

**Resource capacity, transcripts, Library functionality; Errata;
Addenda; R17.2.16; and, REP5-045 IROPI**

EN010007 ExA Deadline 9 Comment

Application by Horizon Nuclear Power Limited for an Order Granting Development
Consent for the Wylfa Newydd Nuclear Power Station

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9.1 Equality of arms

9.1.1 Capacity and resource constraint

- 9.1.1.1 Inadequate resource capacity as lay Interested Party (IP) continues to hamper,
- a. timeous appraisal of 69 new documents submitted by the Applicant under Deadline 8, alongside 8 submissions from other Interested Parties, including statutory consultees;
 - b. catching up on submissions under all previous seven Deadlines;
 - c. detailed consideration in particular of a range of environmental matters, likely significant effects, mitigation options and proposed compensation measures; and,
 - d. review of all responses to the ExA's PD-009 Written Questions and PD-013 Further Written Questions, respectively, not to mention reviewing responses to all Action Points arising from Issue Specific Hearings and Open Floor Hearings.

9.1.2 Unavailability of official transcripts, or summary notes, of Oral Hearings: Aarhus Convention potential engagement?

- 9.1.2.1 The Examination Library up to 2 April 2019 lists 25 audio recordings of the ExA's Oral Hearings to date (EV-028 to EV-054, inclusive). No official transcripts or summary notes are available. The sole summary note provided to date concerns the ExA's Preliminary Meeting held 22 October 2018: EV-010. An email request on 6 November 2018 for transcripts of subsequent Hearings yielded an email reply on 12 November 2018, in which PINS redirected me back to audio recordings, stating:

"Any audios of Preliminary Meetings and Hearings held are published as soon as practicable on the National Infrastructure Website, in relation to Wylyfa the project webpage can be found here: ..."

- 9.1.2.2 Lack of availability of official transcripts/summary notes is arguably capable of materially disadvantaging,
- a. IPs unable to allocate the time required to listen to each audio recording, including implied need for repetitive listening in order to comprehend (or, follow) verbal exchange on complex issues and intricate details; as well as,
 - b. IPs unable to attend or participate in the ExA's Hearings due to any constraint.

Unavailability of official transcripts, in turn, has the practical effect of loss of appropriate opportunity to become equally informed and be in a position to consider informed comment on content of the ExA's Oral Hearings. Could this reasonably be said to constitute effective ease of access to all ExA proceedings?

- 9.1.2.3 Provision of audio recordings only could be said to satisfy partially Article 5 of the Aarhus Convention on enabling active access to information. However, it appears questionable whether unavailability of transcripts of all Oral Hearings could be said to be consistent with the principles of effective participation and effective ease of access to relevant information. According to the Guidance on the Aarhus Convention¹, this may potentially be capable of engaging article 4 (paragraph 1(b)) and article 5 (paragraph 2), respectively, as modulated by article 3 (paragraph 1). In that regard, two inter-linked questions may be said to arise.
- a. Is there equivalence in effective ease of access to information as between an audio recording and an official transcript of that recording, irrespective of complexity or nuanced details in content information?

¹ "What is access to information under the Convention?" in: UNECE (2014) The Aarhus Convention: An implementation guide. United Nations Economic Commission for Europe. Second edition. Available at: http://www.unece.org/fileadmin/DAM/env/pp/Publications/Aarhus_Implementation_Guide_interactive_eng.pdf

- b. Are audio recordings adequate substitute for unavailability of official transcripts of those recordings, in terms of effective ease of access as a matter of course for all IPs, irrespective of whether able to attend the ExA's Oral Hearings?

9.1.3 The Examination Library: poor access functionality?

9.1.3.1 There exists neither a full contents index nor full text search functionality on the PINS Examination Library webpage. Moreover, the strap line titles on a vast majority of submissions remain incomprehensible. A substantial number of titles are identically worded (REP7-036 para.7.3.1, referring as well, for example). While these may be decipherable by the ExA, they are patently not when it comes to lay IPs. In other words, the entire Library is rendered effectively opaque, defying ease of accessibility to relevant information.

- a. This is significant, if not serious, weakness. It places onerous burden on lay IPs. It is simply not possible to search and retrieve from the Library all submissions on a particular point, whether made by all parties or a specific party. Submissions on a particular issue/point may lie buried or scattered in a myriad of documents, each running into any number of pages in length. An IP is lumbered with a mammoth fishing expedition, entailing reading up all submissions from all parties, or reading every submission from a particular party. In practice, neither proposition is either efficient or efficacious for lay IPs.
- b. Could this state of affairs be said to reflect principles of fair proceedings? Where PINS establishes and maintains a constantly enlarging library of electronic documents (over the course of an Examination period), is it unreasonable to expect PINS to be mindful of deficiency in full text search functionality?

9.1.3.2 Not surprisingly, lack of appropriate access functionality continues to preclude my ability as lay IP to ascertain which party has made what submission in respect of the following issues, for example.

- a. The location of receipt by the ExA of the advice requested in Action Point 15 (OD-004: ISH 24 October 2018), and the exchange of correspondence between the Welsh Government and the Applicant referenced in REP1-025, as well as the location of specific responses from all other IPs.

An email request on 12 March 2019 for tracking assistance yielded an email reply on 25 March 2019, in which the Casework Team could only advise me to resort to a fishing expedition, starting with the very same documents I had already reviewed, while stating:

"It is fully appreciated that there is voluminous correspondence and can be onerous for interested parties to locate such information however please note, it is not for the Planning Inspectorate to locate and identify documents relating to requests at hearings or written questions for all parties as this is not feasible given the scale of projects we deal with and the resources available. We do however aim to ensure all material is published and added to the examination library as quickly and accurately as possible.

"...Therefore [...] would advise you to look through this and any other document which may be relevant to your query."

That, with respect, comprises a fishing expedition unquantifiable in scale. Regrettably, the advice takes me no further with locating efficiently and efficaciously the precise whereabouts of the specific Advice requested by ExA, and of responses from other IPs.

- b. The location of all submissions from various parties regarding the Applicant's IROPI assessments: REP5-044 and REP5-045
- c. The location of all submissions from various parties regarding the impact of Wnda site dewatering on the neighbouring Magnox assets and reactors (albeit, no longer generating electricity): Table 3-1 SoCG ID MAG27, in REP2-046, referring.

- d. The location of all submissions on tailpieces proposed by the Applicant. Nor, for that matter, efficient and efficacious location of the information from the Applicant in the form requested in REP2-305, in my capacity as lay IP. Namely,

2.2.2.4 In order for Interested Parties to appraise proper response, the ExA is respectfully requested to require the Applicant to provide separately,

- a. a comprehensive list of all proposed tailpieces;
- b. full reasons as to the utmost essential need in each case;
- c. the corresponding enforceable ES assessed parameters and mitigation measures specifically bounding the objective of each tailpiece; and,
- d. the balance of tailpieces falling outwith the ES assessed parameters and mitigation to any extent.

9.2 Errata

The ExA's attention is respectfully drawn to the following proofing errors, with apologies.

9.2.1 Deadline 8 Comment REP8-078

Para.8.4.2.5.3.c: in line 2 of the second sub-paragraph on page 8, please delete "120" and replace with "**140**".

9.2.2 Deadline 6 Comment REP6-053

Footnote 4 on page 6: in line 1, please delete the words "Applicant's Director of Nuclear Operations" and replace with "**Parliamentary Under-Secretary of State**".

