Summary - What would the RAB model mean for Sizewell C?

Professor Steve Thomas & Alison Downes

Introduction & Summary

Electricité de France (EDF) is making strenuous efforts to promote the Regulated Asset Base (RAB) finance model to build the Sizewell C (SZC), nuclear power station. EDF claims the price of electricity from SZC would be in the range of £40-£60/MWh[1]. EDF's financial condition is so poor it has no hope of being able to finance SZC itself, so new investors have to be found and incentivised if the project is to go ahead.[2] The attractions to EDF of the RAB model, in comparison with the Contract for Difference (CfD) model used for the Hinkley Point C (HPC) project, are clear. EDF is the majority owner of HPC and is locked into a contract that requires it to absorb the risks from escalating costs and construction delays. After only two years of construction, the plant is 52-68% over budget, at least four years late, and, as a result, there is an increasing risk the project will be a loss-maker for EDF.

Under RAB, construction risks would fall on the public - most likely as electricity consumers, but also as taxpayers - in order to make the investment attractive to institutional investors such as pension funds. EDF's role would be to supply the reactor and build, operate, and maintain it under contracts that are, for nuclear projects, typically 'cost-plus', in other words guaranteed to be profitable. In addition, EDF would be able to recover the costs it has already incurred in developing the site, that would be lost if the project did not go forward. By end 2020, EDF reported in its annual Reference Document it had spent €324m on the Sizewell site including €219m in 2020 alone, from a development budget of €458m.

The UK government and EDF are reportedly considering taking small stakes, presumably to send a signal to the market that the project would not be allowed to fail. EDF forecasts a Final Investment Decision might be taken by mid-2022.[3] Given that EDF will at most be a minority investor, it is not clear how EDF can make a Final Investment Decision, all they can do is bring the project to the point when the investors could be brought in and it would be for them to make the investment decision. Nevertheless, the British government announced in December 2020 that it had entered negotiations with EDF on the SZC project.[4] However, the UK government is claiming only that it would aim to achieve a Final Investment Decision for at least one reactor

[1] https://www.spglobal.com/platts/en/market-insights/latest-news/electric-power/110220-uk-to-approve-new-nuclear-plant-at-sizewell-c-ahead-of-white-paper-report

[2] At the Westminster Energy and Environment Forum 10 October 2020, Humphrey Cadoux Hudson, Managing Director, Nuclear Development EDF Energy said: "We have to get this asset [Sizewell C] off our balance sheet" https://www.youtube.com/watch?v=S74CNa5MVVM

[3] https://www.edf.fr/sites/default/files/contrib/groupe-edf/espaces-dedies/espace-finance-fr/informations-financieres/informations-reglementees/urd/edf-urd-rapport-financier-annuel-2020-fr.pdf

[4] https://www.gov.uk/government/news/government-sets-out-plans-for-clean-energy-system-and-green-jobs-boom-to-build-back-greener

project by the end of the current Parliament (December 2024), subject to clear value for money and all relevant approvals.[5]

This report reviews EDF's analysis of why the purchase price of power from HPC is so high, and uses this information to critically examine the economic case put forward for SZC under the RAB model, based also on the information given in a UK government consultation paper on the scheme published in July 2019.[6] We consider the likely cost to consumers of levies on energy bills to support the construction of SZC and the cost of the power generated, both under conditions put forward by EDF and under more realistic but still relatively optimistic assumptions.

The challenge EDF and the UK government face is to show that SZC would give consumers Value for Money; in other words electricity that is considerably cheaper than the strike price for HPC, so robustly criticised by the NAO, and competitive with alternative low-carbon generation options. [7] This report considers whether it is possible to reduce the price of SZC's electricity enough to provide Value for Money whilst still giving investors an attractive return.

We find that the minimum cumulative cost to consumers over Sizewell C's 10-year construction period, to deliver a 6% return to investors for a £20 billion capital investment, would be around £300 using EDF's unrealistic assumptions and could be over £500 on more realistic assumptions. If the project goes as badly as all other EPR projects have, the surcharge to consumers during construction would be much higher. On the cost of power, while under the RAB model this would tend to reduce over time, using information provided by EDF on the breakdown of the contract price agreed for electricity from Hinkley Point C we conclude that it would be decades before the cost of Sizewell C's electricity would reduce to the £40-£60/MWhr range EDF is currently claiming, with calculations of at least £100/MWhr in year 1, only falling to below £60 after year 30 of the plant's operation. Using more realistic calculations, which would still require SZC to be completed more efficiently than any of the previous EPRs, we calculate that the cost per MWhr would remain above £70/MWhr even by year 40. Our conclusions are:

- that by removing construction risk from EDF, incentives to control construction costs are reduced, exposing electricity consumers and taxpayers - who are paying all the finance costs during construction - to unquantified liabilities.
- that EDF's cost estimates are too optimistic.
- that even if - eventually - the electricity price for a RAB-funded Sizewell C is lower than Hinkley Point C, it will be much higher than renewables and not offer Value for Money.

As the UK government has acknowledged, many of the details needed to evaluate the RAB model are not specified in the Consultation Paper and will only be determined in commercially

[5] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945899/201216_BEIS_EWP_Command_Paper_Accessible.pdf

[6] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/943746/rab-model-for-nuclear-consultation-.pdf

[7] We address the issue of the carbon content of nuclear power and whether there is a need for specific base-load power plants in https://stopsizewellc.org/core/wp-content/uploads/2020/10/Hinkley-finance-AMF-CDC-update.pdf.

confidential negotiations between the government and potential investors. We have therefore had to make assumptions on some of the elements. For an investment of tens of billions of pounds of essentially public money to be shrouded in such secrecy is indefensible.

The report's authors are Professor Steve Thomas, Emeritus Professor of Energy Policy, University of Greenwich, who specialises in the energy sector, particularly in energy restructuring, privatisation and regulation; nuclear energy; and environmental issues, and Alison Downes Executive Director, Stop Sizewell C.