

Nuclear Free Local Authorities **new nuclear monitor**



Number 34, March 2014

How subsidies to new UK nuclear reactors distort the European electricity market - NFLA / CNFE / Stop Hinkley submission to the European Commission

i. Overview of briefing

This edition of the NFLA's (Nuclear Free Local Authorities, <http://www.nuclearpolicyinfo>) 'New Nuclear Monitor' provides the joint NFLA / CNFE / Stop Hinkley submission to the European Commission on a key element of UK new nuclear build policy. It considers whether the agreement between the UK Government and EDF for a 35 year contract and a 'strike price' of £92.50 MWh to construct and generate the first new nuclear reactor(s) in a generation, at Hinkley Point in Somerset, is in line with EU state aid rules. The submission has been developed by the NFLA Steering Committee / NFLA Scotland Policy Advisor Pete Roche under the direction of the NFLA Secretary, and the request of the NFLA Steering Committee.

The NFLA Secretary welcomes financial and practical support provided to develop this submission from the Stop Hinkley group (<http://stophinkley.org>), an influential local group in West Somerset campaigning against the development of new nuclear facilities at Hinkley Point. This report is a joint NFLA / Stop Hinkley submission to the European Commission which also has the full support of the Cities for a Nuclear Free Europe (CNFE, <http://www.cnfe.eu>) network. CNFE was established by Vienna Municipality shortly after the Fukushima disaster as a European cities initiative to reduce or avoid the risks, dangers and costs of nuclear power in Europe. It contains cities from Austria, Germany, Norway, Cyprus, Croatia, Bosnia-Herzegovina, the United Kingdom and the Republic of Ireland. The NFLA is CNFE's partner organisation in the UK & Ireland. CNFE particularly works at the European Union (EU) level lobbying the European Commission and the European Parliament of the need for a moratorium on building new nuclear power stations in the EU. CNFE rather advocates a medium-term energy policy promoting a wide renewable energy mix, energy efficiency programmes and microgeneration schemes with the gradual phasing out of nuclear power in Europe.

This submission focuses on whether the UK Government's financing agreement with EDF to construct new nuclear power stations at Hinkley Point complies with EU State aid rules. The European Commission is currently considering the UK deal in reference to whether it distorts the electricity market operating system in the EU. Its initial 70 page consideration of the UK Government – EDF deal raises significant concerns that the subsidies of up to £17.6 bn are unnecessary, risk handing EDF excess profits and may constitute illegal state aid. NFLA / CNFE / Stop Hinkley broadly welcome this initial opinion. It can be downloaded from the EU website: http://ec.europa.com/competition/state_aid/cases/251157/251157_1507977_35_2.pdf

The European Commission is also particularly focusing on this UK Government agreement with EDF as it is seen as a precedent for similar schemes being considered by other EU member states. The NFLA / Stop Hinkley / CNFE submission therefore also considers the UK deal in reference to its likely impact on the European energy sector, the competitors to EDF and the other sectors of the energy market, particularly renewable energy. The submission argues the UK Government / EDF deal will significantly distort the European electricity market and should be rejected by the Commission as an illegal form of state aid.

1. Joint Submission Introduction

The European Commission says ‘State aid’ is, in principle, incompatible with the common market. State aid rules cover a transfer of State resources, but the aid does not necessarily need to be granted by the State itself. It may also be granted by a private or public intermediate body appointed by the State. Financial transfers can also include loan guarantees. State aid offers an economic advantage to a company that would not be received in the normal course of business; it must be selective and affect the balance between the recipient and its competitors; and it must have a potential effect on competition and trade between Member States. (1)

In the view of the signatories to this submission (NFLA, CNFE and Stop Hinkley), the subsidies the UK Government proposes to give to the Hinkley Point C project constitute State aid and should not qualify for exemption from State aid rules.

The commission has now launched a full investigation into the package of measures supporting Hinkley Point C including the investment contract providing a fixed price for power, guarantees for lending to the project and political guarantees. In its initial assessment the Commission says the measures could hardly be described as affordable when they will most likely contribute to a rise in retail prices; (2) the Commission says it is difficult to argue that the reactors will help the UK achieve security of supply when they will not be operational before 2023; (3) and a more market orientated method could be used to achieve the UK’s decarbonisation goals. (4) In particular, the Commission argues that:

“... a support mechanism which is specific to nuclear energy generation might crowd out alternative investments in technologies or combinations of technologies, including renewable energy sources, which may have occurred in the absence of the notified measure.” (5)

In addition the Commission says it is not clear that nuclear technology is immature enough as a technology to warrant State aid. (6)

Here we argue, in support of the Commission’s initial conclusions, that other technologies are capable of achieving the UK government’s climate change and security of supply objectives more affordably and much more quickly. We argue that there are better opportunities for cost reductions from other less mature technologies which are, therefore, much more likely to warrant State aid.

2. The UK Government Position

In May 2010 the Coalition Agreement between the Conservative and Liberal Democrat Parties stated that the new UK Government would allow for the:

“...replacement of existing nuclear power stations ... provided that they receive no public subsidy.” (7)

On 18th October 2010, the then Secretary of State for Energy and Climate Change, Chris Huhne, set out a more nuanced position on subsidies for new nuclear reactors:

“...there will be no public subsidy for new nuclear power. To be clear, this means that there will be no levy, direct payment or market support for electricity supplied or capacity provided by a private sector new nuclear operator, unless similar support is also made available more widely to other types of generation.” (8)

The Government failed, when asked (9) to explain whether this represented a change in policy.

The current Secretary of State, Ed Davey, however, explained that: *“By similar [support], we do not mean the same.”* (10) Davey went on to point out that the Contract for Difference system would *“provide a stable price for operators to encourage investment, making it easier and cheaper to secure finance ... significantly reduce risks to developers and incentivise investment...”*

So the UK Government is prepared to offer different levels of incentive to different technologies, whilst continuing to insist this is not a subsidy.

