Concept Number: INT2024010

Title: Supporting Member States' Capacities on Small Modular Reactors, their Technologies and Applications (Phase II) as a Contribution of Nuclear Power to Climate Change Mitigation

Project Number: INT2025

Project Type: Interregional

Submitted By: Secretariat

Priority: 1

Project duration (Total number of years): 4

Project duration (Start date): 2026-01-01

Field of Activity: 06 - Nuclear power reactors

FOA Distribution:
FoA Code: 06 = 80%
FoA Code: 05 = 20%

Sustainable Development Goal:
07 - Ensure access to affordable, reliable, sustainable and modern energy for all

Link to RB Programme: 1.1 Nuclear Power - 1.1.5 Technology Development for Advanced Reactors and Non-Electr App of NP

Project Description/Abstract: Small modular reactors (SMRs) are advanced nuclear reactors typically designed to generate electric power up to 300 MWe, the structures, systems and components of which can be fabricated in factories and transported to the installation site, shortening construction duration and reducing cost. Clean energy strategy advocates for the deployment of advanced nuclear reactors as a safe, reliable, flexible and competitive power source. SMRs based on different technologies, along with their various applications, are a promising option for near term and future deployment in Member States. The purpose of the project is to provide broad support to build Member States' capacities for development and deployment of SMRs in the context of a clean energy strategy, as a contribution of nuclear power to the global effort for climate change mitigation. The project will provide a wide range of forums to enable effective capacity building through training and technology transfer on all aspects of SMR development, including siting, design, and technology; engineering, manufacturing, construction, industrial supply chain, commissioning, operation, maintenance, and human resource management; fuel cycle; waste management; decommissioning; economics; financing; energy sustainability, nuclear safety, security and safeguards; emergency preparedness and response arrangements; and legal framework.

Problem to be addressed: The demand for energy for generating electricity and industrial process heat is growing exponentially, both in developed and developing economies. In particular, there are tangible needs for flexible power

generation and non-electric applications for a wide range of end users suiting a variety of site conditions and electricity grid characteristics in different regions to replace ageing fossil fired units, enhance safety performance, and offer better economic affordability. Non-electric applications include but are not limited to sea water desalination, district heating, heat for industry, and hydrogen production. There is also an emerging need for nuclear power for maritime applications, mining, marine propulsion and outer space applications. Furthermore, Member States are implementing measures to mitigate global climate change. There are numerous Member States with regions inaccessible to clean, reliable, resilient, and affordable energy, including remote areas where large electricity grids are not in place or delivery of fossil fuels is cumbersome. The developing economies and regions with smaller electricity grids need technology options deployed incrementally to closely match increasing energy demand, resulting in a moderate financial commitment. Countries with many small islands and remote off grid regions present niche markets for technologies able to replace diesel generators — for which large nuclear power plants would not be applicable. However, newcomer countries have various concerns related to (1) novel technology with limited operational experience; (2) applicability of current safety, security and regulatory approaches to innovative nuclear reactors including SMRs, legal frameworks and international commitments, including first of its kind features and issues related to new deployment models; (3) the site specific siting of plants with standardized design; and (4) unknown factors affecting investment costs and financial schemes. Another issue for countries relates to the assessment and evaluation of technology readiness level (TRL), given the wide variety of SMR designs and technologies. As reported in the 2025 edition of the IAEA "Nuclear Safety Review", there is a sustained interest among Member States in the development and deployment of evolutionary and innovative reactor technologies, either as large size reactors or SMRs and microreactors (MRs). With about 70 SMR designs at various stages of development and deployment across the world, for these new technologies, nuclear safety, security and safeguards have to be considered early in the development of the design. Electricity market liberalization and increasing deployment of variable renewable energy for power generation have contributed to long term electricity price uncertainty. Overall financial commitment from governments and the comparatively long time frame and overall roadmap for construction all pose a challenging environment for new investment in a clean energy approach.