9.3 Addenda: Deadline 8 Comment REP8-078

9.3.1 Para.8.4.2.4.4.b: at the beginning of the last line, please insert: "**could**", before the words "in its own ..."

9.3.2 Para.8.4.2.4.5.c: in the second line, after "associated development", please insert: "**or development in its own right**"

9.3.3 Para.8.4.2.4.5.f: in the third line, please underline: "**if need be**".

9.4 PD-..... R17.2.16: Wylfa Newydd DCO Project suspension - apparent discrepancy?

9.4.1 Under the IROPI justification REP5-045, the Applicant asserts in para.6.3.10 that,

"the Wylfa Newydd Project remains the next new nuclear project in the pipeline",

invoking a recommendation in the first National Infrastructure Commission's Assessment² (advisory to the UK Government) that, the

² NIC (2018) National Infrastructure Assessment. National Infrastructure Commission. July 2018. Available at: https://www.nic.org.uk/wp-content/uploads/CCS001_CCS0618917350-001_NIC-NIA_Accessible.pdf

“Government should not agree support for more than one nuclear power station beyond Hinkley Point C before 2025.” (page 10).

The Applicant claims the proposed Wylfa Newydd DCO Nuclear Generating Station could be operational by 2028/29 (REP5-045 para.6.3.8), while seeking to assure in para.4.4.4 an

“intent to deliver power within [...] timeframe”,

set to conclude in 2025, under the 2011 EN-6 NPS.

9.4.2 With respect, these claims taken together with material statements by the Applicant’s representatives and the owner Hitachi Limited can be seen to compound discrepancies.

- a. The proposed deployment date falls outside the 2011 EN-6 delivery timeframe.
- b. Notably, “intent” may not necessarily translate into commitment.
- c. With suspension of the DCO Project ostensibly lasting 18-24 months (SWQ2.16.1 in REP5-002), deployment has shifted from 2027 (APP-406 para.1.1.3) to 2028/29.
- d. The decision by Hitachi Limited (the Applicant's sole owner: a global conglomerate) on 17 January 2019 to suspend all further work on the Wylfa Newydd DCO Project was rooted in straightforward commercial assessment. Namely, the proposed Wylfa Newydd DCO Nuclear Generating Station is proving commercially unviable for private sector business³.
 - (i) This can be seen spelt out in the main business continuity criteria, in the footnote below.
 - (ii) Hitachi’s long running negotiations with the UK Government for substantial financial support, designed to transform the Wylfa Newydd DCO Project into a profitable venture for private investors and shareholders, floundered because the level of support desired by Hitachi Limited was not agreeable to the UK Government as representing “good value for the taxpayer and the consumer”⁴.

³ Hitachi (2019) Hitachi Announces Suspension of UK Nuclear Power Stations Construction Project and Posting of Impairment Loss and Related Expenses on Consolidated Basis, Posting of Extraordinary Loss on Unconsolidated Basis, and Revisions to Full-year Consolidated Business Forecast. News Release. Tokyo, January 17, 2019 – Hitachi Ltd. (TSE:6501). Available at: http://www.hitachi.com/New/cnews/month/2019/01/f_190117.pdf

An extract:

“1. Posting Losses Associated with the Suspension of the Horizon Project

(1) Backgrounds and Contexts of the Losses

Based on an Advanced Boiling Water Reactor (ABWR), which is a “Generation III+” reactor with an extensive construction and operation track record in Japan, Hitachi has worked on developing a nuclear power plant in order to build two UK ABWR units adapted to UK requirements.

Hitachi has held detailed discussions with the UK Government over various options about how the UK Government might support the project including potential for equity and debt investments. The parties, with the cooperation of the Japanese Government, have held discussions in good faith in regard to the financial structure for the project and various conditions for the building and operation of the nuclear power station.

Since the acquisition of HNP, Hitachi has set the following three points as the main criteria for business continuation and reviewed the Horizon Project from the viewpoint of its economic rationality: (1) securing reasonable returns as a private enterprise, (2) realizing a financial structure on the premise of making Horizon Project off balance sheet, (3) limiting an investment amount to an acceptable range as a private enterprise.

Unfortunately, despite the best efforts of everyone involved the parties have not been able to reach an agreement to the satisfaction of all concerned. As a result, Hitachi has decided to suspend the project at this time from the viewpoint of its economic rationality as a private enterprise, as it is now clear that further time is needed to develop a financial structure for the Horizon Project and the conditions for building and operating the nuclear power stations. ...”

⁴ Hansard HC (2019) Nuclear Update. Statement by The Secretary of State for Business, Energy and Industrial Strategy. House of Commons Hansard, Volume 652, 17 January 2019. Available at: <https://hansard.parliament.uk/Commons/2019-01-17/debates/9C841326-B63A-4790-867F-905DEDDDD8AC/NuclearUpdate#contribution-AB1CF541-F832-4465-A6BE-437CE42EB8C3>

“... following Hitachi’s announcement I can set out in more candid terms the support for the project that the Government were willing to offer. First, they were willing to consider taking a one-third equity stake in it, alongside investment from Hitachi, agencies of the Government of Japan, and other strategic partners. Secondly, they were

- e. While the Applicant's Advocate asserts in a written summary of Oral Submissions to the ExA's ISH on 5 March 2019 (Item 8(b) on page 24 in REP7-001), that Horizon was merely "down-scaling" following the suspension decision, the Applicant's Executive Director of Nuclear Operations on the other hand was informing the House of Commons Welsh Affairs Committee⁵ that,

"the Horizon company will be dismantled over the coming weeks. ... Hitachi-Horizon will not exist as it does today."

- f. In contrast, the Chairman of Hitachi Limited has been upfront on prospect of the Project's revival. In a starkly clear statement to the financial press during the 2019 World Economic Forum in Davos, the Hitachi Chairman pronounced the following⁶:

"Hitachi's frozen nuclear power plant project in the U.K. could be revived only if the business is nationalized by Britain ...

"Nationalization is the only path" to resuming the project ... a scheme under which the company would not be saddled with massive assets is necessary for construction to begin."

9.4.3 In submissions to the ExA, the Applicant has studiously turned a blind eye to significant material discrepancy between suspension and nationalisation as a pre-requisite for commencing construction work on the proposed Wylfa Newydd DCO Project. A conclusion on nationalisation as a pre-condition collides as well with the Applicant's alleged "intent to deliver power": REP5-045 para.4.4.4, referring. On the face of it, such discrepancy,

- a. comprises material fact that warrants writing into Article 84, should the ExA be in a position to recommend any form of Grant or refusal of DCO for the proposed Wylfa Newydd Nuclear Generating Station (R17.2.16, referring); and,
- b. suffices to negate fundamental financial soundness of the Applicant's entire DCO Application.
- (i) The UK Government so far has not shown any appetite for nationalisation of the Applicant's Wylfa Newydd DCO Project in order to prime it sufficiently for the Project to become commercially tenable for Hitachi Limited. As the Secretary of State explained in Parliament on 17 January 2019 (see footnote 4, hereof):

willing to consider providing all the debt financing required for the completion of construction. Thirdly, they agreed to consider providing a contract for difference, with a strike price expected to be no more than £75 per megawatt-hour. I hope the House will agree that that is a significant and generous package of potential support, which goes beyond what any Government have been willing to consider in the past.

"Despite that potential investment, and strong support from the Government of Japan, Hitachi reached the view that the project still posed too great a commercial challenge, particularly given its desire to deconsolidate it from its balance sheet and the likely level of return on its investment.

"The Government continue to believe that nuclear has an important role to play, but, critically, it must represent good value for the taxpayer and the consumer. I believe that the package of support that we were prepared to consider was the limit of what could be justified in this instance. I was not prepared to ask the taxpayer to take on a larger share of the equity, as that would have meant taxpayers' taking on the majority of construction risk, and the Government's becoming the largest shareholder with responsibility for the delivery of a nuclear project. I also could not justify a strike price above £75 per megawatt-hour for this financing structure, given the declining costs of alternative technologies and the financial support and risk-sharing already on offer from the Government, which were not available for Hinkley Point C."