3. What is a 'Subsidy'?

In the UK there seems to be almost nobody outside of the Government or EDF Energy that doesn't see the Contract for Difference as a subsidy.

When the UK Government launched its Electricity Market Reform plans in December 2010, the right-of-centre *Daily Telegraph* newspaper commented that:

"Years of lobbying by nuclear companies has finally paid off, as the Government ... reveal plans to subsidise the price that they are paid for generating electricity". (11)

"The Government's definition of a subsidy is literally a bag of cash delivered personally by George Osborne to each nuclear power plant," said Peter Atherton, who was at the time utilities analyst at Citigroup. *"This is laughable. What's going to happen will be an economic transfer of risk from company to consumer. Of course it's a subsidy."* (12)

According to the International Energy Agency (IEA) (13) an energy subsidy is any government action that concerns primarily the energy sector and that *inter alia* "raises the price received by energy producers".

The EU anti-subsidy rules define a subsidy as "a financial contribution made by (or on behalf of) a government or public body which confers a benefit to the recipient" and "a 'benefit' is conferred if ... financial contributions are provided on terms more favourable than those available on the market." (14)

The House of Commons Environment Audit Committee investigation into Energy Subsidies concluded that:

"It makes no sense to claim that a subsidy applicable to more than one technology therefore does not constitute a subsidy. It is already clear that new nuclear is being subsidised. The contractor for Hinkley Point will be able to use the guaranteed strike price for the electricity generated to raise capital at lower cost. It is debateable which of the various other Government-termed 'support mechanisms' and 'insurance policies' also constitute subsidy. Even in terms of the Government's 'similarity' definition of 'no public subsidy for new nuclear', there are aspects of support which are not 'similar' to that provided for other types of energy, notably on decommissioning and waste." (15)

Clearly the UK Government's plans to incentivise the building of new nuclear reactors do constitute a subsidy. But the Question before the European Commission is not whether or not the UK Government lied to its electorate, but whether the plans to subsidise the construction and operation of a new nuclear power plant at Hinkley Point are in line with EU state aid rules.

The Commission says it will need to investigate the impact of the subsidy on the UK and EU internal energy markets. The Commission says it will assess whether the construction of a nuclear power station could not be achieved by market forces alone, without state intervention, and if the subsidies do represent State aid, whether it is compatible with common EU rules that authorise state aid for certain objectives of common interest.

As we will see, State aid for nuclear power in the UK is against the principles of the single market for electricity in the EU and with the principle that there should be free movement of goods and services throughout the region. It is bad for the development, throughout Europe, of much more effective alternative methods of producing low carbon electricity and reducing carbon emissions. The costs of renewable energy and energy efficiency are already cheaper than nuclear power, and

costs are continuing to fall. In addition strategies based on renewables and efficiency can be implemented much more quickly.

4. Arguments in favour of energy subsidies

First of all it is useful to look at why we might need subsidies to any energy source at all. Dr William Blythe of Oxford Energy Associates said, in a report commissioned by the UK House of Commons Environment Audit Committee that if:

“... new technologies are being introduced which are not yet competitive with mainstream technologies, but could be expected to be so in the future, there is a dynamic efficiency argument for creating protected niche markets to allow these to develop appropriate economies of scale and learning by doing cost reductions in the supply chains for these industries ... In general, the infant industry argument can only be justified for a certain length of time before those industries should be expected to stand on their own feet. In the long run, subsidy-dependence is likely to breed inefficiency and lack of competitiveness.” (16)

In other words, new, low carbon technologies need subsidies to compete against fossil fuels while they develop in the expectation that they will eventually be able to compete without subsidies.

The Environment Audit Committee concluded that there is no case for treating subsidies to mature technologies, such as nuclear power, where there is little likelihood of future cost reductions, in the same way as subsidies to new technologies which may eventually be able to compete in the market place without subsidy. (17) On the other hand, the Committee called on the Government to make careful and targeted use of subsidies to provide certainty over the longer term for investment in renewable technologies and energy efficiency. (18)

Former Labour MP, Alan Simpson, told the Committee that:

“All energy market subsidies (including tax exemptions and credits) are market distorting. This is neither a vice nor a virtue. What matters is their contribution to market transformation. Subsidies should be treated as transitional mechanisms rather than permanent support; addressing market defects and moving the energy market from its current structure towards the energy systems that will replace it.”

He said the UK Government is creating a separate welfare state for new nuclear power, guaranteeing it a market and price for the next 35-40 years. It will be a subsidy that exceeds all other energy subsidies. He questions whether this is an efficient way of spending resources in order to tackle climate change. Will it make the transformational change we need in order to make the energy system more secure or will it hinder such changes? (19)

