

MADNESS vs. WISDOM OF CROWDS: MODELS FOR FINANCING NUCLEAR POWER



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Preliminaries

- **Dual challenge of supplying energy for global economic growth while zeroing out carbon emissions.**
- **Nuclear should be an ideal technology option.**
- **Prospects are mixed.**
- **In the US and Western Europe, one key issue is construction delays and huge cost overruns.**
 - Also social acceptance for safety and waste.



What is the role of Finance?

- **Cannot be a substitute for reducing actual construction costs.**
- **Do some financing models add to cost, while others reduce cost?**
 - Why? How?



Conventional Wisdom in the U.S.

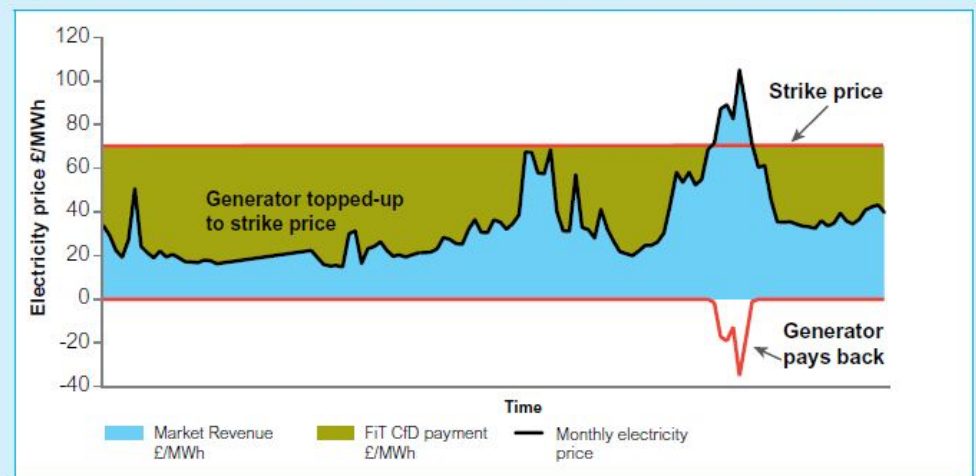
- **New build nuclear is not possible in the regions with competitive wholesale power markets.**
- **Only possible in regions with traditional rate-of-return regulated utilities.**
 - Why? How?
- **Conventional wisdom fails to confront historical experience.**
 - In the 2000s, many owners of merchant nuclear plants invested significant amounts in life extensions and capacity uprates.
 - In the early 2000s, a significant number of prospective new builds were planned as merchant plants.



Experimentation in the U.K.

- **Contract-for-Difference for Hinkley Point C.**
 - Government must hedge wholesale price risk on-behalf of the private investor. This is the key to reducing financing costs.
 - But construction risk remains with the private investor.
- **Regulated-Asset-Base for Sizewell C.**
 - Government cost-of-capital is just lower.

Figure 5: The operation of an intermittent Feed-in Tariff with Contract for Difference



Misdirection

- **Key to lower cost finance does not lie in any creative model.**
 - The case for CfDs stood in direct conflict with everything we learned about financial risk sharing since the 1970s.
- **We seldom discuss one key issue in financing large capital cost assets dedicated to a location: COMMITMENT**
- **Recent history reveals significant political risk for owners who sink capital into nuclear plants.**
 - Outright bans
 - Targeted taxes
 - Out-of-market payments to competing generation technologies.
- **Look at the fine print of the agreement with Hinkley C.**



Net-Zero Goals Deepen the Need for Commitment

- **The generation profile is changing rapidly, driven by evolving policies and developing political forces.**
 - Market design is also changing.
- **The future industry and market structure is hugely uncertain.**
 - Mix of politics and technological uncertainty.
- **Incentivizing large investments in fixed assets will require social/political commitment.**



Madness vs. Wisdom

- **Madness:**

- the hunt for creative financial models that magically produce lower financial cost;
- shifting the risk does not magically reduce the financing cost; the government's cost-of-capital is not necessarily less than private investors'.

- **Wisdom:**

- low-c investments are urgently needed;
- private investors will rationally demand social/political commitment.



THANK YOU