⁵ Oral evidence by the Applicant's Director of Nuclear Operations, in: WAC (2019) Welsh Affairs Committee Oral evidence: Wylfa Newydd nuclear power station, HC 1938 Tuesday 12 February 2019 Ordered by the House of Commons to be published on 12 February 2019. Full transcript available at: <file:///E:/silos/energy/wylfa/wb-proposal/wn%20inquiry%20transcript%2096520%20hc1938%20wac120219.pdf>

Replying to Question 31, the Director of Nuclear Operations informed the Committee on 12 February 2019 that, "... the Horizon company will be dismantled over the coming weeks. We are in a staff consultation period, which ends in early March. After that point, the intention is that most staff will be served notice. Therefore, the Hitachi-Horizon vehicle does not exist in the construct going forward. I think that is an important point. Moving forward, the developer-led piece may need examination, as I mentioned earlier, but Hitachi-Horizon will not exist as it does today."

⁶ Sano A (2019) Hitachi chairman: Nationalization only way to rescue UK nuclear project. *Nikkei Asian Review*. January 24, 2019. Available at: <https://asia.nikkei.com/Business/Companies/Hitachi-chairman-Nationalization-only-way-to-rescue-UK-nuclear-project>

“I was not prepared to ask the taxpayer to take on a larger share of the equity, as that would have meant taxpayers’ taking on the majority of construction risk, and the Government’s becoming the largest shareholder with responsibility for the delivery of a nuclear project.”

- (ii) Under the circumstances, the type of financial assurance in Article 84 that the ExA is inviting the Applicant to propose (R17.2.16, referring) would appear rendered seemingly redundant and meaningless in light of Hitachi’s nationalisation pre-condition, and seemingly pointless in light of the UK Government’s resistance to nationalisation of the Wylfa Newydd DCO Project.
- (iii) To the extent the UK Government is not prepared to countenance nationalisation as a pre-condition for commencement of construction work, it appears seemingly futile for the ExA to consider making any recommendation on any form of Grant of DCO for the proposed Wylfa Newydd Nuclear Generating Station.

9.4.4 Should there be any doubt about the nationalisation pre-condition articulated by the Chairman of Hitachi Limited, the ExA are respectfully requested to require the Applicant to obtain clarity from Hitachi Limited, preferably prior to the ExA’s Final Submissions Deadline 10.

- a. This information warrants submission into the Examination.
- b. No matter how solid the evidence on financial standing (R17.2.16 (f)), if Hitachi Limited has determined the Wylfa Newydd DCO Project is a non-starter without nationalisation, how would the assurances sought alter materially any ability of the Applicant to “source/secure the necessary funding at a later stage in order to implement the scheme” (R17.2.16 (d))?

9.5 REP5-045 and REP5-044: The Applicant’s IROPI case

9.5.1 IROPI justification

9.5.1.1 The Applicant argues the proposed Wylfa Newydd DCO Project allegedly would not have any adverse effects on integrity (the qualifying features) of European Designated Sites in the Project’s Zone Of Influence. The Sites affected include the priority natural habitats at Morwenoliaid Ynys Môn/Anglesey Terns Special Protection Area (SPA) and Dee Estuary SPA: REP5-045 para.2.3.1.

9.5.1.2 However, Natural Resources Wales (NRW) assesses that “an adverse effect on site integrity cannot be excluded in respect of the Morwenoliaid Ynys Môn/Anglesey Terns SPA due to construction phase disturbance and the Dee Estuary SPA due to the connection between it and the Morwenoliaid Ynys Môn/Anglesey Terns SPA relating to Passage Sandwich tern”: REP5-045 para.2.3.2. The Sandwich Terns that breed at the Cemlyn Bay Anglesey Terns SPA and the Passage Sandwich Terns at the Dee Estuary SPA comprise separate populations. The Applicant does not accept the NRW assessment.

9.5.1.3 The Applicant has therefore submitted into Examination a case for Imperative Reasons of Overriding Public Interest (IROPI) on a precautionary basis only (REP5-045 para 1.1.2), in response to ExA’s SWQ2.5.10 (PD-013), under regulation 64 of The Conservation of Habitats and Species Regulations 2017.

9.5.1.4 The Applicant invites the ExA to recommend to the Secretary of State that a DCO for the Wylfa Newydd Project should be Granted because there exists essential and urgent need for new nuclear power stations (Imperative Reasons); and, that the Wylfa Newydd DCO Project serves national, regional and local interests which outweigh potential harm to integrity of European Designated Sites of nature conservation (Overriding consideration); and, because the proposed Wylfa Newydd DCO Nuclear Generating Station would be generating electricity as part of the low carbon energy mix required in the UK, that this would be in the Public Interest: REP5-045 para.8.1.1.

9.5.2 Limited scope observations

- 9.5.2.1 This discussion explores what appears to have been overlooked in the Applicant's IROPI Report, and likely implication, in so far as feasible within the timescale for Deadline 9. Not all IROPI propositions could be appraised in the time available.
- 9.5.2.2 Due to prevailing capacity and resource constraints as lay IP, coupled with the pressure of ExA's tightly scheduled serial Submission Deadlines, it is not proving practicable either to appraise submissions from the Applicant and other Parties on adverse effects on integrity of priority natural habitats at the affected European Designated Sites. The looming final Submission Deadline in seven days' time precludes as well consideration of reserved comment. In the circumstance, the NRW assessments in REP5-081 (responses to SWQ2.5.3-2.5.6, inclusive) and, NRW REP7-012 (section 5) are presumed to reflect the balance of likely adverse effects likely to harm the integrity of affected European Designated Sites.

9.5.3 Nuclear externalities and economic benefits: Overriding Public Interest deficit?

- 9.5.3.1 A material question reasonably arises as to the soundness of the Applicant's putative calculus on national, regional and local economic benefits underpinning the case for overriding public interest in favour of the Wylfa Newydd DCO Project, despite risk of harm to priority habitats in European Designated Sites.
- 9.5.3.2 Due consideration of well recognised externalities characteristically inherent to nuclear power stations, unlike the other low carbon electricity generating technologies, is evidently missing from the Applicant's IROPI assessment. This arguably amounts to significant material omission. Clearly, both the benefits and disbenefits of nuclear power stations fall to be counted in any tally of economic benefits informing the IROPI case for the proposed Wylfa Newydd DCO Nuclear Generating Station. The Applicant appears to have proceeded as if these trade-offs either do not exist or do not matter.
- 9.5.3.3 A trade-offs balance sheet is evidently pertinent to any calculus on benefits of the proposed Wylfa Newydd DCO Nuclear Generating Station under IROPI justification. It could not be sufficient simply to invoke the welfare benefits of availability of electricity to society, or the low-carbon generation credentials, without also taking full account of down sides of the Applicant's chosen low carbon energy technology.
- 9.5.3.4 In that regard, the findings on externalities inherent to nuclear generating stations by the National Audit Office (NAO), in the 2016 Report on Nuclear Power in the UK⁷, are relevant. Curiously, despite using the Report in support of IROPI in section 4.3 of REP5-045, the Applicant evidently chose to turn a blind eye to externalities pinpointed by the NAO.
- 9.5.3.5 Externality costs of nuclear generated electricity identified by the NAO fall into two categories: risk to consumers and risks to taxpayers, compared with other low carbon energy technologies.
- a. According to the NAO, the UK Government's relevant Department (DECC) grants considerably longer term power purchase contracts (CfDs) for electricity supply from new nuclear power stations than from other low-carbon technologies. The resulting longer lock-in for electricity consumers into paying a high billing premium for nuclear generated electricity,
- "increases the risk that they do not benefit as much from any long-term changes, such as technological advances that reduce the cost of other low-carbon sources." (NAO para.19)

⁷ NAO (2016) Nuclear power in the UK. Report by the Comptroller and Auditor General. National Audit Office, 12 July 2016. HC 511. Available at: <https://www.nao.org.uk/wp-content/uploads/2016/07/Nuclear-power-in-the-UK.pdf>

Moreover:

“The costs of the Department’s interventions to ensure enough new generating capacity is built will ultimately be passed onto consumers’ bills. If the Department fails to assess the cumulative impact on bills of its policies there is a risk of financial hardship for consumers, or the need for unplanned taxpayer support.” (NAO para.3.12)

- b. Treasury guarantees are provided by the UK Government for bonds issued by the developer in order to finance the construction of a new nuclear power station. Though designed to be repayable by the developer’s shareholders, taxpayers run the risk of shareholders being unable to repay. In that circumstance, a call on the Government’s guarantee means the funds required would be drawn from the national budget (NAO para.20), with knock-on welfare impacts for the UK population, including the 5 million households the Applicant states would be powered by the proposed Wylfa Newydd DCO Nuclear Generating Station (REP5-045 para.4.4.4).

