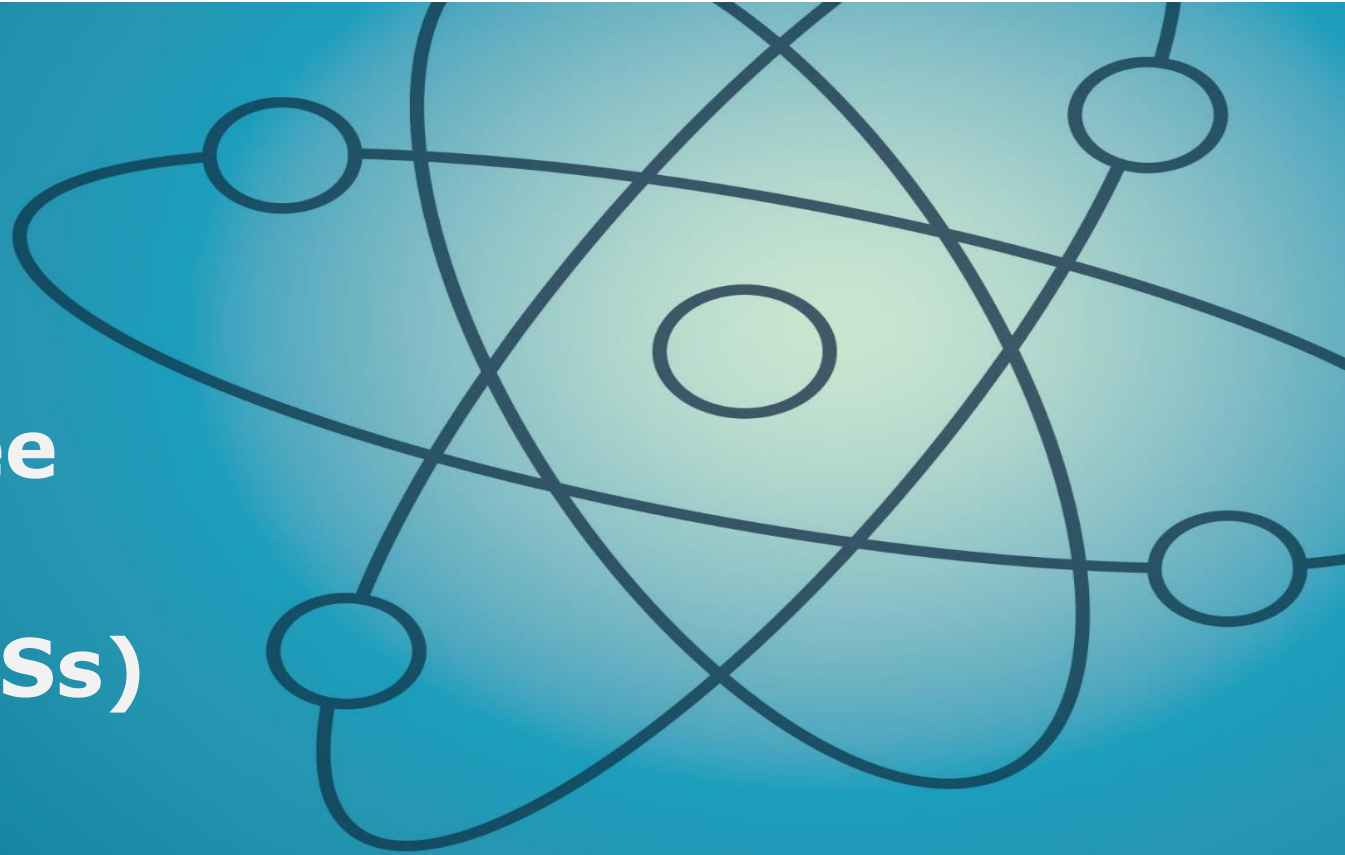


European SMR pre-Partnership



**Steering Committee
(SC) and specific
Work- Streams (WSs)**



With the support of :



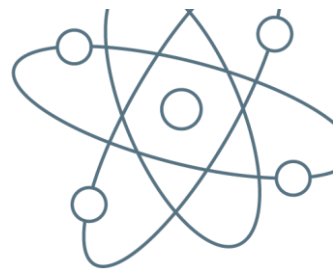
Content



- **First EU Workshop on Small Modular Reactors (SMRs) - 29 June 2021**
- **European SMR pre-Partnership Steering Committee**
 - Objectives
 - Activities
- **Work-Streams (WSs) objectives and activities**
- **Next Steps**
- **Q/A**



