**Expert Finance Working Group on Small Reactors**

**Request for Information on small reactor financing**

**Organisation Details:**

Organisation:

Lead contact name:

Lead contact details:

**Context**

1. The UK has a long-standing civil nuclear programme with a fleet of AGR reactors in operation today and one GWe scale nuclear reactor project in construction at Hinkley Point C. The Government continues to engage with developers in relation to the next nuclear plants in the pipeline.
2. To explore the potential for SMRs to play a cost-effective role in the electricity system, the Government commissioned the Techno-Economic Assessment (“TEA”) of Small Modular Reactors (“SMRs”) in May 2015 and launched the SMR Competition in March 2016.
3. The TEA and the SMR competition raised an important question as to what financing arrangements would be available to help bring smaller nuclear projects to market.

**Expert Finance Working Group**

1. To investigate this, and as announced at the Nuclear Industry Association Conference on 7th December 2017, Government has set up an Expert Finance Working Group (“the Group”) to advise on how small nuclear reactor projects could raise investment in the UK.

**Request for Information**

1. To enable the Group to consider your proposition, we are asking for input from technology developers and consortia. This Request for Information (RFI) document will form part of the evidence base for the Group to consider when discussing propositions of how small reactor projects could be deployed (and financed) in the UK.
2. We ask that this document is approached from an owner/developer perspective. It should focus on the business plan, sources of financing throughout the project life cycle phases (e.g development, construction, operation, decommissioning etc.) and include mechanisms for funding/investment and their refinancing.
3. Respondents should note that this is **not a competitive process** and is separate from the Advanced Modular Reactor (AMR) feasibility and development programme. This is a RFI to enable the Group to assess how small nuclear reactor projects could raise investment in the UK.

**Oral Presentations**

1. Should the Group require further clarification on the information provided in this document, it will invite the respondent for an oral presentation.
2. The oral presentations will be held on **the afternoons of the 2nd and 14th March** in London. We ask that those wishing to submit this form hold these dates and indicate a preference in case the Group requests further information.
3. The deadline for responses will be **5:00pm on 23rd February** and should be sent to [smrteam@beis.gov.uk](mailto:smrteam@beis.gov.uk). Responses received after this date will not be considered without agreement by the Group secretariat who can be contacted at the same email address.
4. If you require further information about the process, please email [smrteam@beis.gov.uk](mailto:smrteam@beis.gov.uk).

**Confidentiality and Freedom of Information**

1. It is likely that BEIS will want to publish a list of those organisations that have provided information to the Group. By submitting this form, you give your consent for the identity of your organisation to be published.
2. The information you provide will be used for the purposes set out in this document. Where you provide us with confidential information and identify it as such (in accordance with paragraph 15 below), we will treat this information as confidential and will not disclose it publicly or to other respondents, subject to paragraphs 14) to 16) below.
3. The Freedom of Information Act 2000 (FOIA) and the Environmental Information Regulations 2004 (EIR) apply to the Department. You should be aware of the Department’s obligations and responsibilities under FOIA or EIR to disclose, on written request, recorded information held by the Department. Information provided in connection with this exercise may therefore have to be disclosed by the Department in response to such a request. The Department may decide that one of the statutory exemptions under the FOIA (e.g. potential to prejudice commercial interests) or the exceptions in the EIR (e.g. commercial confidentiality or intellectual property rights) applies.
4. If you wish to designate information supplied as part of your response as confidential, or if you believe that its disclosure would be prejudicial to any person’s commercial interests you must provide clear and specific detail as to the precise information involved and explain (in broad terms) what harm may result from disclosure if a request is received, and the time period applicable to that sensitivity.
5. Respondents should be aware that such designation alone may not prevent disclosure if, in the Department’s reasonable opinion, publication is required by applicable legislation or Government policy or where disclosure is required by the Information Commissioner or the First-tier Tribunal (Information Rights).