- c. Further,

“The government will be liable for any decommissioning costs above the amount”,

set aside by the nuclear operator under the statutory Funded Decommissioning Programme, including contingency (NAO para.20; and, the second bullet point under para.3.20, respectively, referring). Although DECC

“calculates the risk of this happening is very low”,

the risk for taxpayers nevertheless could not be ruled negligible. It is real risk, considering that final decommissioning costs involve predicting outturn costs:

- upwards of 60 years ahead for a nuclear generating station alone; and,
- upwards of 140-160 years into distant futures for storage facilities required for safe and secure interim storage of spent nuclear fuel and intermediate level radioactive waste generated by every nuclear power station.

As stated by the NAO:

“The costs to decommission nuclear power stations are very high relative to other low-carbon technologies. These costs are generally far in the future and therefore uncertain.” (the final bullet point, para.2.11)

- d. In addition,

“The disposal of nuclear waste poses particular challenges and is expensive. Spent nuclear fuel remains radioactive for millennia and it is not yet possible to guarantee complete decontamination.” (the fourth bullet point under para.2.11)

As the NAO explained, the UK Government/taxpayer takes on the liability for management and disposal of spent nuclear fuel and intermediate-level radioactive waste from the operator of a nuclear power station, under unique Waste Transfer Contracts, in return for a fee from respective operator.

“The Department will incur a liability if the total fees are less than the actual costs. It states this risk is ‘very low’.” (NAO para.2.14)

Clearly, the risk for taxpayers is not negligible. It is real risk, considering that:

- the wait for final disposal in a Geological Disposal Facility (GDF) could run upwards of 140-160 years (or, even longer), into distant futures;

- a GDF may incur construction cost overruns in consequence of site geological or geohydrological conditions, or engineering or other factors;
- a GDF may need to remain open for 100 or more years; and,
- a GDF may warrant early closure on environmental or safety grounds, perhaps necessitating further extended interim storage (may be in new facilities), while construction proceeded on an alternative GDF elsewhere.

These very long term unpredictable externalities amount to significant costs of nuclear generated electricity, falling decisively on future generations. The costs amount, in effect, to an extremely long reach lock-in transferring unpredictable and currently inherently unaccountable infrastructure costs of the proposed Wylfa Newydd Nuclear Power Station to future taxpayers. The Applicant is currently engaged in seeking a Grant of DCO for construction and operation of a new nuclear generating station at Wylfa, which is inherently prone to generating these externalities (by virtue of the technology).

- e. Furthermore, according to the NAO's para.3.20 (final bullet point),

“International and UK law requires nuclear operators to hold insurance or other security to meet claims in the event of a nuclear accident at their site. However, this only covers the first 1,200 million euros of costs in the event of an incident. Costs over and above that amount would have to be met by the taxpayer.”

However low the risk of severe nuclear accident at the proposed Wylfa Newydd DCO Nuclear Generation Station, the potential cost risk for taxpayers is clearly not negligible. It remains real risk.

9.5.3.6 In the balance of externalities and economic/financial benefits enumerated by the Applicant in REP5-045, is the sum of potential financial risk for consumers and taxpayers from externalities associated with the proposed Wylfa Newydd DCO Nuclear Generating Station (as set out in the 2016 NAO Report) less than, more than, or the same as the Applicant's enumerated benefits? Or, unquantifiable?

- a. Whatever the answer, how could risk of harm to integrity of priority habitats and vulnerable species of Terns in European Designated Sites be factored? What is the value of the affected European Designated Sites, for current and future generations of taxpayers? The Applicant's REP5-044 para.2.5.5 misses the issue altogether.
- b. On the other hand, the five discrete externalities identified in the NAO Report may alone suffice to preclude possibility of making a credible unequivocal IROPI case for the proposed Wylfa Newydd DCO Nuclear Generating Station, necessitating acceptance of risk of harm to integrity of European Designated Sites.
- c. The externalities identified in the NAO Report constitute material disbenefits of low carbon nuclear electricity generation. To the extent there doesn't exist sound basis for disregarding these potential disbenefits as insignificant, to that extent the externality costs may be said to weigh significantly against the Applicant's enumerated benefits of nuclear generation. None of these disbenefits attend other low carbon electricity generating technologies. Moreover, the calculus in this discussion leaves out the value of affected European Designated Sites for current and future taxpayers. The Applicant's case for IROPI arguably may not necessarily rest on firm ground.

9.5.3.7 To summarise this section, the nature of nuclear externalities and their costs could suffice to undermine substantially the Applicant's claims on Overriding benefits underpinning IROPI at the national, regional or local level. The Applicant's IROPI Report is inexplicably silent on these disbenefits, without exception. Nuclear externalities and costs remain ignored.

- a. Arguably, the five substantive externality risks may be capable of cancelling out the potential benefits on which the Applicant banks in making the IROPI case for the Wylfa Newydd DCO Nuclear Generating Station.

- b. The claimed potential benefits of Wylfa Newydd nuclear electricity may not necessarily outweigh the potential adverse effects on integrity of priority habitats and species in European Designated Sites.
- c. The Applicant's IROPI case seemingly fails to stand up to simple scrutiny. The costs, the extent, the nature, and the number of externalities may arguably be capable of effectively precluding possibility of robust IROPI justification for the proposed Wylfa Newydd DCO Nuclear Generating Station, entailing as it does acceptance of potential harm to integrity of priority habitats and vulnerable species of Terns in European Designated Sites.

9.5.4 Local impact assessment of annual wages and salaries of operational staff: Overriding Public Interest deficit?

9.5.4.1 The Applicant claims in REP5-045 para.7.5.6,

“The annual average direct, indirect and induced increase in income is estimated to be around £20 million on Anglesey alone, from staff costs at the Power Station.”

The Applicant provides no other local impact assessment of this global figure.

- a. The global figure has been massaged upward from annual injection of an estimated £8.4 million in wages into the economy of Anglesey, as stated initially in REP3-024 para.1.2.20. Nevertheless, both sets of figures are similar to the annual income from wages into the local economy of Anglesey during the operational period of the now closed Magnox Nuclear Power Station at Wylfa, adjacent to the WNDA. The proposed twin UKABWRs and the closed twin Magnox Reactors both appear to require similar operational staff levels, estimated at 850 employees: REP5-045 para.7.5.5.
- b. It is striking that during the Magnox operational years, a similar level of estimated annual average direct, indirect and induced increase in income seemingly failed to make significant dent on the level of the Island's GVA, levels of fuel poverty, chronic lack of diverse well paid employment opportunities and persistence of high levels unemployment, affordable housing shortages, and other indices of deprivation: REP7-036 para.7.5.3.1.f, referring.
- c. Clearly, the global income data warrants analysis and examination to inform appropriately the impact at grass roots level. It is relevant to try and get a handle on real economic impacts through assessment of dynamic flows in the local economy. The Applicant has persistently declined to assess the local impacts requested in REP2-305 paras 2.2.4.1-2, inclusive, and REP6-053 para.6.7.5.1. In this instance, regarding assessment of the annual proportion of direct financial injection of £8.4 million in salaries and wages of Wylfa Newydd operational staff into the economy of Anglesey:
 - (i) likely to be expended directly locally in North Anglesey;
 - (ii) likely to be retained and recycled within the local economy of Anglesey and North Wales, respectively;
 - (iii) likely to leak out of the local economy of Anglesey and North Wales, respectively; and,
 - (iv) the likely fate of the residue balance.