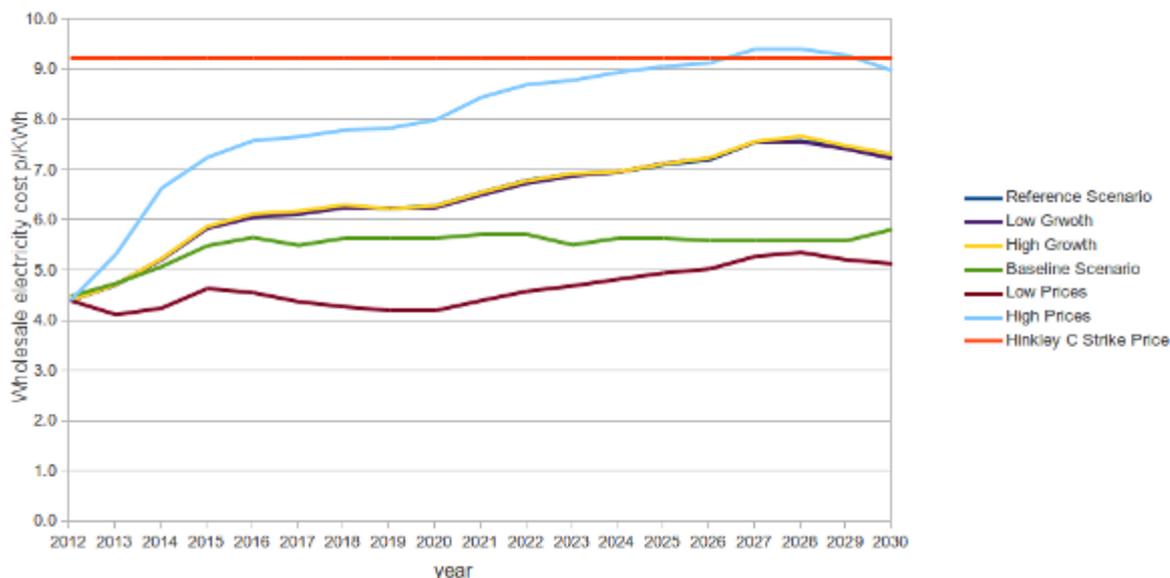
5. Arguments in favour of nuclear subsidies

The UK Government argues that the subsidies to Hinkley Point C do not constitute State aid, but if it deemed to do so it is aid which fulfils the conditions of the Service of General Economic Interest (SGEI) Framework. The UK says that this service is required to achieve the combined general economic interest objectives of *inter alia* i) electricity price stability/affordability ii) security of supply, and iii) decarbonisation. (20)

6. Affordability

It is clear that construction of Hinkley Point C is very unlikely to go ahead without the subsidies being proposed by the UK Government. EDF's Chief Executive Henri Proglio said himself that he was willing to abandon plans to build Hinkley Point C unless *“the government ensures the project is profitable.”* (21)

EDF Energy will be guaranteed £92.50 for each megawatt hour (MWh) of electricity generated at Hinkley Point C for 35 years. The difference between the wholesale cost and this minimum price agreed will be funded by a levy on household energy bills. If EDF also goes ahead with plans to build two more reactors at a second site at Sizewell in Suffolk, the guaranteed price will be lowered to £89.50, but these reactors are unlikely to start generating electricity before 2028. (22) The price is more than twice the current market price for electricity in the UK. (23)



The UK Government's Department of Energy and Climate Change (DECC) projected future energy prices (24) shows that it is only in the 'High Price' scenario (light blue) that prices go above the agreed strike price (red) and then only for a couple of years. All other scenarios are substantially below the strike price. Consequently it appears that even in the worst case scenario UK consumers are getting a bad deal. (25)

The government estimates that building a new fleet of nuclear power stations could reduce bills by more than £75 a year in 2030, compared to a future where nuclear is not part of the energy mix. (26) An initial analysis by the *Financial Times* suggests UK consumers will only be better off, compared to using gas-fired electricity generating stations instead of nuclear if gas prices rise according to DECC's scenario with the highest increases in gas prices. (27) But when the Government says energy bills could be £75 cheaper by 2030 it is comparing two low carbon futures, rather than comparing new nuclear with today's energy mix. DECC said this figure is based on a comparison with the estimated costs of meeting carbon emissions reduction targets by building wind farms and as-yet-unproven carbon capture and storage (CCS) technology. But the UK Secretary of State for Energy and Climate Change has admitted that the estimated savings could not be guaranteed. (28)

As well as the strike price, the government has announced that it will guarantee loans worth £10bn in order to ensure that Hinkley gets built, which amounts to 65 per cent of the £16 billion the station is expected to cost. If for any reason the companies building Hinkley failed to pay the loans back, the UK taxpayer would have to pay up. So 65% of the risk has been removed from the project. (29)

Without seeing the Government's detailed calculations it is difficult to know how credible the alternative low carbon scenario using wind farms and CCS actually is. Has the Government taken into account the projected reductions in costs for offshore wind, for example, and how has unproven CCS technology been costed? It would almost certainly be possible to design cheaper scenarios based, for example, on maximising energy efficiency. (30)

7. How does the cost of nuclear compare with other 'low carbon' options?

The UK Secretary of State for Energy and Climate Change, Ed Davey, says the nuclear price "*is competitive with projected costs for other plants commissioning in the 2020s*". But this is untrue according to Seb Berry, head of public affairs at Solarcentury and board member of the Solar Trade Association (STA). The STA has asked for a strike price of £91/MWh in 2018 and expects this to fall to £86 by 2019, falling year on year thereafter, paid over 15 not 35 years and with no nuclear-style small print permitting a possible increase in strike price once those terms are set. (31)

Berry says the nuclear industry claim that the Hinkley deal makes nuclear technology the "cheapest" low carbon energy technology is outrageous. It deliberately confuses the headline £92.50/MWh Consumer Price Index (CPI)-linked 2023 nuclear strike price with *next year's* draft renewables strike prices. The correct comparison is with projected costs for renewables projects completing in 2023 and beyond not in just six months' time.