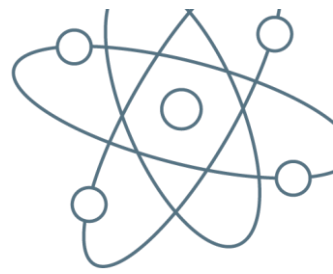
First EU Workshop on Small Modular Reactors (SMRs) - 29 June 2021



- Organised by the European Commission's DG ENER in response to the call of the European nuclear industry;
- 110 participants from 22 Member States;
- A “vision paper” of industry stakeholders widely endorsed by the participants;
- Including a proposal for a ‘European SMRs Partnership’.
 - collaboration scheme involving industrial stakeholders, research & technological organisations, interested customers (i.e. utilities and even Member States), as well as European policy-makers and regulators



European SMR pre-Partnership – Steering Committee



General objectives

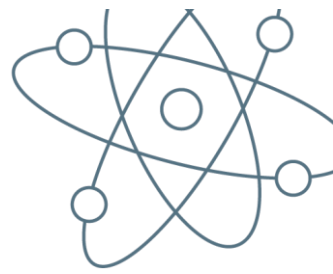
- **Identify enabling conditions and constraints, including financial ones**, towards safe design, construction and operation of SMRs in Europe in the next decade and beyond in compliance with the EU legislative framework in general and to the Euratom legislative framework in particular.

Specific objectives

- Develop the necessary industrial supply chain in Europe
- Encourage the implementation of common (harmonized) licensing process across the EU
- Establish a strategic research agenda :
 - LWR, as a mature technology to be deployed in 2030.
 - Advanced SMR (Gen IV) design have to be matured by 2035 for long term prospect
- **Composition:** FORATOM (chairing), SNETP, ENSREG, EC + chairs of 5 WS
- **Secretariat:** EC, FORATOM, SNETP
- **Meetings:** Kick-off 17 March 2022



European SMR pre-Partnership – Steering Committee

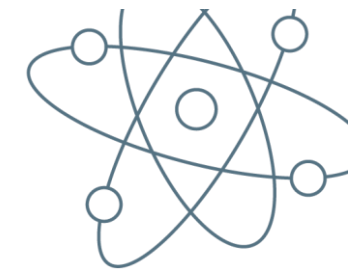


Expected activities:

- Review and validate the work program (main deliverables, schedule) for each WS;
- Ensure smooth coordination across WSs, set milestones and ensure proper conclusions / outcomes;
- Analyse potential constraints to overcome for the next phase (Partnership) and propose solutions (including policy recommendations at European / national level if needed);
- Review enabling conditions for SMRs development in Europe and propose approaches to activate them or further develop them if necessary;
- Prepare the conditions for the next phase (Partnership implementation phase) which shall cover all relevant aspects (legal, resources,) and the ground for the Partnership phase with proper benchmarking of other coalition initiatives at EU level (batteries, hydrogen, etc.);
- Interact / report on progress made with the Stakeholder forum on a regular basis;
- Coordinate relationships with international partners (such as UK, USA, CAN, JP, etc.) and international organisations (such as IAEA, OECD-NEA, etc.) in order to avoid overlap and duplication of efforts.



WS1 – Market analysis



Objectives:

- Identify future needs of the EU energy/power market (electricity, industrial and residential heat, hydrogen), SMR capabilities for these needs in a context of high RES deployment, market size, and global competitiveness;
- SMRs as technology to replace coal and gas plants, help decarbonize assets/processes such as hydrogen production, district heating, industrial heat processes, and provide load balancing capabilities to Transmission System Operators (TSOs)
- Establish a list of sustainability criteria on a shortlist of SMR technologies (SMR/AMR).

Main ongoing activities:

- Task 1 : Literature analysis done ; the draft of the report has started with inputs expected on 1) the EU market size/needs, 2) technical-economic capabilities of SMRs, 3) market potential for SMR development
- Task 2 : Three surveys are being consolidated : 1st survey for industrial users will be launched by the end of April ; 2nd survey for Member States must be coordinated with WS 4 (questions are being gathered) : 3rd survey for TSOs is in preparation.
- Task 3 : Validate the list of sustainability criteria to be considered, and add a question regarding the relevance/importance of these criteria in the SMR users survey(s)

Responsibility: FORATOM

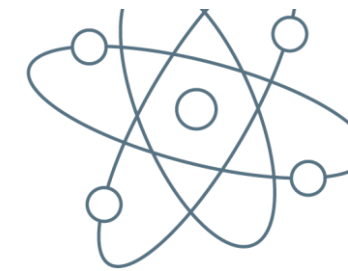
Chair: Tractebel

Contributors:

- Foratom-SMR-task force: Tractebel, Engie, Fortum, Rolls-Royce, EDF, Orano, Vattenfall, SCK-CEN, CEA.
- Kick-off meeting: 14 January 2022



