Nuclear in UK energy: Competitive pricing

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Cutting to the chase

- RAB for Sizewell: Details TBA
- Significant UK public ownership for Wylfa: Details TBA.
- Moorside options: Sale to Kepco (revived), sale to Westinghouse, or put NuGen into administration and hand back site to NDA.
- Oldbury and Bradwell very far off.

CGN say ‘no need for UK subsidy’

- Horizon, NuGen and NNB all said they didn't need subsidies originally - so perhaps CGN has the same definition of subsidy.

Nuclear costs

- Long term rate of return will be hard to predict with uncertain costs.
- Can tolerate low rates of return, but needs predictability to model to a portfolio of investment.
- Nuclear will already be low return, but uncertainty and volatility makes it even less attractive.

EDF EPR Flamanville

- Reactor pressure vessel, welds, quality assurance fiasco shows there is no way of knowing costs until they occur - and they can be very large.
- But income is fixed, squeezing margins and dividends.

National Audit Office

- Hinkley Point C deal *'risky and expensive for UK taxpayer and energy consumer.'*

National Infrastructure Commission

- *‘Britain should not back more than one new nuclear plant after Hinkley Point C is built before 2025 because renewable energy is the lowest cost for consumers.’*

***UK Regulated Asset Base (RAB) will shift risks to consumers*, Prof Steve Thomas, Nuclear Intelligence Weekly, Vol. 12, No. 39.**

- *If nuclear is to be financeable, most of the financial risk must fall on the public, as either consumers or taxpayers, rather than on those providing the finance.*
- *The plan for Sizewell C, and for most of the UK's other prospective nuclear newbuild projects, now appears to be that they will be treated and regulated as they were a monopoly facility.*

RAB model based on London Tideway water project

- *But Tideway project has plenty of critics.*
- *And whereas Tideway has scope for cost over-run, the record of large water projects is nowhere near as risky as recent nuclear projects.*

Under UK monopoly regulation, companies are allowed to start cost recovery from consumers as soon as they start to invest

- *A major positive to investors.*
- *A major additional risk to consumers.*
- *The obvious questions: who will pay if construction cost is more than anticipated, and who will pay if plant reliability and costs are worse than expected ?*

Details that have emerged so far are slim …

- *UK government set to test the RAB model, surveying institutional investors worldwide to see whether this model is bankable, what the cost of finance will be and whether a reassessment of rate of return every five to eight years is acceptable ?*

Will markets or public take the RAB bait ?

- *If/when market says no, or demands a rate of return that pushes power price too high, Govt must either shift risk to consumers or abandon nuclear new-build ambitions.*

Fiscal dexterity

- Nuclear power projects inherently distort markets - because vendors require large scale preemption of the wholesale market in order to accept the commercial risks of construction.

Nobuaki Tanaka: Former Director International Energy Agency, and long-standing nuclear advocate

- Nuclear is *'ridiculously expensive'* and *'utterly uncompetitive'.*

International Energy Agency

- 157 GW renewables added to world power grids in 2017.
- Up from 143 GW added 2016 - represents the largest increase ever.
- Increase accounts for 61% of net additions to global power generating capacity.
- Wind added 52 GW and solar PV a record 97 GW.
- Compare to a 3.3 GW increase for nuclear power.

International Energy Agency: Global output growth 2017

- Solar: 35%.
- Wind: 17%.
- Nuclear: 1%.

International Energy Agency

- *"For the first time, more than half of renewable electricity capacity is expected to be commissioned through competitive auctions, which continue to slash wind and solar PV bid prices to between USD 20 per megawatt hour (MWh) and USD 50/MWh."*

International Energy Agency

- Trillion watts of renewable power (1.3 terawatts) will be installed worldwide over the next five years - more than the entire current generation capacity of the EU.
- By 2023, renewables will account for a third of total electricity generation worldwide.

European Bank of Reconstruction and Development, 2018

- *'Renewables are now cost-competitive with fossil fuels, even taking into account effective fossil fuel subsidies'.*

Renewable evolution

- Renewables are an exponentially growing economic sector with huge potential for job creation.
- An economic, technological and political win-win.
- In this context, nuclear power at the expense of more flexible, safe, productive, cost-effective and affordable technologies seems rather foolish.