9.5.4.2 Regrettably, the Applicant perpetuates opacity in REP5-045: para.9.5.4.1.c above, referring. This precludes appropriate assessment of relevant local economic benefits under IROPI. To that extent, the Applicant's IROPI assessment remains materially deficient, as it fails to inform appropriately, meaningfully and objectively the veracity of claimed benefit.

9.5.5 Higher activity radioactive waste: Imperative Reasons & alternative solutions deficit?

9.5.5.1 Imperative Reasons

9.5.5.1.1 The Applicant is arguing an IROPI case for Grant of DCO for the construction and operation of the proposed Wylfa Newydd Nuclear Generating Station. The IROPI assessment has been prepared because of risk of harm to the integrity of priority habitats for Terns in European Designated Sites at Morwenoliad Ynys Môn/Anglesey Terns Special Protection Area (SPA) and Dee Estuary SPA, respectively: REP5-045 paras 1.1.2, 2.3.1 and 2.3.2, referring; as well as para.9.5.1.4 and para.9.5.2.2, hereof.

9.5.5.1.2 However, the Applicant has made no attempt either in the REP5-045 IROPI Report or the REP5-044 Assessment of Alternative Solutions to address the interim storage of higher activity radioactive waste in Buildings 9-201 and 9-202, respectively (constituting dDCO Work No. 1D), for periods of up to 140-160 years on the WNDA. The omission begs two relevant questions material to Examination of the Applicant's IROPI case, pursuant to section 105(2)(c) of the PA2008.

a. Implication for IROPI of Recommendation 27 in the 1976 Report on Nuclear Power, from the UK Royal Commission on Environmental Pollution.

b. Implication for IROPI of para.B.4.4 in Annex B of the 2011 NPS EN-6 Volume 2.

9.5.5.1.3 The Applicant's proposed Buildings 9-201 and 9-202 (REP5-013: WN0902-HZDCO-MSP-DRG-00003 Power Station Site Layout Plan) are located close together on Platform 1D, in the south west corner of the WNDA, at a distance of some 825 meters from the Anglesey Terns SPA at Cemlyn Bay.

9.5.5.2 The 1976 Recommendation 27 of the UK Royal Commission on Environmental Pollution (RCEP): implication for IROPI

9.5.5.2.1 The RCEP counselled against "a large programme of nuclear fission power" in Recommendation 27 of their 1976 Report on Nuclear Power⁸:

'There should be no commitment to a large programme of nuclear fission power until it has been demonstrated beyond reasonable doubt that a method exists to ensure the safe containment of long-lived highly radioactive waste for the indefinite future.'

Remarkably, some 43 years later, a requisite Geological Disposal Facility (GDF) for "the safe containment of long-lived highly radioactive waste for the indefinite future" not only currently does not exist anywhere in the UK, but its safe operation beyond reasonable doubt has never been demonstrated either. All higher activity radioactive waste from nuclear power stations continues to be stored in surface structures at nuclear sites scattered across the UK, awaiting permanent disposal somewhere.

9.5.5.2.2 The Applicant's IROPI justification, as well as failure to address the production of higher activity radioactive wastes by the nuclear generating station that is the subject of the IROPI Report, appears to run counter to RCEP Recommendation 27. Should the Secretary of State be minded to Grant a DCO for Wylfa Newydd, that too would run counter to the Royal Commission's Recommendation.

9.5.5.2.3 Through case by case incremental grant of DCOs for nuclear new build projects, as these come along at 2011 EN-6 designated sites, the UK Government's support for new nuclear power stations in effect adds up to "a large programme of nuclear fission power", against which the 1976 RCEP counselled.

⁸ RCEP (1976) Nuclear Power and the Environment. Royal Commission on Environmental Pollution, Chairman Sir Brian Flowers. Sixth Report. Cmnd 6618. HMSO.

- a. Justifying nuclear new build as merely replacing decommissioned nuclear generating capacity in itself comprises a large programme. Clearly, radioactive waste from new nuclear power stations does not replace the waste from decommissioned nuclear reactors. Instead, each new nuclear power station inexorably adds to the existing rising inventories of radioactive waste awaiting permanent disposal in a GDF somewhere in the UK at an uncertain future date. The Government's intention to carry forward the sites designated in the 2011 EN-6 into a new NPS, for a timeframe beyond 2025, would compound the scale of additional nuclear waste inventories held in a limbo in "interim" storage facilities scattered across the landscape in the UK.
- b. Granting a DCO for Wylfa Newydd is capable of doing nothing to reduce or solve the problem of inventories of radioactive waste accumulating/accumulated in "temporary" (interim) stores because the UK has not to date managed to build, let alone demonstrate, a safely operating GDF. An operating Wylfa Newydd DCO Nuclear Generating Station would, instead, manifestly add to the problems of storing the waste. In the process, the Applicant's proposal for a new nuclear power station at Wylfa becomes part of the problem, not a solution. However, the Applicant's Imperative Reasons or Overriding Public Interest justification on becoming part of the problem is nowhere to be found.
- c. The fact that future taxpayers are forced to assume final full liability and responsibility for ensuring eventual safe and permanent disposal of the Wylfa Newydd radioactive waste, certainly provides a comfort blanket for the Applicant: para.9.5.3.5.d, hereof, referring. But it does not provide a solution to reducing or eliminating the radioactive waste inventories awaiting permanent disposal. On the contrary, the Applicant's comfort blanket exacerbates the problem. Inexplicably, the Applicant's Imperative Reasons or Overriding Public Interest justification in this regard is nowhere to be found.

9.5.5.2.4 Given the risk of harm to the integrity of priority habitats at European Designated Sites, it could not be acceptable or sufficient for the Applicant to hide behind Welsh and UK Government assurances to the ExA that the Wylfa Newydd radioactive waste would somehow be disposed permanently in some GDF somewhere at some point in time.

- a. The plain fact remains that it is the Applicant's conscious decision to opt for a low carbon energy technology that invariably generates these problematic radioactive wastes. None of the other low carbon energy technologies create or exacerbate the radioactive waste problem that the UK faces.
- b. Wylfa Newydd is touted as the next new build nuclear power station in the UK by none other than the Applicant: REP5-045 para.6.3.10. Nothing in the 2011 NPSs EN-1 or EN-6 compels or commands the Applicant to develop a new nuclear power station. Nor do the NPSs direct the Applicant into making such development decision. Both NPSs leave it up to potential developers to come forward with nuclear new build projects should developers conclude these deliver adequate returns on investment for investors and shareholders. That is the core primary reason behind a decision to build nuclear power stations. The NPSs certainly facilitate the DCO application process, as well as providing suitable window dressing for a nuclear new build proposal. However, ironically in this instance, the Applicant's ultimate owner (Hitachi Limited) recently owned up to a fact it had known from the outset. Namely, that the proposed Wylfa Newydd DCO Nuclear Generating Station was a non-starter for private sector business: para.9.4.2.f and para.9.4.2.d, hereof, referring.
- c. The Applicant has chosen to create problematic radioactive waste by deploying this particular technology over all other low-carbon electricity generating technologies that are available to the Applicant, all equally capable of helping meet the UK's 2050 carbon emissions reduction target. The nature of the Wylfa Newydd DCO Project is dictated by the Applicant's chosen technology which, in turn, risks causing harm to the integrity of priority natural habitats at European Designated Sites.

9.5.5.2.5 Over and above reasonable expectation on the Applicant to address radioactive waste in any IROPI justification, the above considerations render it all the more acute for the Applicant to consider the resulting production of radioactive waste under REP5-045 IROPI assessment.

- a. In this instance, the Applicant has failed to do so in REP5-045.
- b. The Applicant's IROPI case fails as well to provide proper justification for not complying with RCEP Recommendation 27.

