

20 Aug 2018 – NECG Commentary #23

## Market Framework for Financing Small Nuclear



The Expert Finance Working Group ([EFWG](#)) was convened by the UK Department for Business, Energy and Industrial Strategy (BEIS) in January 2018 to determine key policies and a market framework needed to attract private financing to small reactor projects and to deliver a set of recommendations to Parliament for consideration. NECG Affiliate Amjad Ghori, an expert in nuclear finance, was a core member of the EFWG.



The EFWG [Report](#), “Market Framework for Financing Small Nuclear” was the result of a months-long effort to develop recommendations for the UK Government to take actions to facilitate the development and financing of market-based SMR projects.

NECG Affiliate [Amjad Ghori](#), a core EFWG member, contributed his expertise in energy and nuclear project financing.

The EFWG Report and its recommendations are focused on first-of-a-kind SMR projects needed to establish an SMR industry.

## **A. EFWG Report**

This short summary of the Report is no substitute for reading the actual [Report](#). EFWG’s scope was to assess the prospect of raising private investment for small nuclear projects.

Chapter 2 discusses how clean, safe, and economically attractive small reactors can help deliver the UK’s ambitious Clean Growth Strategy and notes that private sector investments will be needed to do so. However, market failures and a lack of private sector investments require a role for the UK government in delivering first-of-a-kind (FOAK) small nuclear projects and in establishing industry support.

Chapter 3 describes the potential benefits of small nuclear reactors (e.g., lower costs due to modularity and shorter lead times) compared to large nuclear projects. These benefits would be enhanced with technology and manufacturing capability development.

Chapter 4 notes that technology development, manufacturing capability development, and power project development for small nuclear all require corporate and/or project financing.

Chapter 5 suggests that the risk profile of small nuclear projects should offer improved opportunities to attract investment and finance compared to large nuclear projects.

Chapter 6 presents nine potential financing structures for small nuclear based on global experience with energy projects and includes a discussion of the potential for refinancing.

Chapter 7 presents seven recommendations to HMG:

1. Focus on policies and market frameworks, rather than down-selecting technologies;
2. Work with stakeholders to understand small nuclear risks;
3. Focus on bringing FOAK small nuclear projects to market by 2030;
4. Establish an advanced manufacturing supply chain initiative for small nuclear;
5. Work with nuclear regulators to develop an optimised and flexible approach to the Generic Design Assessment (“GDA”) process for small nuclear projects;

6. Make sites available to FOAK small nuclear projects and de-risk the licensee role for small nuclear projects; and
7. Reduce the cost of capital and share the risks of FOAK small nuclear projects with private investors.

Appendix A describes EFWG members, the process used to develop the report, and the stakeholders that provided evidence.

Appendix B is a discussion by Dr. Giorgio Locatelli of the University of Leeds on how megaprojects (e.g., large nuclear power projects) face issues leading to delays and cost overruns.

Appendix C is a series of detailed risk registers for each of the three phases (i.e., Technology, Manufacturing, and Power Projects) that provide a practical guide for risk allocation. These are based on generic IAEA risk registers.

Appendix D provides detailed attributes of the nine financing structures described in Chapter 6.

## **B. Assessment**

The recommendations of this Report, if accepted and implemented by the UK Government, should go a long way to help get the first round of small modular reactors built and to establish an SMR value chain and manufacturing capability in the UK.

Importantly, this Report is another indication that markets alone will not result in a viable nuclear power industry and that a strong role of government is needed for nuclear power. The EFWG Report stops short of recommending a shift to a state-owned nuclear power industry (e.g., as in China, Russia, and other countries), but notes market failure in the nuclear power industry.

According to Amjad Ghori:

*“Relying on the market alone to deliver development and financing mechanisms for nuclear projects is not enough. Governments actions on many fronts are needed and essential to enable the development of small nuclear projects and the supporting industry for them.”*

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