

NFLA New Nuclear Monitor Policy Briefing



Edition Number 59, September 2019

The proposed development of Sizewell C – response to the fourth stage of local consultation by EDF Energy

i. Overview of Policy Briefing

This edition of the NFLA New Nuclear Monitor has been developed by the NFLA Secretary to respond to EDF Energy's fourth round of local consultation on its proposed new nuclear power station at Sizewell C in Suffolk.

The consultation comes at a time when the costs of constructing Hinkley Point C – an identical design to Sizewell C – has been raised again by EDF by another £2.9 billion to around £21.5 - £22.5 billion. EDF is also encountering further delays in completing a similar reactor at Flamanville in France, where it has been ordered to fix a number of faulty weldings, leading to an announced three year delay, to 2022, in this project.

The UK Government is presently consulting on a new funding model for assisting companies like EDF develop new reactors, the Revenue Asset Base (RAB) model. NFLA New Nuclear Monitor 58 provides the NFLA response to this consultation, and it is heavily referred to in this submission.

ii. Background to this consultation

EDF Energy remains publicly committed to develop new nuclear reactors (as the principal shareholder) at the Hinkley Point site in Somerset and the Sizewell site in Suffolk. It also has a minority stake in a Chinese CGN project to build a new reactor at Bradwell in Essex, to a Chinese design similar to the EPR design planned for Hinkley Point and Sizewell.

This fourth stage of local consultation arises largely out of frustration raised by local Councils, regulators and environmental / anti-nuclear groups that there remains a considerable amount of information on the proposed development of the site that has not been provided. In this consultation, EDF Energy have provided further local environmental and transport information in particular, but again there has been criticism that it is still not complete.

NFLA's previous responses to these consultations have focused on the 'need' for a new nuclear reactor at Sizewell, issues over emergency planning, radiation release and exposure information and some of the local concerns within the development. This fourth response does likewise.

This is expected to be the final stage of local consultation before the proposed development is taking under the National Policy Statement process as a national infrastructure project requiring a Development Consent Order. This process, of which NFLA have been sharply critical for not permitting many core issues to be discussed, includes a planning inquiry organised by national infrastructure planning inspectors. The final decision following this inquiry and a decision of the inspector is then taken by the Secretary of State.

39 YEARS AS THE LOCAL GOVERNMENT VOICE ON NUCLEAR ISSUES

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1. **Background to the NFLA responses on Sizewell C consultations**

NFLA are not convinced new nuclear reactors are required for future UK low carbon energy policy, given the cheaper, more quickly realisable and radioactive waste-free renewable energy alternatives. Councils are also involved in a core part of this issue through the development of decentralised energy solutions to tackle the impending 'climate emergency'.

This NFLA response follows up its response made to the second and third stages of public consultation. These can be found on our website –

http://www.nuclearpolicy.info/wp/wp-content/uploads/2017/01/NFLA_New_Nuclear_Monitor_No46.pdf

https://www.nuclearpolicy.info/wp/wp-content/uploads/2019/03/NFLA_New_Nuclear_Monitor_No56_Sizewell_C.pdf

The core conclusions of these responses were:

- It is widely regarded as good practice when carrying out an Environmental Impact Assessment to consider the alternatives to a project. If this were done for Sizewell C, NFLA believe it would be seen that there are plenty of opportunities to reduce energy demand and produce cheaper renewable energy alternatives.
- The energy environment has markedly changed in favour of renewable energy and energy efficiency alternatives. The National Policy Statement for new nuclear was out of date. The NFLA response to the consultation on the updated National Policy Statement for new nuclear above 1GW post 2025: siting criteria and process is available here:

http://www.nuclearpolicy.info/wp/wp-content/uploads/2018/02/NFLA_New_Nuclear_Monitor_No52-NPS-.pdf

This concluded that the electricity system has changed radically in the years since the project to build new third generation nuclear in Britain was initiated. Clearly EN-1, upon which the original EN-6 depended, needs to be completely re-written. The NFLA called for the consultation to be scrapped and for the Government to re-write the EN-1 National Policy Statement.