The final strike price for large solar PV (>5MW) was less than what was asked for in the early years, but more than asked for in the later years. Paul Barwell, Chief Executive of the Solar Trade Association said:

"What is bizarre, is that DECC has ignored our request for lower strike prices in the later years ... Why give us more than we asked for? Is there an underlying concern that we will be the lowest cost low-carbon technology by 2019?" (32) Barwell says: *"Solar power risks being unfairly constrained in the UK even when it will be cheaper than other low carbon technologies."* (33)

The story is similar with wind. Experts argue the price support for electricity from onshore wind farms is likely to fall from £95/MWh in 2019 to below £92.50/MWh - and maybe even below £89.50/MWh - by the mid-2020s with greater deployment and falling costs. (34) The European Wind Energy Association says onshore wind costs could fall to £48/MWh by the 2020s potentially making it the UK's cheapest power source. (35)

A government-backed Offshore Wind Cost Reduction Task Force last year proposed a 29-point plan to get the cost of the technology down to £100/MWh by the end of the decade. This target may seem highly ambitious given the £135/MWh strike price proposed for 2018/19, but Jennifer Webber of trade body Renewable UK said offshore wind would probably be undercutting nuclear by the mid-2030s. *"In 2038 you're still paying £92.50 for nuclear, when wind isn't going to be anything like that,"* she said. (36) DONG Energy which has just built the world's largest (630MW) wind farm in the Thames Estuary – the London Array - believes it can reach £85/MWh by 2020. (37) An in depth study in 2012 by the Crown Estate found that the costs could go down by a third for projects approved in 2020, with greater cuts possible in the 2020s as well. (38)

8. Security of Supply

Hinkley Point C won't be able to contribute to energy security and reducing dependence on fossil fuels for another ten years. Mark Turner, a director at a leading UK solar power company, Lightsource Renewable Energy, says Britain's solar industry has the capability to deliver the same amount of electricity every year as is expected to be produced Hinkley Point C within 24 months and at a comparable cost. Solar power, on the other hand, could provide energy security quickly, reduce electricity bills and protect the environment at the same time. Turner says that while solar power will not be the entire solution *"if we supported its deployment then within a couple of years we could have 10% of the UK's energy mix completely free from the vagaries of the global fossil fuel markets"*. (39)

According to Martin McAdam, CEO of wave power company Aquamarine Power, there is more than 1GW of onshore wind on Scottish islands which could be built by 2020 if only the UK Government had a mind to solve the challenge of transmission links. (40)

The Offshore Valuation Report estimates that the offshore renewable energy resource represents six times the UK's electricity consumption in 2009. (41) In 2009 the Government announced that 32GW of offshore wind would be deployed "by the early 2020s" so there is no doubting that offshore wind could help the UK meet its security of supply objectives without building new nuclear reactors.

9. Are Hinkley subsidies necessary to meet climate change objectives?

Ben Cosh of TGC Renewables argues that government energy policy is based on the outdated notion that solar electricity is expensive. (42) The Electricity Market Reform (EMR) delivery plan (43) suggests that only 2.4 - 4GW of large scale solar will be deployed by 2020 (See table below). Yet the technical resource for solar is much greater: 22 TWh/yr for domestic roofs and 30 TWh/yr for commercial & industrial roofs, and if you put solar farms just on the land currently planted with biofuels (around 1.1m acres) then you could generate 190TWh/yr and displace no food production. DECC's own 2020 pathway calculator puts rooftop output potential from south-facing domestic roofs alone at 140TWh, and an equivalent number from solar farms. There is clearly some work to do to reconcile these numbers, but even if you're massively conservative, solar could provide a lot more electricity than currently planned at low risk and relatively cheaply.

10. The concept of baseload is obsolete

Both solar PV and offshore wind could provide the same amount of electricity as Hinkley Point C more cheaply. However, the Nuclear Industry Association (NIA) argues that even if solar and wind end up requiring lower strike prices, without an energy storage breakthrough they cannot provide the same level of base load power as nuclear. Hinkley Point C alone is expected to meet seven per cent of the UK's electricity needs, more than half the current renewables total. (44)

The argument that renewable energy isn't up to the task because "the sun doesn't shine at night and the wind doesn't blow all the time" is overly simplistic. There are a number of renewable energy technologies which can supply baseload power. The intermittency of other sources such as wind and solar photovoltaic can be addressed by interconnecting power plants which are widely geographically distributed, and by coupling them with peak-load plants such as gas turbines fuelled by biofuels or natural gas which can quickly be switched on to fill in gaps of low wind or solar production. Numerous regional and global case studies – some incorporating modelling to demonstrate their feasibility – have provided plausible plans to meet 100% of energy demand with renewable sources. (45) These include:

- (1) Energy consulting firm Ecofys produced a report detailing how we can meet nearly 100% of global energy needs with renewable sources by 2050. Approximately half of the goal is met through increased energy efficiency to first reduce energy demands, and the other half is achieved by switching to renewable energy sources for electricity production. (46)
- (2) The European Renewable Energy Council (EREC) prepared a plan for the European Union (EU) to meet 100% of its energy needs with renewable sources by 2050, entitled *Re-Thinking 2050*. (47)
- (3) Zero Carbon Britain 2030: a plan produced by the Centre for Alternative Technology. (48)

Clearly a key part of a 100% renewable energy strategy would be a major energy efficiency programme. A study for the UK Government by consultants McKinsey showed a massive 155TWh/yr of electricity available for saving – 140TWh of which could be saved at negative cost. This compares to a UK electricity demand in 2010 of 370TWh. There are around 100TWh of electricity savings detailed in the McKinsey report which the UK Government currently has no plans to capture. (49) If the UK aimed to capture much more of the potential electricity savings available from building envelope improvements and lighting in the services sector, and more efficient motors and pumps in the industrial sector between 50 and 100TWh could be saved, much of it at negative cost, removing the need for any new nuclear reactors.

11. Limited money available for subsidies - are UK plans unfair to the renewables industry?

As discussed above, the European Commission is concerned that subsidies for new reactors might unfairly crowd out alternative investments. This is made all the more likely by the fact that the UK Government's Levy Control Framework sets annual limits on the overall costs of DECC's levy funded policies. These comprise the Renewables Obligation (RO), small scale Feed-in Tariffs (ss-FIT), Investment Contracts for Final Investment Decisions Enabling for Renewables (FIDeR) and Contracts for Difference (CfDs).