9.5.5.3 Para.B.4.4 in Annex B of the 2011 NPS EN-6 Volume 2: implication for IROPI

- 9.5.5.3.1 The Applicant evidently has not given any consideration to alternative siting/location of dDCO Work No. 1D constituting Buildings 9-201 and 9-202, respectively, to avoid the risk of harm to the integrity of priority habitats in the European Designated Sites Morwenoliaid Ynys Môn/Anglesey Terns Special Protection Area (SPA) and Dee Estuary SPA: REP5-045 para.2.3.1. These buildings are engineered to provide interim storage for higher activity radioactive waste for up to 140-160, while awaiting eventual removal of the waste to permanent disposal in a GDF somewhere. They are located close together on Platform 1D, in the south west corner of the WNDA, at a distance of some 825 meters from the Anglesey Terns SPA at Cemlyn Bay.
- 9.5.5.3.2 This omission points to flaws in the Applicant's approach under IROPI assessment. The omission highlights failure to consider the operation of Annex B para.B.4.4 (EN-6 Volume 2) in relation to these long term waste storage facilities. See as well section 9.6.5.3, hereof.

9.5.6 REP5-044: Potential Alternative Solutions (PAS)

- 9.5.6.1 REP5-044 is a companion to the REP5-045 IROPI Report, both prepared under the HRA. The Applicant has compiled long list tables showing rank dismissal of alternative solutions in REP5-044. Lack of resource capacity as Lay IP and the pressing timescale for Deadline 9 preclude detailed appraisal of rank dismissals. Only cursory observations on Potential Alternative Solutions (PAS) are flagged below.

9.5.6.2 PAS 1: Not having the Project; and, PAS 2: A different site to Wylfa

- 9.5.6.2.1 The Applicant dismisses both PAS 1 and PAS 2 in Table 5-2, on the grounds that these would be contrary both to the 2011 NPSs EN-1 and EN-6, and to the December 2017 Ministerial Statement in Parliament, as well as that the alternatives do not meet Project need or all Project objectives. It would appear that, on the face of it, the Applicant may have proceeded on a wrong footing.
 - a. The 2011 NPSs neither bind developers to a particular designated site, nor rule against competition for designated sites, or prohibit mergers and acquisitions involving designated sites, at any time.
 - b. There is no expectation in the 2011 NPSs that all designated sites must or can be developed, or that all necessarily gain DCOs.
 - c. Use of an undesignated site is not forbidden. The site would need to satisfy additional criteria during the DCO Examination.
 - d. Other than the statutory NSIP threshold generating capacity under the PA2008, the 2011 EN-6 NPS does not prescribe generating capacity at designated sites or the number of reactors.
 - e. The Applicant persists in ignoring as material fact that the December 2017 Ministerial Statement (the Applicant's favourite Ministerial Statement on nuclear new build) has been superseded by the Secretary of State's Nuclear Update statement to Parliament on 17 January 2019. The latter expressly draws attention to relevant change in circumstances in the UK energy supply markets⁹, subsequent to the adoption of the

⁹ As framed by change in the electricity supply market, subsequent to the adoption of EN-1 and EN-6 NPSs in 2011, as unfolding over the past eight years. In particular, the trend in incremental commercially viable

2011 EN-1 and EN-6 NPSs. Dismissal of alternatives putatively as non-compliant with a superseded Parliamentary Statement would not appear defensible.

- f. It appears irrational of the Applicant to argue that project objectives which are associated with a particular location/site become automatically binding on all alternative sites, irrespectively. Surely, a project is fundamentally defined by its core primary objective. Namely, in this instance, a need for generating and supplying low carbon electricity using technology that is affordable, does not create problematic unconventional wastes and is not harmful to the environment. All other project objectives become secondary and remain malleable on case by case basis, from location to location, in light of local parameters.

9.5.6.2.2 Further, regarding PAS 1, the Applicant would not appear to demonstrate having approached the question on alternatives with an open mind. For example, genuine consideration of commercially and financially viable alternative low-carbon energy projects, centred on the energy trilemma, capable of delivering overall site objectives as well. What might those projects be, remains unaddressed by the Applicant under HRA Stage 3.

9.5.6.2.3 Similarly, as regarding PAS 2, the Applicant would appear wedded to the WNDA and would not appear to demonstrate open minded approach to genuinely considering alternative sites under HRA Stage 3.

9.5.6.3 Omission of dDCO Work No. 1D: Buildings 9-201 and 9-202 from PAS

9.5.6.3.1 The Applicant has self evidently not considered PAS for dDCO Work No. 1D constituting Buildings 9-201 (the designated Spent Fuel Storage Facility) and 9-202 (the designated Intermediate Level Radioactive Waste Storage Facility), respectively. This amounts to significant deficiency in the Applicant's IROPI assessment, comprising failure as well to consider the operation of Annex B para.B.4.4 in EN-6 Volume 2: REP6-053 para.5.5.3.5.6.a&b, para.5.5.3.5.10, para.5.5.3.5.12, and para.5.5.4.2, referring; as well as, REP8-078 para.8.4.2.4.4, para.8.4.2.4.5.d, and para.8.4.2.4.6.

- a. First and foremost, these structures are facilities meant for the interim storage of packaged higher activity radioactive waste. The facilities could be located on any suitable nuclear licensable site in the UK, independent of the siting of the proposed twin UKABWRs at Wylfa: Annex B para.B.4.4 in the 2011 NPS EN-6 Volume 2¹⁰, referring.

renewable energy electricity generation across the UK National Grid Network, referenced in the Secretary of State's Update Statement to Parliament on 17 January 2019. See: Hansard HC (2019) Nuclear Update. Statement by The Secretary of State for Business, Energy and Industrial Strategy. House of Commons Hansard, Volume 652, 17 January 2019. Available at: <https://hansard.parliament.uk/Commons/2019-01-17/debates/9C841326-B63A-4790-867F-905DEDDDD8AC/NuclearUpdate#contribution-AB1CF541-F832-4465-A6BE-437CE42EB8C3>

Namely, "The economics of the energy market have changed significantly in recent years. The cost of renewable technologies such as offshore wind has fallen dramatically, to the point where they now require very little public subsidy and will soon require none. We have also seen a strengthening in the pipeline of projects coming forward, meaning that renewable energy may now be just as cheap, but also readily available.

"As a result of the developments over the last eight years, we have a well-supplied electricity market. Our electricity margin forecast is more than 11% for this winter, having grown for each of the last five years. While that is good news for consumers as we strive to reduce carbon emissions at the lowest cost, that positive trend has not been true when it comes to new nuclear. Across the world, a combination of factors, including tighter safety regulations, has seen the cost of most new nuclear projects increase as the cost of alternatives has fallen and the cost of construction has risen. That has made the challenge of attracting private finance into projects more difficult than ever, with investors favouring other technologies that are less capital-intensive up front, quicker to build and less exposed to cost overruns."

¹⁰ DECC (2011) National Policy Statement for Nuclear Power Generation (EN-6). Volume II of II – Annexes. Presented to Parliament pursuant to section 5(9) of the Planning Act 2008. URN 11D/717. Department of Energy and Climate Change. July 2011. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47860/1943-nps-nuclear-power-annex-volII.pdf

- b. Para.2.11.5 in EN-6 Volume 1 effectively advises the ExA that Interim Storage Facilities could be expected to be located on-site if no other options were available capable of fulfilling the primary purpose and function of interim storage.

9.5.6.3.2 It is incumbent on the Applicant to consider genuinely alternative solutions. The Applicant evidently has not given due consideration to alternative siting and/or location of the radioactive waste interim storage facilities, to avoid the risk of harm to the integrity of priority habitats in the European Designated Sites Morwenoliaid Ynys Môn/Anglesey Terns Special Protection Area (SPA) and Dee Estuary SPA: REP5-045 para.2.3.1.