- NFLA also note that a major impact of building Sizewell C would be the production of nuclear waste with a radioactive content equivalent to 80% of the UK's existing radioactive waste inventory. This could require anywhere between 20% and 35% of the underground space required by existing waste in a deep geological disposal facility.
- Unlike spent fuel generated by existing UK nuclear reactors, it is not the intention of future reactor operators to reprocess spent fuel from new nuclear reactors. As a result, spent fuel will almost certainly remain on-site for decades, rather than being transported off-site to Sellafield as it is at the moment at most sites, apart from Sizewell B. Although it is possible that spent fuel might start to be transported off site during the 60 year lifetime of new reactors, prospective operators generally take the view that it is prudent to plan to store all of the lifetime arisings of the planned reactors on-site probably in spent fuel storage ponds. At Hinkley Point C, EDF is planning to be able to extend the life of the storage ponds for up to 100 years after the reactors close, and NFLA would expect the same scenario for Sizewell C.
- According to the UK Government's Article 37 submission to the European Commission on Hinkley Point C, a severe accident would only release 0.0447TBq of radioactive caesium-137. In contrast a modelling exercise by the Radiological Protection Institute of Ireland suggested showed that a 10,000TBq of Cs-137 was possible. An analysis for the Austrian Environment Agency shows that a possible severe accident in the spent fuel pool could result in a release of 1,780,000 TBq of Cs-137. Superimposing maps of radioactive fallout from Chernobyl, which released around 85,000TBq of Cs-137 show that a severe accident could require large areas of southern England to be evacuated depending on the wind direction.

NFLA encourage EDF to take account of our detailed comments made in those consultations, which we do not see any need to repeat, as we have done so now three times.

This response makes some additional comments on:

- The financing of the new nuclear reactors planned for Sizewell C.
- Construction issues with the EPR technology in France and Finland.
- Proposed extensions to the site boundary requiring the destruction of a number of sensitive habitats.
- Transport issues and nuclear emergency planning issues.

2. The financing of new nuclear reactors planned for Sizewell C

A core issue for the development of Sizewell C, which none of EDF's consultations has gone into any detail with, is how EDF is going to have the adequate finance to fund Sizewell C.

Just this week, EDF has admitted the cost of building Hinkley Point C has gone up again to between £21.5 and £22.5 billion. This is before the fundamental part of the project has even been delivered, as to date only the concrete raft for the reactors has been put in place. It also comes at a time when the recent auction of offshore wind farms has seen them come in at a 'strike price' of as little as £39.50 per megawatt hour, in comparison to the £92.50 (at 2012 prices) for Hinkley Point C.

The UK Government is currently consulting on whether it could use the Revenue Asset Base (RAB) funding model for new nuclear reactors like Sizewell C. Public comments by the CEO of EDF UK, Simone Rossi suggests the company is very interested in supporting this finance model, and claims it will allow a considerable reduction in the 'strike price' for Sizewell C.

NFLA has just sent in its detailed response to the UK Government consultation, and that can be found at:

https://www.nuclearpolicy.info/wp/wp-content/uploads/2019/09/NFLA_New_Nuclear_Monitor_No58_RAB_Consultation_response.pdf

NFLA encourages EDF to consider this response in detail. Our summary concludes:

- Consumers may end up paying for nuclear projects which are not completed.
- The financial risk is shifted to consumers, including those who don't use nuclear electricity.
- It will be difficult to define a credible cost overrun threshold when already two EPR projects have tripled in cost.
- Private finance may still not be forthcoming.
- There is limited experience of using the RAB model for anything as complex and risky as nuclear.
- The project developer will hold all the information, so the proposed Regulator will only be able to make token adjustments to projected costings.
- Setting up a new regulatory regime will mean the time it takes to provide any carbon savings will be far too long.
- The Revenue Stream will include a variable strike price – consumers forced to write a blank cheque.