WS2 – Licencing



Objective:

- Identify the elements for establishing a European pre-licensing process based on commonly accepted safety assessments from different ENSREG members interested in the licensing of the same SMR design

Main ongoing activities:

- Establish a clear state of play of activities in other fora (IAEA, SMR Regulatory Forum, NEA Committees, WENRA, ENISS, CORDEL, etc.) in relation to SMR licensing
- Develop a common understanding on NPPs licensing processes in different EU countries interested in SMR licensing (main milestones, etc.)
- Review ongoing or starting H2020 research projects in the field of SMR safety and licensing

Responsibility: ENSREG

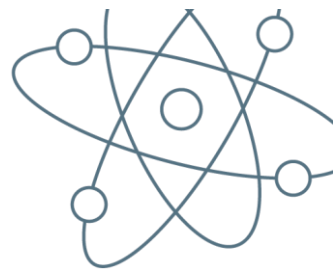
Chair: ASN

Contributors:

- 16 experts from 13 countries' nuclear safety authorities from: DE, HU, LT, FI, SE, IT, FR, RO, SK, NL, ES, CZ and PO + industry representative: ENISS
- Kick off meeting: 3 March 2022



WS3 – Financing



Objectives:

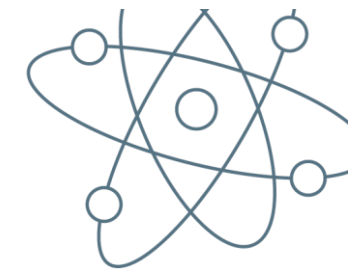
- To clarify specifics of SMRs financing (e.g. conditions for a Private Public Partnership at EU level) and
- To define the needs for a conducive investment environment / framework for SMRs in Europe.

Responsibility: FORATOM

To be launched in the second half of 2022



WS4 – Supply chain adaptation



Objectives:

- Identify the key features of an SMR supply Chain (vs. current practice)
- Analyze the existing gaps and the main hurdles to overcome
- Identify which ones are largely technology-independent and define roadmaps to address them
- Identify recommendations to systematically address technology-dependent hurdles from various partnerships

Main ongoing activities:

- Early interaction with SMR Vendors to check which are the issues related to the Supply chain - Development of a questionnaire sent to a selected list involved in various SMR programmes in European countries (including UK).
- Standardisation, possible use of non-nuclear, high quality components - review of existing work in the field

Responsability: FORATOM

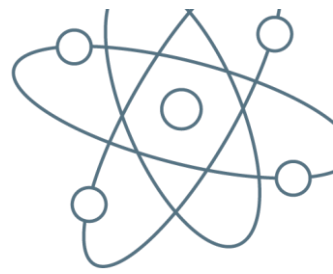
Chair : Ansaldo Nucleare

Contributors:

- Ansaldo Nucleare, Fortum, Orano, Engie, Empresarios Agrupados, Rolls-Royce, Nuclearelectrica, GIFEN, EDF, Framatome, Assystem, SNETP
- Kick-off meeting: 18 January 2022



WS5 – I,R&D



Objectives:

- Define R&D&I programme coherent with market needs and licensing requirements for SMRs development,
- Identify the needed facilities to perform this programme,
- Set up a coherent and consistent training and education programme.

Main ongoing activities:

- Build the R&D&I roadmap according to 7 technical topics:
 - **Core/fuel**
 - **NSSS Integrated vessel and its internals**
 - **Passive systems**
 - **Severe Accidents**
 - **Modularity**
 - **Human Factors and autonomy**
 - **Hybridization/(Co)generation of heat/H2/desalination**