9.5.7 Need for nuclear new build: Imperative Reasons & Alternative Solutions deficit?

9.5.7.1 Lack of resource capacity as Lay IP and the pressing timescale for Deadline 9 preclude comprehensive appraisal of REP5-045 Chapters 5-7, inclusive. Limited observations follow below.

9.5.7.2 The 2050 Pathways Analysis: Imperative need for nuclear new build?

9.5.7.2.1 The Applicant refers in REP5-045 section 4.2 to DECC's 2050 Pathways Analysis, claiming in para.6.2.11 (repeated in para.6.3.9) that the 2050 projections,

“reveal that, if new nuclear power plants are not installed, the UK is expected to miss its 2050 emissions targets by at least 3% and by up to 25%.”

However, it appears factually questionable whether the Analysis expressed the alleged link to new nuclear power stations and whether the scope of the 2050 Pathways Analysis could be held amenable to justifying an IROPI argument that the benefits of Applicant's Wylfa Newydd DCO Project outweigh the potential adverse effects on the integrity of priority habitats in affected European Designated Sites.

9.5.7.2.2 The 2050 Pathways Analysis is not a tool for exploring trade offs between carbon emissions and impacts on the natural environment. The tool does not feature biodiversity or ecological parameters. The 2050 Pathways Analysis was developed as a tool for exploring illustrative greenhouse gas emission scenarios for UK's 2050 decarbonisation target under the carbon budget, assuming rising energy demand. The exercise in 2010 modelled emission trajectories for transport, industry, domestic, agriculture and energy sectors. It neither identified nor recommended urgent need or preference for any technology specific approach in the energy sector for meeting carbon emission reduction targets.

9.5.7.2.3 On the face of it, the exploratory 2050 Pathways would not appear relevant for the purposes of an IROPI justification, as the Analysis did not set policy. As made clear on page 14¹¹,

“The trajectories are not projections based on policy decisions.

The second and third sentences in paragraph 2.11.5 of EN-6 Volume 1, respectively, evidently countenance possibility of alternatives to on-site interim storage. Notably, the expectation on on-site location in the final sentence is not contingent on any on-site Interim Storage Facility forming an integral part of the NSIP or an associated development. The expectation is contingent instead on the lack of availability of alternative option. The second sentence refers to Annex B. Para.B.4.4 in Annex B, in Volume 2 of EN-6, does not preclude other Interim Storage Facilities on alternative site(s) to a facility located on a proposed NSIP site. In summary, Annex B characterises Interim Storage Facilities in the following terms:

- the likely length of time for on-site interim storage (para.B.4.2);
- an assumption that interim storage would be on-site (para.B.4.3);
- that interim storage need not necessarily be on-site for the entire duration of wait for a Geological Disposal Facility, as alternative arrangements could not be precluded (para.B.4.4);
- the stores could be periodically refurbished wherever located and new stores built if need be (para.B.4.5); and,
- that there may arise planning issues for PINS to consider, referring back to Section 2.11 in EN-6 Volume 1 (para.B.5.1).

¹¹ DECC (2010) 2050 Pathways Analysis. Call for evidence, July 2010. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/68816/216-2050-pathways-analysis-report.pdf

“Although this analysis takes a detailed look at what might be possible to achieve over the next 40 years, it does not set out what policy decisions would be required to deliver such a future. A detailed policy roadmap covering such a long timeframe would be neither possible nor plausible. ...”

The Analysis report states further on page 15:

“It is not possible to predict the future and none of the pathways that this analysis illustrates is a preferred route. ...”

9.5.7.2.4 Evidently, the 2050 Pathways Analysis did not establish need for either new electricity generating capacity or new nuclear power stations. The Analysis would not appear deployable in support of the Applicant’s Imperative Reasons justification.

9.5.7.3 Relevant change in circumstances and Imperative Reasons for Wylfa Newydd?

9.5.7.3.1 In REP5-045 paras 4.3.2-3, the Applicant emphasises an estimated forecast on shortfall in electricity generation by 2035, contained in the National Audit Office’s 2016 NAO Report on Nuclear Power in the UK. Although the Applicant acknowledges in para.4.2.3 the NAO reservations that “demand forecasts are inherently uncertain”, it warrants noting that:

- a. for avoidance of doubt, neither the BEIS (REP5-045 para.4.2.2) nor the NAO demand forecast (para.4.3.3) has yet been formalised in a duly approved NPS for the timeframe 2026-2035;
- b. the 2016 NAO Report provided early indication of relevant change in circumstances subsequent to the adoption of NPSs EN-1 and EN-6 in July 2011. According to NAO para.3.24,

“The cost competitiveness of nuclear power is weakening as wind and solar become more established. The levelised cost of electricity from wind and solar has reduced in recent years as these technologies have been deployed more widely ...”;

- c. the relevant change in circumstances is set out more clearly in the Secretary of State’s Nuclear Update Statement to Parliament on 17 January 2019. In particular, the trend in the electricity supply market over the past eight years, of incremental commercially viable renewable energy electricity generation across the UK National Grid Network; and,
- d. revision of forecasts on peak demand for electricity is apparent in footnote 5 in REP5-045, indicating a two to fourfold reduction by 2030, compared with National Grid’s previous higher forecast which the Applicant nevertheless continues to cite in the main para.5.1.2 in REP5-045.

9.5.7.3.2 When considering Imperative Reasons, it is apparent from REP5-045 Chapter 6 that the Applicant has not factored relevant change in circumstances in the UK energy markets since the adoption of the NPSs EN-1 and EN-6 in 2011. The oversight appears to turn on the Applicant’s persistent disinclination to consider whether the Secretary State’s Nuclear Update statement in Parliament on 17 January 2019 could be said to qualify materially, as well as supersede, the Ministerial Statement to Parliament on 7 December 2017. The Applicant favours the latter, without reservation.

9.5.7.3.3 The relevant change in circumstances was expressly recognised in the 17 January 2019 Nuclear Update statement to Parliament. According to the Secretary of State¹²:

¹² Hansard HC (2019) Nuclear Update. Statement by The Secretary of State for Business, Energy and Industrial Strategy. House of Commons Hansard, Volume 652, 17 January 2019. Available at: <https://hansard.parliament.uk/Commons/2019-01-17/debates/9C841326-B63A-4790-867F-905DEDDDD8AC/NuclearUpdate#contribution-AB1CF541-F832-4465-A6BE-437CE42EB8C3>

“The economics of the energy market have changed significantly in recent years. The cost of renewable technologies such as offshore wind has fallen dramatically, to the point where they now require very little public subsidy and will soon require none. We have also seen a strengthening in the pipeline of projects coming forward, meaning that renewable energy may now be just as cheap, but also readily available.

“As a result of the developments over the last eight years, we have a well-supplied electricity market. Our electricity margin forecast is more than 11% for this winter, having grown for each of the last five years. While that is good news for consumers as we strive to reduce carbon emissions at the lowest cost, that positive trend has not been true when it comes to new nuclear. Across the world, a combination of factors, including tighter safety regulations, has seen the cost of most new nuclear projects increase as the cost of alternatives has fallen and the cost of construction has risen. That has made the challenge of attracting private finance into projects more difficult than ever, with investors favouring other technologies that are less capital-intensive up front, quicker to build and less exposed to cost overruns.”

- 9.5.7.3.4 Further insight into the relevant change in circumstances was provided by the Parliamentary Under-Secretary of State, during the Oral Evidence Session of the UK Parliamentary Welsh Affairs Committee on 12 February 2019. According to the Minister¹³:

“To put it into rough proportion, the Wylfa development is to provide about three—I always get my gigawatts and terrawatts mixed up—about that amount of power per year. Last year, we had one of our contracts for difference for offshore wind, which produced 3 GW. These are large amounts of power, but we have got the resilience and the gap built into the system.”

