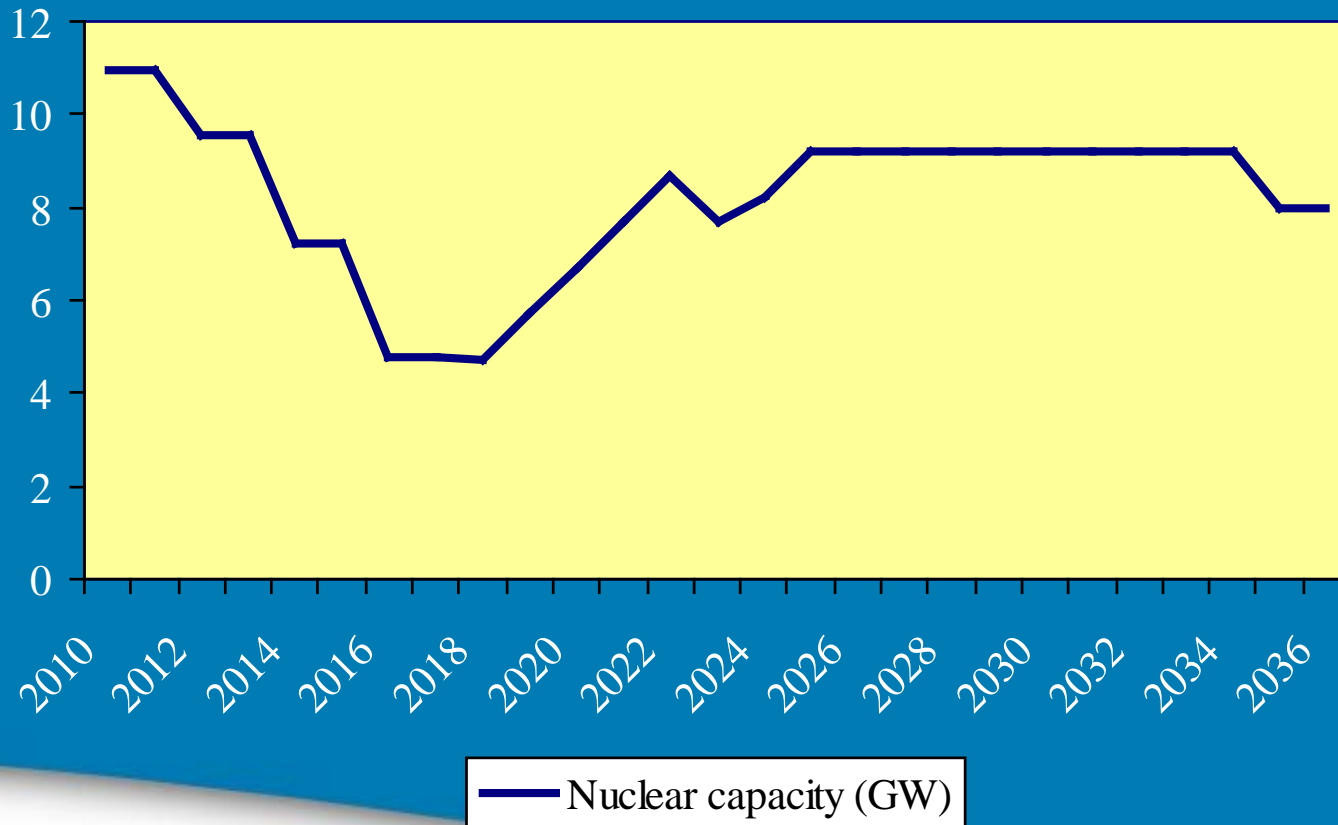
Tight timescales

UK nuclear generating capacity with 10-year AGR lifetime extension and prompt start new build (1GW per year online 2018-2025)