**Questions**

*Brief Background on Technology Proposition (max 750 words)*

It is clear that there is a broad range of reactor propositions across the ‘SMR’ spectrum, including Gen III and Gen IV reactor designs. Please give a *brief* description of your proposal including:

* Overview of proposal;
* Type of reactor design or technologies (e.g PWR, MSR, LWR etc.);
* Functionality (e.g baseload, on-demand, domestic heat, industrial use etc.);
* Expected First of a Kind (FOAK) deployment time and how did you establish this?
* Broad outline of decommissioning strategy and cost. To include estimated waste production (type and amount per annum if known).

*Size of Proposed Technology (max 300 words)*

The commonly understood size for an ‘SMR’ is typically between 50MWe and 300MWe, however it is clear that generalisation of all reactor proposals around this number would not be appropriate (given different uses, configurations etc.). Please outline the size of your proposed reactor design (geographic and power output) and outline configuration requirements i.e would it be one reactor or several smaller reactors working as a co-located fleet? If there are several small reactors can the first start operating before the second is installed?

*Research & Development (max 300 words)*

Does your proposal require further R&D? If applicable please outline:

* Top items/areas required and indicative time frame
* Sources of development funding to date and expected sources for future funding. This should include sources of private investment as well as successful bids for available funding from public entities such as Innovate UK.

*Construction Period (max 300 words)*

Outline a proposed timescale for the construction of the reactor unit (or a fleet of reactor units) from a decision to invest in construction to commercial operation. Please provide details of work that could be carried out before the nuclear licence is granted (including Factory production (see *Cost Reduction Strategy* section) and also site works and the timeline for such work. For a fleet of reactor units this should highlight NOAK construction benefit gains expected.

*Capital and Operational Costs (max 750 words)*

Outline estimated CapEX and OpEx costs as outlined in the table below.1 Briefly explain how you estimated these values.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Units | FOAK | NOAK |
| **Capital Costs**  *Pre-development*   * Pre-licensing costs, Technical and design * Regulatory, licensing, planning etc. and public enquiry   *Construction*   * Capital cost (excluding interest during construction)   *Infrastructure* | £/kW  £/kW  £/kW  £’000 |  |  |
| **Operating Costs**  *O&M Fixed*  *O&M Variable*  *Insurance*  *Connection costs*  *Decommissioning fund costs*  *Fuel costs and waste management* | £/MW/Year  £/MWh £/MW/Year  £/MW/Year  £/MW/Year  £/MW/Year |  |  |

Furthermore, what is the proposed gearing you see applying to your project and why? On that basis, what is the proposed debt/total equity for the project?

Please also indicate key assumptions you have made in substantiating the CapEx and OpEx calculations.

1For cost definitions please see the [BEIS Electricity Generation Cost Report, 2016.](https://www.gov.uk/government/publications/beis-electricity-generation-costs-november-2016)

*Business Plan (max 1250 words)*

The Group will be exploring the finance and business plan of respondents to test methods of realising reductions to the CoC for small reactors. Please outline the following:

* The key features of your finance model;
* Proposed project structure (diagram preferred);
* How do you plan to finance the build through Design, Build, Finance and Operation, develop NOAK including Export (DBFO + E);
* Main assumptions;
* Sources of debt – indicating risk appetite and potential equity split.
* Re-financing opportunities - Are there natural break points in the project where refinancing can occur? If so please expand. How do you see the benefits of refinancing being shared?

*Business Plan cont.*

*Cost Reduction Strategy (max 1250 words)*

Please outline key concepts of your strategy to reduce cost in comparison to large nuclear projects, setting out where possible the expected scale of such cost reductions. This can include modularisation, standardisation of components, factory build etc. and should include any validation of the proposed benefits. Please give an indication of the split of factory build components to those that would require on-site construction and potential factory requirements (size, equipment, costs etc.) and are there already factories able to build the modules (in the UK or overseas)?

*Cost Reduction Strategy cont.*

*Additional Relevant Information*

Please give below any additional information you believe to be relevant to your submission in relation to the objective of the Group. (1 page limit)