As part of this response, NFLA make a poignant comment on the costs of EDF's parallel Hinkley Point C to emphasise these concerns. In 2008, the UK government White Paper on nuclear power forecast that the construction cost of the two reactors planned for Hinkley, would be **£4 billion**. This was the 'overnight' cost excluding finance charges, which might add an additional 50% to the overnight cost. In 2012, EDF, the company leading the consortium to build Hinkley estimated the overnight cost would be £12 billion. This increased to £14 billion in 2013, £16 billion in 2015, £18 billion in 2016 and the most recent estimate (June 2018) was for **£19.6-20.3 billion**. (Which as noted has now been raised even further to £21.5 – 22.5 billion). The contracted price paid for power (strike price) would be £92.5/MWh (2012 money) index-linked to inflation for 35 years, nearly double the most recent bids (2017) for offshore wind (£57.5/MWh 2012 money), despite off-shore wind projects only being given 15-year contracts.

NFLA make the simple point to EDF, that, despite four consultations which have largely disappointed local Councils and environmental groups, the most fundamental point is whether EDF can actually finance Sizewell C. The RAB consultation comes out of the demise of Toshiba's Moorside development and Hitachi's Wylfa and Oldbury developments. It seems to NFLA as a last desperate 'throw of the dice' to fund new nuclear at a time when the urgency of the 'climate emergency' and the rapidly reducing costs of renewable energy put under deep question over the 'need' for new nuclear anymore. NFLA remain concerned that, with its huge debt burden, EDF has the required finance to fund such an expensive project as Hinkley Point C, so the question has to be asked is will it completely over-reach itself in also seeking to deliver Sizewell C (and Bradwell B with CGN) in addition?

3. Construction issues with the EPRs being built at Flamanville

In its four consultation documents, EDF has emphasised consistently its confidence with the technology of its EPR design as being fit for purpose. However, NFLA feels the evidence of ongoing problems and delay at the Flamanville and Olkiluoto sites in France and Finland suggests the EPR technology has become so complex it is almost 'unbuildable'.

The EPR Reactor being built at Flamanville in Normandy – the same type of reactor as the two being built at Hinkley Point C and proposed for Sizewell C – began construction in 2007. It was originally expected to start generating in 2012 and cost 3.5 billion euros. The bill has now reached nearly 11 billion, and it has now been announced will be delayed yet again until 2022. While construction has almost finished, substandard quality welds were discovered in February and April 2018, in the secondary circuit which discharges steam to the turbine.

EDF agreed to redo 58 welds, but asked the French Nuclear Regulator ASN to allow them to leave eight other 'hard to reach' welds because they are integrated in the containment. Having to redo these would force EDF to completely revise its schedule and delay the opening the reactor.

ASN has now demanded that EDF fix these welds before it gives authorisation for the reactor to be operated. As a result, EDF have now announced a delay of three years to fully complete the reactor. As EDF is now required to repair the welds, it is likely to put completion back to 2022/23. Given that EDF also has to replace the vessel lid in 2024, it may be unlikely to even start up in 2022/23 and run for one fuel cycle given that it will make vessel head replacement much dirtier and more expensive, so that could put completion back even further to 2024.

NFLA notes that when the European Union signed off on the Treasury's loan guarantees for Hinkley Point C, it insisted it be conditional on Flamanville having "completed the trial operation period" and other operational milestones by December 2020. If Flamanville misses that deadline – which it is now clear it will, is it not now quite possible that the UK Government will not be able to offer up to £17bn in loan guarantees? Any impact on the Hinkley Point C project of this magnitude must also impact on the viability of Sizewell C.

EDF has said it can learn from the mistakes it has made at Flamanville (and also at Olkiluoto in Finland) for Hinkley Point and Sizewell, but NFLA remains sceptical that it will.

4. Proposed changes to the site boundary requiring the destruction of sensitive environmental habitats

In the fourth stage of consultation, EDF mention a number of factors that may require an increase in the site boundary, such as to accommodate additional pylons, transport arrangements and staffing.

NFLA has been aware of a considerable amount of concern raised by environmental groups as to the impact on a number of sensitive habitats.

NFLA for example note the concerns of the RSPB noted on their website:

- The RSPB is concerned that Sizewell C does have the potential to have a major adverse environmental impact on an area of the Suffolk Coast recognised for its value

for wildlife, and protected by a range of national and international nature conservation designations.