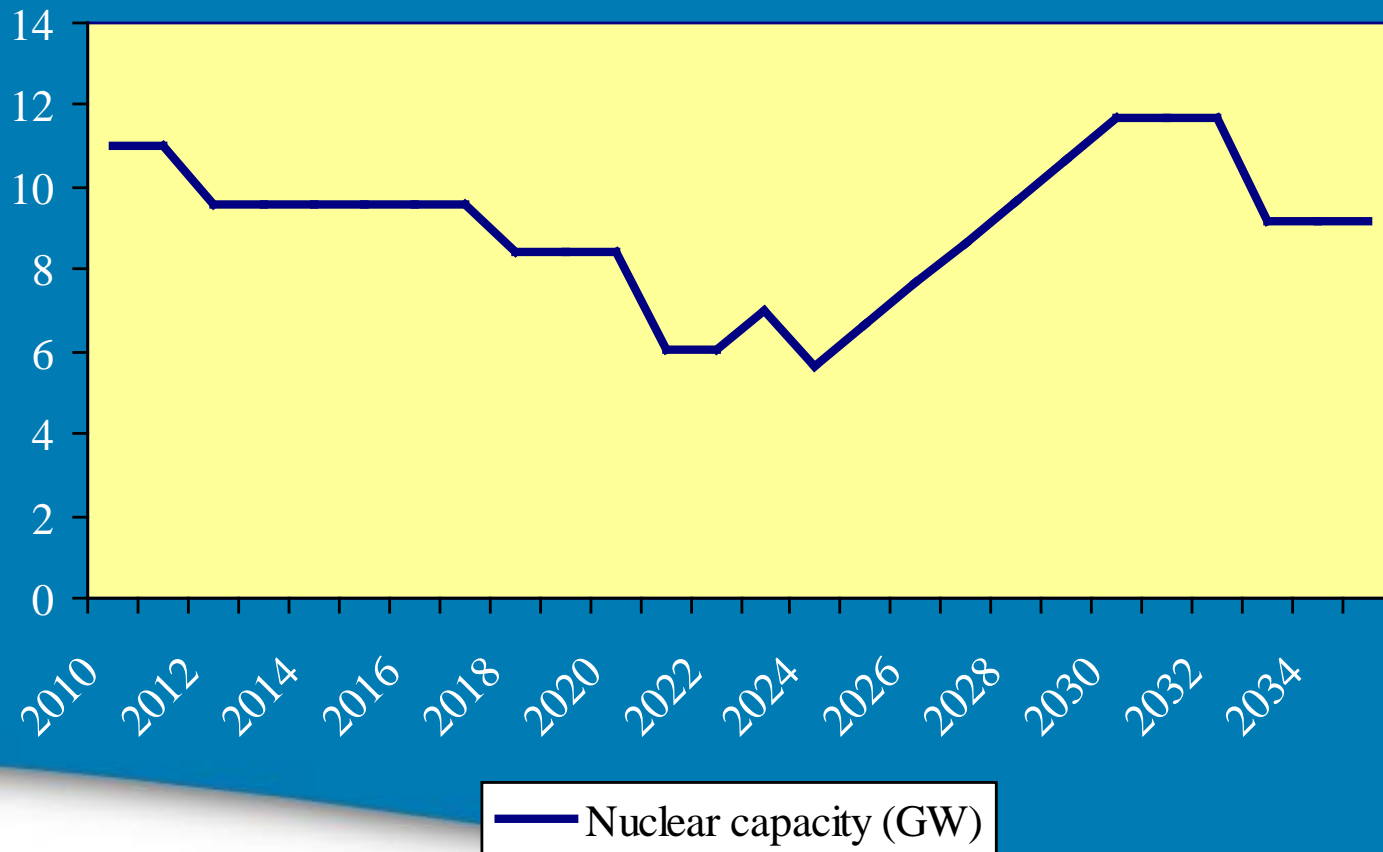
Tight timescales

UK nuclear generating capacity with no AGR lifetime extension but prompt start new build (1GW per year online 2018-2025)