Why should it be a Interregional project?: The project will cover the emerging category of microreactors, a subset of SMRs typically generating up to 20 MWe, as well as the deployment of SMRs for non-electric applications, including cogeneration of electricity and process heat, nuclear desalination, nuclear hydrogen generation, maritime applications, and nuclear power systems for outer space applications. The coupling of advanced nuclear power systems using SMRs in integrated or hybrid energy systems with a higher share of renewables will also be covered. The project will enable stakeholders at national, regional and international levels to understand the potential benefits and challenges to overcome in deployment of SMRs given their specific characteristics. The project also will facilitate the formulation of high level end user recommendations and considerations for SMR designs and technologies, in line with international safety standards, and countries' specific legal and regulatory frameworks. The project will favour the sharing of end users' specific needs and requirements as well as licensing practice and experience among participating countries. Member States will receive technical assistance to evaluate the contribution of SMRs and their potential non-electric applications in addressing Sustainable Development Goals (SDGs) 6, 7, 9, 12 and 13, mitigating climate changes and integrating the basic principles of circular economy. Inputs will be sought from technology developers, as well as from the countries that are considering the deployment of SMRs. In the contemporary connected world, deployments of nuclear power raises issues that cannot be solved by a few countries alone or a single region. The rationales behind the need for nuclear power and adoption of the SMR option are different from one region to the other. In the realm of nuclear power and integrated projects with renewable energy sources, financial support models may offer a diverse array of business models to facilitate robust development. Coupled with the support of domestic financial institutions and collaborations with large foreign financial entities, this support would translate into a wide range of competitive financing groups for a clean energy approach which are different from one region to the other. For example, in Europe, the electricity market is stagnating with declining deployment of large nuclear power plants but a higher share of renewable energies. In such cases, SMRs may be regarded as an interesting clean option to back up renewables and stabilize grids. On the other hand, countries in South-East Asia and Latin America face challenges relating to geotechnical aspects, such as seismic and volcanic hazards, in site evaluation for nuclear power plants. Countries in Africa and the Middle East have relatively small grids and constrained access to the ultimate heat sink important for reactor safety. Northern America, and archipelagic countries in Asia Pacific have many islands, and remote regions are currently receiving supply from diesel generators. All these regions face common challenges, such as (1) identification, assessment and selection of the most suitable technology to fulfil their needs; (2)

identifying, surveying and selecting a suitable site; (3) establishing the required regulations and licensing framework, guidance, policies and processes for the regulation of SMRs; (4) assessing safety, security and safeguards; (5) lack of operational experience; (6) implementing appropriate capacity building for the regulatory organization; (7) confirming the funding and financing scheme for deploying SMRs; (8) challenging technology developers to produce a licensed design with affordable upfront capital cost; (9) establishment of an industrial supply chain; (10) securing fuel supply and fuel cycle options; (11) waste management; (12) public engagement; (13) addressing issues in coupling with non-electric applications; (14) integrated energy systems with smart grids; (15) ownership structures; and (16) financing mechanisms to support construction of new large scale baseload nuclear generation projects. By implementing approaches learned from different experiences and contexts, an interregional approach is considered to be the best solution, as it will enable synergies on capacity building and exchange of technical knowledge among regions.

Stakeholder: The project stakeholders can be the national state authority, regulatory authorities, technical support and scientific organizations, university faculties, and the industry of Member States interested in SMR deployment and a clean energy approach and transition. The donor countries participating as MSs, along with their roles and contributions, are listed below. The United States of America and the Russian Federation provide extrabudgetary contributions to the project. The IAEA Secretariat has recommended that the following 13 Member States consider serving as donors by sharing their expertise and or providing extrabudgetary funds: Belgium, Canada, China, Czech Republic, Denmark, Finland, France, Italy, Japan, Republic of Korea, South Africa, Spain and United Kingdom.

Partnerships: Partnerships could be established with (1) European Commission (EC); (2) World Nuclear Association (WNA); (3) Organization for Economic Cooperation and Development/Nuclear Energy Agency (OECD/NEA); (4) International Framework for Nuclear Energy Cooperation (IFNEC); (5) Nuclear Innovation: Clean Energy (NICE) Future Initiative; and (6) universities and laboratories in order to share knowledge with Member States, provide EB funds, etc. Cooperation with the United Nations Industrial Development Organization (UNIDO), International Renewable Energy Agency (IRENA) and OECD/NEA can be sought when implementing activities relating to energy planning and use of IAEA tools to model electricity systems meeting demand and climate objectives. With regard to SMR/MR technology assessment, cooperation with the WNA can be sought whenever needed. The benefits or results of this interregional project will be sustained after the project ends by incorporating lessons learned and addressing issues raised in follow-up activities in regional and national projects.