This means that the total pot of money available to fund subsidies to low carbon energy is limited. Forecast expenditure in 2014/15 is, for example, £3.5bn. Levy funded costs for low-carbon electricity cannot exceed £7.6 billion in 2020/21. (50) But DECC points out that out of the £6.45bn allocated for 2018/19, only £2.9bn is available for new entrants.

Government modelling has estimated the total capacity projected in 2020 for each different form of renewable technology given the strike prices agreed by the Government. These figures are dependent on industry cost reductions over time as well as future policy decisions such as the strike prices for 2019/20 and 2020/21. The figures are not Government forecasts or targets and do not include deployment supported under the small-scale Feed-in Tariff. The generation capacity actually built will depend to a large extent on the costs faced by developers and on future changes to these costs.

The UK Government is currently planning a competitive allocation process for renewables which it believes is the best way to allocate the available budget given the strong progress of the renewables pipeline, and the potential high demands that this strong pipeline of projects could place on the funding available through the Levy Control Framework (LCF). (51) So, whilst there may be competition between different types of renewable generation on cost, the overall amount of renewable electricity generated will be limited by the amount of money available, and there will be no competition with nuclear electricity.

70. **Table 4: Projected Total Capacity (GW, Great Britain, excl. small-scale deployment)** ³⁸

Technology	2020
Advanced Conversion Technologies (with or without CHP)	c.0.2-0.3
Anaerobic Digestion (with or without CHP) (>5 MW)	c.0.3-0.4
Biomass Conversion	1.7 – 3.4
Dedicated Biomass (with CHP)	c. 0.3-0.6
Energy from Waste (with CHP)	c. 0.4
Geothermal (with or without CHP)	< 0.1
Hydro (>5 MW)	c. 1.7
Landfill Gas	c. 0.9
Offshore Wind ³⁹	8 – 15
Onshore Wind (>5 MW)	11-13
Sewage Gas	c. 0.2
Large-Scale Solar Photo-Voltaic (>5 MW)	2.4 – 4
Tidal Stream	c. 0.1
Wave	

Hinkley Point C is not expected to open until 2023, and we don't know yet what the levy cap will be in 2023, so it is difficult to be certain at this stage that nuclear power will be using up more than its fair share of the money allocated for energy subsidies.

However, Alan Whitehead MP, a member of the House of Commons Energy and Climate Change Committee, estimates that at a strike price of £92.50 Hinkley Point C will get over £1bn in its first year of operation. This could represent pretty much ALL the available subsidy for new entrants in any one year on the basis of the existing levy control framework. So, unless the levy cap is increased there will be no funds available for new renewables after Hinkley Point C starts producing electricity in 2023. (52)

The EMR Delivery Plan shocked the Solar Trade Association (STA) with its limited ambition for solar power up to 2030. (53) In just three years half a million British homes (or other small roofs) have gone solar, but conspicuous by its absence in the UK is the mid/large solar roof market covering schemes upwards of 100kW right up to 5MW. Even the Climate Change Minister Greg Barker, who announced that 2014 would be the year to unlock this market, says 22GW of solar could be delivered from a fraction of commercial and industrial roof space. (54)

Yet, rather bizarrely, the Delivery Plan includes three 'scenarios' out to 2030 that include no solar whatsoever. Sir Jonathon Porritt, former chair of the UK Government's Sustainable Development Commission until 2009, told the solar industry recently that people who think solar is just "a part" of the solution have missed the plot. We are talking about a technology with a projected global market of 60-115GW per annum in 2020. Utility solar could take a lower strike price than new nuclear and be on a par with onshore wind by 2018/19. If you're serious about value for money, go solar. Unlocking the mid-scale of solar will mean nothing less than total transformation of choice, competition and ownership in UK electricity markets.

The European Photovoltaic Industry Association anticipates that it is this mid-size of solar, which competes directly with retail electricity prices, which will reach parity with grid electricity prices first in many countries, and will therefore no longer require subsidies. It makes no sense at all to suppress this scale of solar. But that is what is happening in the UK. (55)

It is only solar projects above 5MW which are eligible for Contracts for Difference. Solar projects below 50kW are eligible for Feed-in Tariff support, but once the Renewables Obligation goes in 2017 there will be no serious support for 50kW-5MW solar projects. In terms of efficiently allocating the available public subsidy to projects which can meet climate change and energy security objectives and reduce costs so that they eventually require no subsidies this is an insane prospect.

12. Wind ambitions curtailed

There has also been a dramatic reduction in the Government's ambition for offshore wind. In the space of a few months the amount of offshore wind envisaged for the grid in 2020 has halved. (56) In 2009 the Government announced that 32GW of offshore wind would be deployed "by the early 2020s", but a few years later this had fallen to 18GW. Then this year with the unveiling of the strike prices in the Energy Bill, the Government said it was now looking at somewhere between 8GW and 16GW. Worryingly when the Deputy Prime Minister, Nick Clegg unveiled an offshore wind industrial strategy it envisaged 8-16GW by 2020, but rising by only another 2GW to 18GW over the next decade to 2030, which would be a disaster for any companies thinking of establishing a UK manufacturing base. (57)

DECC is now predicting the lower end of the range, - just 8-10GW could be built by 2020. (58) And according to Bloomberg New Energy Finance (NEF) there is now a danger the UK will fail to reach even 10GW by 2020. (59) NEF says the government is struggling to secure the £20 billion investment needed. (60)

The problem is that the suggestion from the UK Government that renewable ambitions will be scaled back after 2020 creates exactly the kind of policy uncertainty that scares away long-term investment. By talking up the possibility of an implausible shale gas bonanza to justify tacking away from renewables after the 2020 renewable targets run out, he has cast further doubt on the government's long-term commitment to a low carbon future. Business is being denied the

confidence of knowing they will have a market and a price structure they can rely on over the investment horizon they need. (61)

Industry group, Renewable UK, says the government hasn't been managing the discussion very well.