- 9.5.7.3.5 Regrettably, like the Oxera Report (APP-406 Appendix G), the IROPI Alternative Solutions Assessment REP5-044 remains deficient in Chapter 6 for failure to take account of relevant change in circumstances since the adoption of the EN-6 NPS in 2011, in particular over the past eight years, as expressly acknowledged in the Secretary of State’s Update Statement to Parliament on 17 January 2019. Given such persistent failure, the Oxera Report together with the needs case in REP5-045 and REP5-044 probably merit low weight.

- 9.5.7.3.6 The shortcomings in the Applicant’s Oxera Report are explored in REP4-035 paras 4.4.4.d-e, inclusive; and, in REP6-053 para.6.7.2.2.e-g inclusive, and para.6.7.4.2, respectively. A notable shortcoming concerns failure to consider generation costs: see,

REP4-035 para.4.4.4.e;
REP6-053 para.6.7.4.4; and,
REP7-036 para.7.5.3.1.e.

Despite referring to components of the “energy trilemma” in REP5-045 para.4.4.1, the Applicant nevertheless continues to ignore assessment of generation costs in the IROPI Report as well.

- 9.5.7.3.7 The assumptions, evidence base, findings, projections, conclusions and recommendations for the timeframe beyond 2025 have not yet been drafted, consulted upon or formalised in any approved new National Policy Statement (NPS) on Nuclear Power (as required under the PA2008). Justification of need for the Wylfa Newydd DCO Nuclear Generating Station based on unapproved evidence relating to a timeframe beyond 2025 would appear to warrant low weight. The unapproved evidence base has not been subjected to formal public consultation or adoption by the UK Parliament.

¹³ Oral evidence. Parliamentary Under-Secretary of State, in reply to Question 81. See transcript: WAC (2019) Welsh Affairs Committee Oral evidence: Wylfa Newydd nuclear power station, HC 1938 Tuesday 12 February 2019 Ordered by the House of Commons to be published on 12 February 2019. Full transcript available at: <file:///E:/sil0/energy/wylfa/wb-proposal/wn%20inquiry%20transcript%2096520%20hc1938%20wac120219.pdf>

9.5.7.3.8 The assumptions, evidence base, findings, projections, conclusions and recommendations in the 2011 EN-6 NPS, for the 2011-2025 timeframe, can be seen to have panned out differently in practice. The energy market response has cut a differing track, as acknowledged expressly by the Secretary of State in the Nuclear Update statement to Parliament on 17 January 2019. In the absence of relevant NPS for the timeframe beyond 2025,

- a. it would be erroneous and misleading to presume the 2011 EN-6 could simply be carried over and continue to be relevant beyond 2025, in respect of the current Examination into the Applicant's Application for Grant of DCO for the proposed Wylfa Newydd Nuclear Generating Station, pursuant to 105(2)(c) of the PA2008. The Applicant currently expects deployment by 2028/29 (REP5-045 para.6.3.8), assuming Wylfa Newydd ever gets built as a non-nationalised project: para.9.4.2.f, hereof, referring; and,
- b. under the circumstances, the 2011 EN-6 NPS probably warrants low weight, if any, when assessing the Applicant's Imperative Reasons for need for the Wylfa Newydd DCO Project, pursuant to PA2008 section 105(2)(c). Previous observations on the 2011 EN-6 NPS refer as well:

REP2-305 section 2.2.1;
REP4-035 sections 4.2.1 and 4.2.2; and,
REP6-053 sections 6.7.2 and 6.7.3, respectively.

9.5.7.3.9 In justifying Imperative need for a new nuclear power station, the Applicant dismisses other low carbon energy technologies as inadequate for the task.

- a. See, for example, APP-406, REP5-045, REP5-044 and REP6-008.
- b. The authors of the Applicant's flagship Oxera Report were minded to emphasise an academic paper by Heard *et al*. According to the Heard paper, a 100% renewable electricity system is unachievable¹⁴. However, somewhat inexplicably, the Applicant omitted a Response by Brown *et al* from the updated list of Additional Evidence under para.1.2.11 in REP3-024. Brown and colleagues demonstrate in their Response paper¹⁵ that:

"the 100% renewable energy scenarios proposed in the literature are not just feasible, but also viable"

and that,

"only a directed evolution of the current system is required to guarantee affordability, reliability and sustainability."

- c. Neither the Applicant, nor the authors of the Oxera Report, appear to have considered the detailed research on Zero Carbon Britain undertaken and published by the independent, not-for-profit non-governmental organisation, The Centre for Alternative Technology¹⁶.

¹⁴ Heard *et al* (2017: 1122-1133) Burden of proof: A comprehensive review of the feasibility of 100% renewable-electricity systems. Renewable and Sustainable Energy Reviews 76. Open Source Access available at: https://ac.els-cdn.com/S1364032117304495/1-s2.0-S1364032117304495-main.pdf?_tid=aa44463a-2fcc-4c4a-ab86-f1cbb8bc3395&acdnat=1547169617_8f4870c12dc1dc273fd8a2b1322f04af

¹⁵ Brown et al (2018: 834-847) Response to 'Burden of proof: A comprehensive review of the feasibility of 100% renewable-electricity systems'. Renewable and Sustainable Energy Reviews 92. Open Source Access available at: https://ac.els-cdn.com/S1364032118303307/1-s2.0-S1364032118303307-main.pdf?_tid=2664d0e0-bfc8-4173-b300-c890452ad48b&acdnat=1547171206_a4af23b732169881b21a59654937dc45

¹⁶ Allen P et al (2013) Zero Carbon Britain: Rethinking the Future. Primary authors: Paul Allen, Laura Blake, Peter Harper, Alice Hooker-Stroud, Philip James and Tobi Kellner. Centre for Alternative Technology, July 2013. Available at: <http://www.zerocarbonbritain.org/images/pdfs/ZCBrtflo-res.pdf>

d. In this regard, the ExA's attention is respectfully drawn to a March 2019 publication from the Institute of Welsh Affairs, titled A plan for Wales' renewable energy future¹⁷. The publication reports on the findings of a three year project (April 2016 - April 2019) to deliver a plan to enable Wales to meet its projected energy demands entirely from renewable sources by 2035.

9.5.7.3.10 None of the above Alternative Solutions study involves deployment of low carbon technologies capable of saddling current or future taxpayers with unquantifiable unpredictable long term externality costs: paras.9.5.3.1-9.5.3.7, inclusive, hereof referring. It remains a puzzle as to why such externality costs do not feature materially in the IROPI calculus. For all the Imperative Reasons summarised in REP5-045 para.8.1.4, there seemingly exist alternative solutions in the form other low carbon electricity generating technologies capable of delivering similar benefits, but without the long term externalities inherent to the Wylfa Newydd DCO Nuclear Generating Station.

9.5.7.3.11 Furthermore, according to the Applicant in REP5-044 paras 2.5.5-2.5.8, the Financial Feasibility of Alternative Solutions is considered highly questionable. This contrasts markedly with the Applicant's evident failure to take the opportunity under the IROPI assessment to disclose full and comprehensive evidence on financial feasibility of the proposed Wylfa Newydd Nuclear Generating Station for which the Applicant seeks Grant of DCO, and for which the IROPI justification has been prepared. All external evidence available to date defines the Applicant's Wylfa Newydd DCO Project as a commercially and financially unviable business proposition. See:

REP4-035 footnote 19;
REP5-083 section 5.3.2;
REP6-053 para.6.6.1.a;
REP7-036 para.7.5.3.1.d; and,
this Deadline 9 Comment paras 9.4.2.d and f; and, para.9.4.3.b, respectively.

J Chanay
11.04.2019

¹⁷ Buckland-Jones S and Stevens R (2019) A plan for Wales' renewable energy future: Essential actions to re-energise Wales by 2035. Re-energising Wales. Institute of Welsh Affairs, March 2019. Available at: https://www.iwa.wales/wp-content/uploads/2019/03/IWA_Energy_WP6_Digital-2.pdf