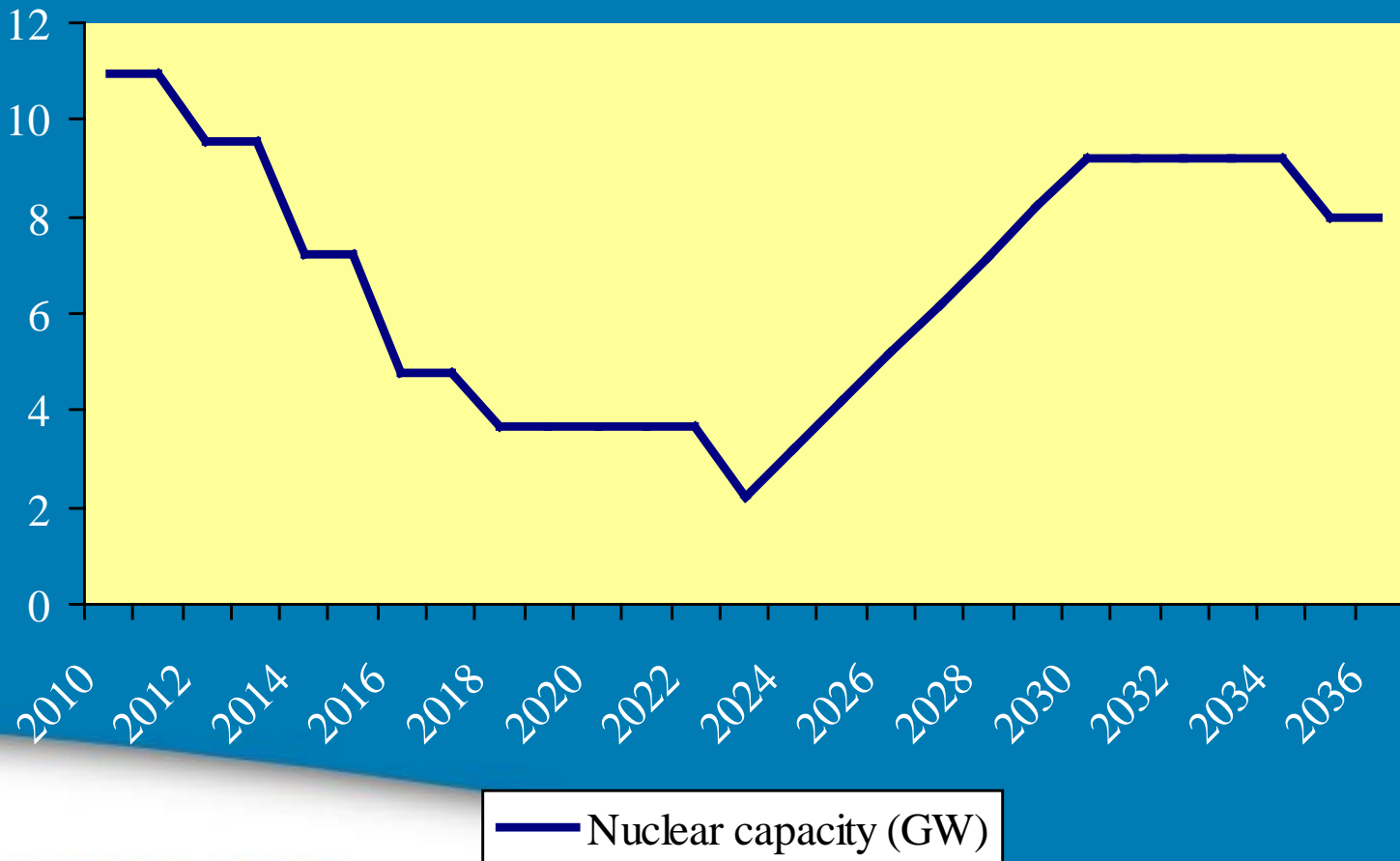
Tight timescales

UK nuclear generating capacity with 10-year AGR lifetime extension but delayed new build (1 GW per year online, 2023-2031)



Tight timescales

UK nuclear generating capacity with no AGR lifetime extension and delayed new build (1 GW per year online 2023-2030)



Current situation

November 9 2009 (20th anniversary of decision to abandon nuclear power), 10 sites identified for new build – 8 on existing nuclear sites plus two more in Cumbria.

Debate about ‘subsidies’ – EdF arguing for guaranteed carbon price to underpin investment of £22 billion in four new 1600 MW plants at Hinkley Point and Sizewell, to bring nuclear energy into a fair arena with renewables which receive enormous support through the ‘Renewables Obligation’ and associated certificates. Horizon (RWE/E.On) not convinced, believes nuclear energy needs to be included in a ‘low carbon obligation’ if it is to build new reactors at Wylfa and Oldbury.

Consortium of Iberdrola/GdF Suez/SSE also in play.