"The sector needs to see that there is general political support for renewables. Investors want to see that the market works across technology. Politicians, while they debate the cost of energy, need to remember that keeping the politics out of policy-making keeps the cost down." (62)

During 2012 the 3.4GW of installed offshore wind generated 7.5TWh of electricity. (63) If 18GW could be installed by 2030 this could generate almost 40TWh/year, compared with Hinkley Point C's projected 25TWh/yr at an unlikely 90% load factor.

13. Conclusions

This NFLA / CNFE / Stop Hinkley submission raises a number of clear conclusions that it believes provide ample evidence of why the European Commission should reject the UK Government - EDF agreement as it is breaking EU state aid rules. These are as follows:

1. Nuclear power is a mature technology. Whilst there may be a case for subsidising new technology which can eventually lower costs and compete without subsidy, there is no case for subsidising a well established technology like nuclear power. Indeed the subsidy which the UK Government proposes for new reactors is a subsidy that exceeds all other energy subsidies, creating a separate welfare state for new reactors, guaranteeing it a market and price for the next 35years.
2. Hinkley Point C would almost certainly not go-ahead without the proposed subsidy. The operators are being offered a price for the electricity produced which is more than twice the current market price for electricity in the UK. However, there are several ways in which the same reductions in carbon emissions could be achieved and the same level of energy security at a lower level of subsidy.
3. Renewable technologies will be unfairly constrained by the size of the Levy Control Framework funds available, the bulk of which will probably be used up by Hinkley Point C after 2023, despite the fact that solar and offshore wind are likely to be cheaper by then.
4. Britain's solar industry says it has the capability to deliver the same amount of electricity every year as is expected to be produced Hinkley Point C within 24 months and at a comparable cost. Solar power could provide a lot more electricity by 2020 than is currently planned under the Levy Control Framework.
5. It is medium sized solar projects (50kW to 5MW), which are likely to reach parity with grid electricity prices first in many countries, and therefore no longer require subsidies. Yet it is this size of project which is being particularly unfairly treated in the UK. In terms of efficiently allocating the available public subsidy to projects which can meet climate change and energy security objectives and reduce costs this is insane.
6. There has been a dramatic reduction in the Government's ambition for offshore wind from 32GW in 2020, down to 10GW or less in 2020. This will be reflected in the Levy Control Framework. The Government's ambition for offshore wind after 2020 seems to be very limited indeed - perhaps as low as 2GW up to 2030. Despite the fact that several companies believe offshore wind could be cheaper than nuclear by 2020 or not long after, the Government appears to be planning to allocate the bulk of funds for available for energy subsidy to new reactors after 2023.

7. Although we don't know yet what the Levy Control Framework Cap will be after 2020/21, it is clear that new reactors at Hinkley Point C will use up the lion's share of any funds available after the reactors open sometime after 2023. This is certain to unfairly curtail the solar and offshore wind industries, despite the fact that electricity from these two sources is likely to be cheaper by then or on a downward trajectory towards being cheaper shortly afterwards.
8. The question the Competition Commissioner must surely answer is whether the subsidies to Hinkley Point C are required in order for the UK to meet its energy security and climate change objectives? The answer is clearly no. In which case, is spending money on the subsidy the most cost efficient way of reducing carbon emissions? Again the answer is no - it would be better to spend the money elsewhere. Finally does awarding subsidies to one form of low carbon technology constitute unfair treatment of other forms of low carbon technology which might be available from elsewhere in Europe? The answer is clearly yes.
9. We, therefore, call on the European Competition Commissioner to declare the State Aid which the UK Government proposes to give to Hinkley Point C as illegal.

14. References

- (1) Vademecum Community law on State Aid, European Commission, 30th September 2008. http://ec.europa.eu/competition/state_aid/studies_reports/vademecum_on_rules_09_2008_en.pdf
- (2) Letter from Joaquin Almunia, Competition Commissioner to the UK Government, dates 18th Dec 2014: State aid SA. 34947 (2013/C) (ex 2013/N) – United Kingdom Investment Contract (early Contract for Difference) for the Hinkley Point C New Nuclear Power Station http://ec.europa.eu/competition/state_aid/cases/251157/251157_1507977_35_2.pdf para 111
- (3) Ibid para 109
- (4) Ibid para 110
- (5) Ibid para 245
- (6) Ibid para 317
- (7) The Coalition: Our Programme for Government, Cabinet Office, May 2010 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/78977/coalition_programme_for_government.pdf
- (8) Written Ministerial Policy Statement on Energy, the Rt. Hon. Chris Huhne MP, 18th October 2010 <https://www.gov.uk/government/news/written-ministerial-statement-on-energy-policy-the-rt-hon-chris-huhne-mp-18-october-2010>
- (9) Hansard 28th November 2013, Column 410w <http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm131128/text/131128w0002.htm#13112888000013>
- (10) Ed Davey Speech to the House of Commons 7th February 2013, <https://www.gov.uk/government/speeches/edward-davey-speech-to-the-commons-on-new-nuclear-power>
- (11) Mason, R. *UK Government agrees to subsidise nuclear power companies' prices*, Telegraph 16th Dec 2010 <http://www.telegraph.co.uk/finance/newsbysector/energy/8204683/UK-government-agrees-to-subsidise-nuclear-power-companies-prices.html>
- (12) Mason, R. *Government blinks first in UK's Nuclear Stand-off*, Telegraph 13th Nov 2010 <http://www.telegraph.co.uk/finance/newsbysector/energy/8131174/Government-blinks-first-in-UKs-nuclear-stand-off.html>