- Planning policy - Concern that it has not been demonstrated that Sizewell C is the least damaging site option in terms of impacts on designated wildlife sites.
- Coastal processes - Concern that the beach landing facility and hard coastal defence feature could have significant impacts on coastal processes affecting the Minsmere-Walberswick designated wildlife sites.
- Hydrology - Potential for significant impacts on water quality and water movement affecting the Minsmere-Walberswick designated wildlife sites and the Sizewell Marshes SSSI.
- Noise and visual disturbance - Concern about effects on marsh harriers and waterbirds of the Minsmere-Walberswick designated wildlife sites
- Loss of designated wildlife sites - Concern about the level of land take from Sizewell Marshes SSSI and the lack of justification for this. Need for clarity that there will not be land take from the Minsmere-Walberswick designated wildlife sites.
- Other impacts - Other effects on designated wildlife sites including on air quality and protected species, and effects on visitors to RSPB Minsmere.

<https://www.rspb.org.uk/our-work/our-positions-and-casework/casework/cases/sizewell-c/#BwVaMSSEJZCRDKzS.99>

NFLA remain unconvinced that such concerns have been resolved by EDF in this fourth stage consultation.

NFLA also share the concern of many groups for the controversial planning decision by East Suffolk District Council to approve EDF's planning application for the creation of more space in the Sizewell C site which condemns Coronation Wood to be felled. The development requires the moving of some Sizewell B (SZB) buildings and car parks to other areas west of SZB which will further impinge on the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB). This decision confirms the concerns of groups like 'Together Against Sizewell C' (TASC) and the NFLA; that the development of Sizewell C will incur consider environmental damage to the AONB.

NFLA reiterate wider concerns around the potential impact of climate change to coastal erosion on the east coast of England and whether it is really appropriate to be considering the construction of a new nuclear reactor as the climate emergency – of which local Councils have passed resolutions on – begins to bite in the next few decades.

NFLA also support the other areas of local environmental concern noted from TASC including:

- A general lack of Environment Impact Assessment information which will not be made available until the Development Consent Order (DCO) inquiry.
- The footprint plan of the total nuclear site will not be made available until the DCO inquiry.
- In reference to the replacement mitigation for the Fen meadow SSSI there is far too little information on either Site 1 or Site 2. This type of habitat is irreplaceable.
- In reference to replacement habitats for marsh harriers, they forage over these areas at present, and it is not only this species but many other bird species that will be disturbed. The destruction of habitats is proving to be the worst situation for all species and it should be avoided. What has been offered is not a satisfactory solution.
- The Fish entrainment at the cooling water intakes is still unknown.
- The potable water quantity and source is still unknown and still under discussion.
- The location, disposal route and final discharge point of the sewage plant for Sizewell C is still unknown.
- The size and location of the Dry Fuel Store is still unknown, and how spent fuel is to leave the site is also unclear.
- The beach landing facility transport to the site does not mention how it is to be undertaken

- In terms of beach frontage, the Green Line as agreed for Sizewell B is not being adhered to and the berm is too far forward of this agreed green line.

For NFLA, it is both disappointing and quite alarming that such important information has still not been provided by Sizewell C after four consultation processes.

5. Local transport issues and nuclear emergency planning issues

NFLA is consistently concerned over the ever-increasing amount of transports of nuclear materials taking place in the UK. It notes this remains a real concern at all nuclear sites, such as with the unanimous decision by Somerset councillors to not accept transports of radioactive wastes from other sites to Hinkley Point B.

Where transports take place, rail transport is preferable and NFLA note that a new rail line is to be built, but in the meantime the existing rural train line is to be used. If the project was to go ahead, the upgrading of rail infrastructure is essential to ensure safe transports.

The project involves considerable upgrades of the local road infrastructure. Current experience at the Hinkley Point sites shows an increasing level of misery that the rural road network simply cannot take such large amounts of HGV traffic. Local communities need to be extensively consulted over their views of the traffic measures being developed for the site.

Considerable discussion is taking place over an updated emergency plan for the Sizewell site. NFLA encourages EDF to talk with the local Council around the additional hazards that would incur with a Sizewell C site adjoining to an existing B site and an A site being decommissioned, creating different levels of potential confusion.