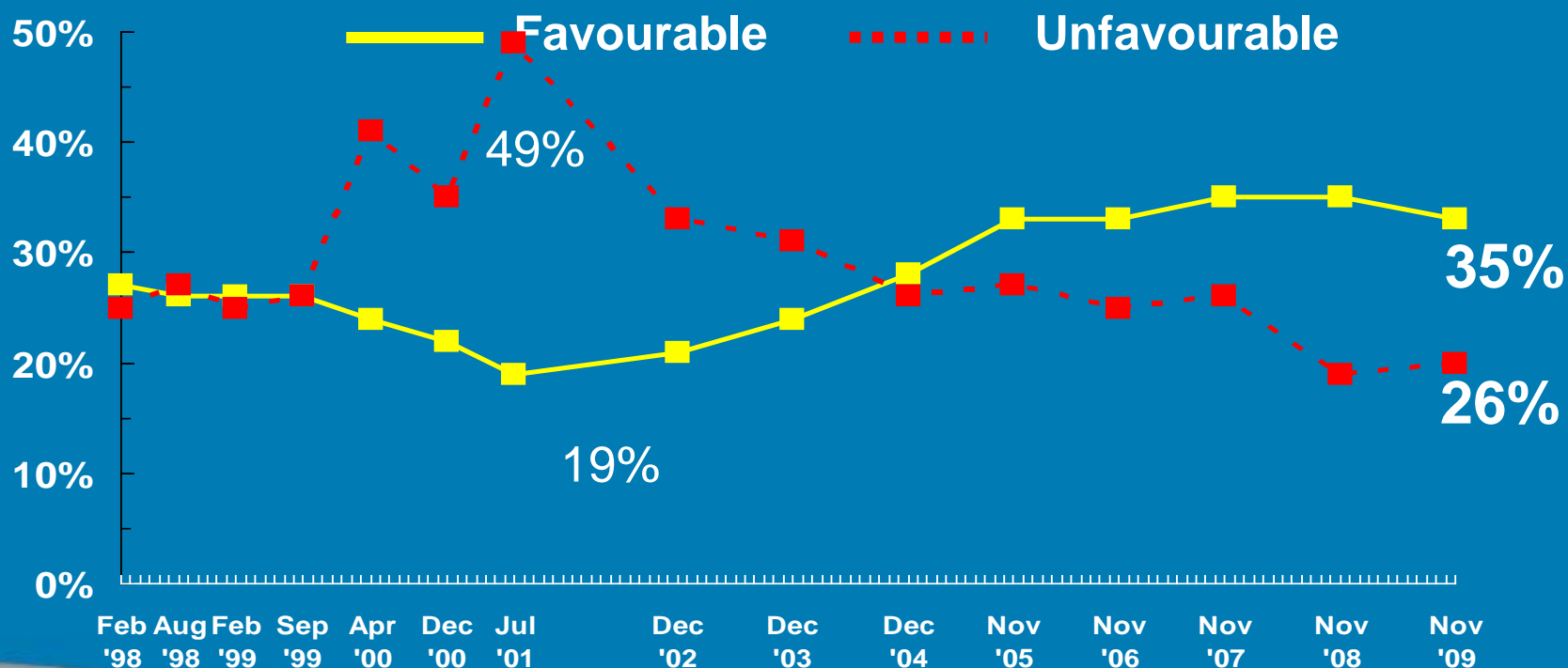
Green movement remains broadly antinuclear but in October 2009 Greenpeace published a 12-point climate change manifesto which did not include an antinuclear statement, while more high profile environmentalists have dropped their public opposition to nuclear energy.

Public perceptions improving.



UK – public views of the industry seem to be improving

How favourable or unfavourable are your overall opinions or impressions of the nuclear industry/nuclear energy?



Summary

- Environment for nuclear investment stronger now than for over 20 years.
- Looks like new build will follow, but by no means a 'done deal'.
- Timing is tight if current nuclear capacity is to be replaced in an orderly way.
- Progress on waste management important.
- Debate over extent to which government should create a fair investment background for decisions with very high initial costs.
- Ultimately, is government the 'provider of last resort' for electricity supplies or is it up to the market whether the lights stay on? (To put it another way, is electricity a social service or a commodity?) If the former, more regulation, if the latter more market forces – but you can't mix them too much!