- (13) World Energy Outlook 1999, Looking at Energy Subsidies, Getting the Prices Right, IEA, 1999. <http://www.worldenergyoutlook.org/media/weowebiste/2008-1994/weo1999.pdf>
- (14) EU Trade website page on Anti-Subsidy accessed 20th Jan 2014
<http://ec.europa.eu/trade/policy/accessing-markets/trade-defence/actions-against-imports-into-the-eu/anti-subsidy/>
- (15) House of Commons Environmental Audit Committee, *Energy Subsidies*, Volume 1 2nd Dec 2013 <http://www.publications.parliament.uk/pa/cm201314/cmselect/cmenvaud/61/61.pdf> para 51.
- (16) House of Commons Environmental Audit Committee, *Energy Subsidies*, Volume 2 2nd Dec 2013, <http://www.publications.parliament.uk/pa/cm201314/cmselect/cmenvaud/61/61vw.pdf> page 8.
- (17) House of Commons Environmental Audit Committee, *Energy Subsidies*, Volume 1 2nd Dec 2013 <http://www.publications.parliament.uk/pa/cm201314/cmselect/cmenvaud/61/61.pdf> para 69.
- (18) Ibid para 70.
- (19) House of Commons Environmental Audit Committee, *Energy Subsidies*, Volume 2 2nd Dec 2013, <http://www.publications.parliament.uk/pa/cm201314/cmselect/cmenvaud/61/61vw.pdf> pp 130-134
- (20) Letter from Joaquin Almunia, Competition Commissioner to the UK Government, dates 18th Dec 2014: State aid SA. 34947 (2013/C) (ex 2013/N) – United Kingdom Investment Contract (early Contract for Difference) for the Hinkley Point C New Nuclear Power Station http://ec.europa.eu/competition/state_aid/cases/251157/251157_1507977_35_2.pdf para 100
- (21) Patel, T. *EDF may end UK nuclear plan unless profit guaranteed, CEO says*. Bloomberg 5th Feb 2013. <http://www.bloomberg.com/news/2013-02-05/edf-may-end-u-k-nuclear-plan-unless-profit-guaranteed-ceo-says.html>
- (22) Green, D. Sizewell C: *Construction of any new nuclear plant unlikely before 2018 – two years later than planned*, East Anglian Daily Times, 3rd February 2014
http://www.eadt.co.uk/news/sizewell_c_construction_of_any_new_nuclear_plant_unlikely_before_2018_at_least_two_years_later_than_expected_1_3278275
- (23) Pitel, L and Webb, T. French will cash in on UK nuclear power deal, The Times 21st October 2013 <http://www.thetimes.co.uk/tto/news/politics/article3899784.ece>
- (24) Updated energy and emissions projections: 2012, Annex F: Price and growth assumptions, DECC 2012
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/240320/Annex-f-price-growth-assumptions-2013.xls
- (25) We are grateful to Peter Lux for graphing DECC's projected electricity prices.
<http://www.plux.co.uk/future-electricity-costs/>
- (26) DECC Press Release 21st Oct 2013 <https://www.gov.uk/government/news/initial-agreement-reached-on-new-nuclear-power-station-at-hinkley>
- (27) McDermott, J. *The Hinkley Point price is a great big nuclear hedge*, Financial Times 21st Oct 2014 <http://blogs.ft.com/off-message/2013/10/21/the-hinkley-point-price-is-a-great-big-nuclear-hedge/>
- (28) Gosden, E. *New nuclear may not cut bills Energy Secretary admits*, Telegraph 21st October 2013. <http://www.telegraph.co.uk/finance/newsbysector/energy/10394243/Hinkley-Point-good-for-Britain-says-Ed-Davey.html>
- (29) Inman, P. & Wintour, P. *Nuclear power gets £10bn financial guarantee boost*, Guardian 27th June 2013 <http://www.theguardian.com/environment/2013/jun/27/nuclear-power-10billion-financial-guarantee>
- (30) See Webster, R. *Four big questions about the nuclear deal*, Carbon Brief 22nd Oct 2013
<http://www.carbonbrief.org/blog/2013/10/four-big-questions-raised-about-the-nuclear-deal/>
- (31) Berry, S. *Solar set to beat nuclear on headline strike price by 2018, never mind 2023*, Solar Portal 24th October 2013