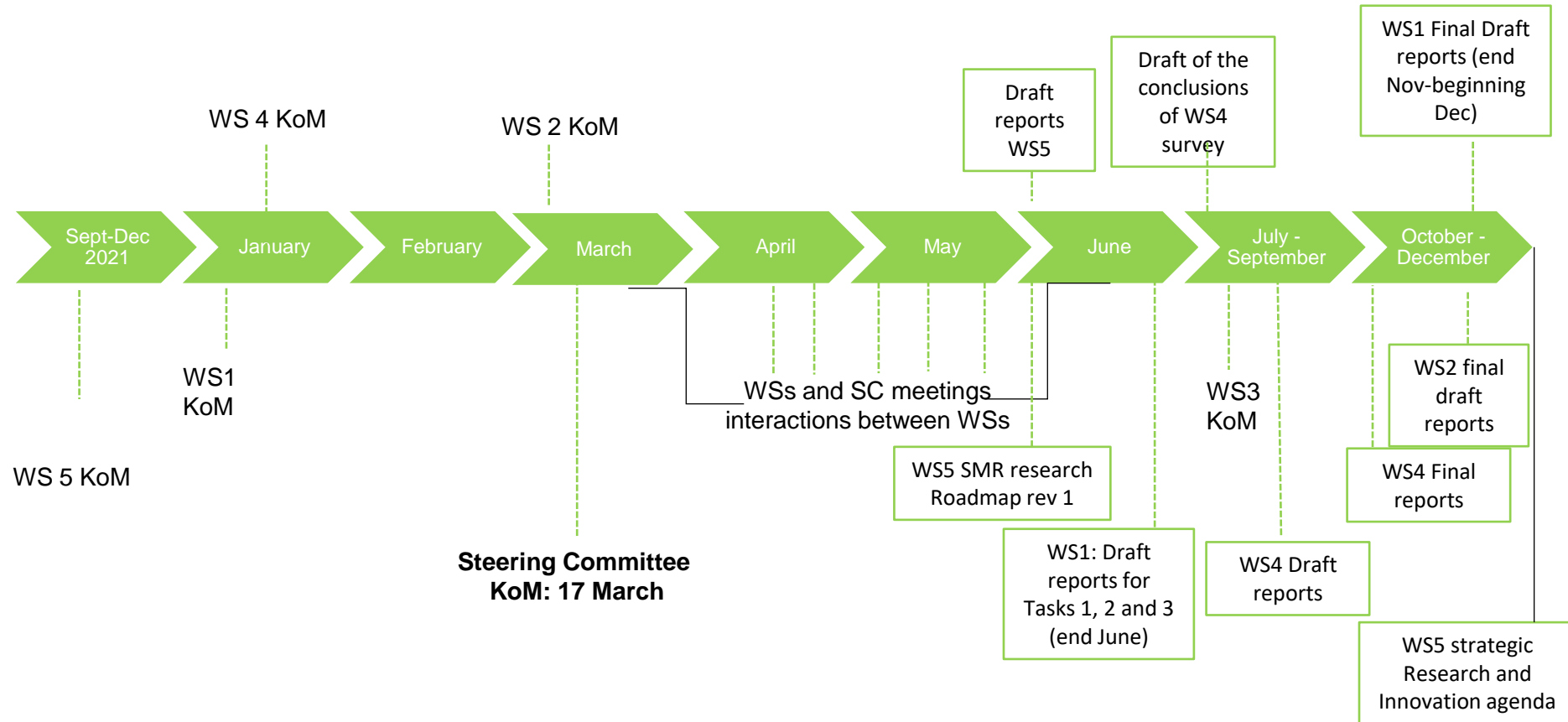
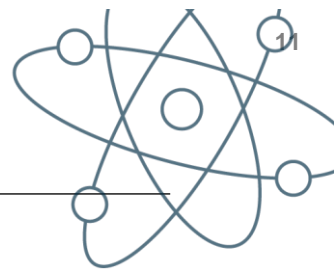
Responsibility: SNETP

Chair: EDF

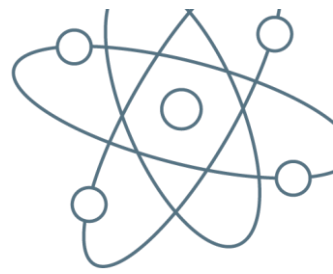
- Contributors: EDF, CEA, IRSN, Framatome, ORANO, ENGIE, SCK-CEN, VTT, Tractebel, UJV, ENEA, AREVA, ANSALDO, NCBJ, NRG, Nucadvisor,
- Kick-off meeting: Autumn 2021



Timeline for 2022



Next Steps



Objectives:

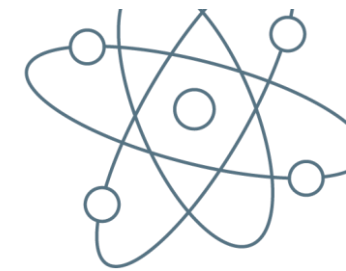
- Review enabling conditions and constraints for SMRs development in Europe which have emerged from the workstreams activities in 2022 and propose approaches to address any issues;
- Prepare the conditions for the next phase (Partnership implementation phase) which shall cover all relevant aspects (legal, resources, collaborations, etc.);
- Select 3 to 4 SMR designs* on which the European SMR partnership should focus its activities from 2023;
- Develop a “charter” to define the proposed structure and operation mode of the future European SMR partnership and the collaboration with the vendors/future licensees of the selected SMRs designs.

Responsibility: European SMR pre-partnership Steering Committee

To start in the second half of 2022

* based on LWR or AMR technologies, considering market opportunities, licensing and supply chain availability in Europe, in view of a deployment in the early 2030's





Round table

Q&A