- http://www.solarpowerportal.co.uk/guest_blog/solar_set_to_beat_nuclear_on_headline_strike_price_by_2018_never_mind_2023
- (32) Bennett, P. *DECC unveils new solar strike prices for 2015 onwards*, Solar Power Portal 4th Dec 2014
http://www.solarpowerportal.co.uk/news/decc_unveils_new_solar_strike_prices_for_2015_onwards_2356
- (33) Nichols, W. *Renewables industry vows to undercut nuclear prices*, Business Green 22nd Oct 2013 <http://www.businessgreen.com/bg/analysis/2302016/renewables-industry-vows-to-undercut-nuclear-prices>
- (34) *ibid*
- (35) Economic of Wind Energy, EWEA web site accessed 23rd Jan 2013
<http://www.ewea.org/policy-issues/economics/> The EWEA electricity cost calculator shows the levelised cost of nuclear electricity to be €100/MWh in 2020 and onshore wind €57/MWh
- (36) Nichols, W. *Renewables industry vows to undercut nuclear prices*, Business Green 22nd Oct 2013 <http://www.businessgreen.com/bg/analysis/2302016/renewables-industry-vows-to-undercut-nuclear-prices>
- (37) Gosden, E. *Winds of change blowing through UK energy as world's biggest offshore wind farm opens*, Telegraph 5th July 2013
<http://www.telegraph.co.uk/finance/newsbysector/energy/10161145/Winds-of-change-blowing-through-UK-energy-as-worlds-biggest-offshore-wind-farm-opens.html>
- (38) Offshore Wind Cost Reduction Pathways Study, The Crown Estate, May 2012.
<http://www.thecrownestate.co.uk/media/305094/Offshore%20wind%20cost%20reduction%20pathways%20study.pdf>
- (39) Renewable energy boss tells PM solar power could match Hinkley in two years, Nextgen 24th October 2013 <http://www.nextgenmedia.co.uk/news/solar/809-renewable-energy-boss-tells-pm-solar-power-could-match-hinkley-in-2-years>
- (40) McAdam, M. *Nuclear Insanity – Is the EU seeing the nuclear light?* Aquamarine Power, 1st Feb 2014 <http://www.aquamarinepower.com/blog/nuclear-insanity-%E2%80%93-is-the-eu-seeing-the-nuclear-light/>
- (41) Molho, N. *Why the UK should adopt a can do attitude to offshore wind*, Huffington Post 17th July 2013 http://www.huffingtonpost.co.uk/nick-molho/wind-power-environment_b_3609803.html
- (42) Cosh, B. *The Treasury and the cost of solar in the UK*, Solar Portal 20th Dec 2013
http://www.solarpowerportal.co.uk/guest_blog/the_treasury_and_the_cost_of_solar_in_the_uk_2356
- (43) Electricity Market Reform Delivery Plan, DECC, December 2013
<https://www.gov.uk/government/publications/electricity-market-reform-delivery-plan>
- (44) Nichols, W. *Renewables industry vows to undercut nuclear prices*, Business Green 22nd Oct 2013 <http://www.businessgreen.com/bg/analysis/2302016/renewables-industry-vows-to-undercut-nuclear-prices>
- (45) Can renewables provide baseload power? Skeptical Science website accessed 27th January 2014 <http://www.skepticalscience.com/print.php?f=374>
- (46) Ecofys, *The Energy Report – 100% renewable energy by 2050*, WWF 2011.
http://wwf.panda.org/what_we_do/footprint/climate_carbon_energy/energy_solutions22/renewable_energy/sustainable_energy_report/
- (47) Re-thinking 2050: 100% renewable energy vision for the European Union, European Renewable Energy Council, April 2010
http://www.rethinking2050.eu/fileadmin/documents/ReThinking2050_full_version_final.pdf
- (48) Zero Carbon Britain: Re-thinking the future, CAT. July 2013
<http://www.zerocarbonbritain.org/>
- (49) McKinsey. *Capturing the full electricity efficiency potential of the U.K.* Draft report, 2012
<http://www.decc.gov.uk/assets/decc/11/cutting-emissions/5776-capturing-the-full-electricity-efficiency-potential.pdf>
- (50) DECC *Electricity Market Reform Delivery Plan* DECC 2013
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/268221/181213_2013_EMR_Delivery_Plan_FINAL.pdf

- (51) Electricity Market Reform: Allocation of Contracts for Difference, DECC 16th January 2014, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/271919/Competitive_allocation_consultation_formatted.pdf
- (52) Whitehead, A. *The known unknowns and that fabulous nuclear contract*, Alan Whitehead MP Blog 24th Oct 2013 <http://alansenergyblog.wordpress.com/tag/levy-control-framework/>
- (53) Greene, L. *Is the Government missing the plot on solar power?* Business Green 20th Dec 2013 <http://www.businessgreen.com/bg/opinion/2320143/is-the-government-missing-the-plot-on-solar-power>
- (54) Shankleman, J. *Greg Barker predicts solar resurgence in 2014*, Business Green 16th Dec 2013 <http://www.businessgreen.com/bg/interview/2319084/greg-barker-predicts-solar-resurgence-in-2014>
- (55) Greene, L. *Is the Government missing the plot on solar power?* Business Green 20th Dec 2013 <http://www.businessgreen.com/bg/opinion/2320143/is-the-government-missing-the-plot-on-solar-power>
- (56) Cameron, A. *Spinning in the (political) wind*, Business Green 18th Dec 2013 <http://www.businessgreen.com/bg/feature/2319523/spinning-in-the-political-wind>
- (57) Shankleman, J. *Nick Clegg: Race is on to lead the world in clean green energy*, Business Green 1st Aug 2013 <http://www.businessgreen.com/bg/news/2286347/nick-clegg-race-is-on-to-lead-the-world-in-clean-green-energy>
- (58) Shankleman, J. *Is the UK's offshore wind dream sinking fast?* Business Green 18th Nov 2013 <http://www.businessgreen.com/bg/analysis/2307270/is-the-uks-offshore-wind-dream-sinking-fast>
- (59) Morales, A. *UK offshore wind risks failing to reach 10Gigawatts by 2020*, Business Week 15th Dec 2013 <http://www.businessweek.com/news/2013-12-15/u-dot-k-dot-offshore-wind-risks-failing-to-reach-10-gigawatts-by-2020>
- (60) Smith, P. *UK could miss 2020 offshore target*, Wind Power Offshore 16th Dec 2013 <http://www.windpoweroffshore.com/article/1224920/uk-miss-2020-offshore-target>
- (61) Balls, E. *Labour's vision for a green economic future*, New Statesman 10th July 2013 <http://www.newstatesman.com/politics/2013/07/labour%E2%80%99s-vision-green-economic-future>
- (62) Cameron, A. *Spinning in the (political) wind*, Business Green 18th Dec 2013 <http://www.businessgreen.com/bg/feature/2319523/spinning-in-the-political-wind>
- (63) Windpower Monthly 19th June 2013 <http://www.windpowermonthly.com/article/1186966/uk-offshore-electricity-production-hits-75twh>