Overall Objective: To improve knowledge and develop skills in recipient countries with regard to the fundamental aspects of SMR deployment, safety review capability, clean energy approach and their electric and non-electric applications, mitigating climate changes and integrating the basic principles of circular economy.

Role of nuclear technology and IAEA: SMR is a promising technology, offering significant cost reductions through modularization and improved construction schedules. SMRs and microreactors as their subset offer designs and sizes that are better suited for partial or dedicated use in non-electric applications, such as providing heat for industrial processes, hydrogen production, and desalination. Some SMR and MR designs may also serve niche markets, for example microreactors may be deployed to replace diesel generators in remote regions. Hence, the driving forces are the specific characteristics of the reactors. SMRs can be deployed incrementally to closely match increasing energy demands, resulting in a moderate financial commitment. For all the rationales mentioned, SMRs are seen by both developed and developing economies as a potential and interesting option to satisfy their increasing energy demands using a clean and affordable energy source which needs lower initial investment and allows easier financing. The use of nuclear power to replace fossil fuel power sources substantially decreases greenhouse gas (GHG) emissions and contributes to preserving the environment. The clean energy combination approach significantly reduces carbon emissions, aligning with global climate goals. The IAEA seeks to promote peaceful uses of nuclear energy in synergy with other carbon free energy options such as renewables. The synergistic combination of nuclear and renewable technologies aims to mitigate the intermittency inherent in solar and wind power, providing a continuous and stable electricity supply. The IAEA promotes a robust nuclear safety and regulatory framework, enabling the safe deployment of SMR technologies in all Member States, and will provide a forum for knowledge exchange by organizing workshops and a

harmonized approach to the regulatory review of SMRs. The IAEA is expected to play a key role in providing training on technology, safety, regulation, international and national nuclear law, economics and financing, reactor technology assessment methodologies, generic user requirements and criteria; providing training using SMR simulators; and developing relevant publications to facilitate development and deployment of SMRs, new nuclear technologies, and integration of nuclear energy with renewable sources in all the regions. The IAEA has a well-established programme to support embarking countries on infrastructure development. The programme is supported by the milestone approach, Integrated Nuclear Infrastructure Review (INIR) missions, development of integrated work plans (IWPs) and the interregional projects INT2021 and INT2024. The programme is mainly oriented to large nuclear power plants but to a large extent it also covers a subset of SMRs in the high range of power to be available in the medium term, where the infrastructure required is, in most cases similar. The IAEA supports Member States in energy planning and capacity building with in-house tools. Thus it is in a position to (1) support developing countries in the development of their future electricity systems integrating different types of technology, including renewables and nuclear (SMRs or other types); and (2) help assessment of the contribution of SMRs and a clean energy approach/combination to the countries' climate and sustainable development, including through the assessment of macroeconomic impacts of nuclear programmes. The IAEA has developed an effective methodology for assessment of nuclear reactor technology for near term deployment. The IAEA is also developing guidance for Member States on the development of generic user requirements and criteria for SMR technologies and the clean energy approach. It involves capacity building of future electric utilities in embarking countries, expressing their requirements and criteria regarding SMR technology and clean energy approach. Through the IAEA legislative assistance programme, assistance is provided to Member States upon request in all areas of international and national nuclear law, safety, security, safeguards, and civil liability, covering all activities and facilities, including SMRs. The IAEA has also analysed the applicability of its set of safety standards to SMRs with a view to updating them to make them applicable to all reactor technologies. Guideline documents on siting, design and safety assessment of SMRs are under development, and the updating of safety requirements and relevant safety guides will also be accelerated to support Member States. Review services relating to siting are under development, and will apply proper grading approaches to the safety assessment of site-specific deployment of SMRs. The proposed interregional project will benefit from the training and technology transfer activities carried out under related national and regional projects and will extend this support to all the global regions.

Participating Member State(s): to be determined

Physical infrastructure and human resources: As the project is not targeting at designing or building a prototype SMR or even a supporting experimental facility, no specific infrastructure is assumed to be provided by participating countries. Some Member States participating in the project are expected to have skilled and competent human resources to participate in the different activities. Technology holder countries are expected to contribute with experts in the different technology, safety and economic areas of the project.

Sustainability: Nuclear industry is considering SMRs including microreactors and their applications with clean energy support, which is seen as a game changer for the decades to come. Therefore, common development and deployment challenges are expected to last much longer than lifetime of this project. Developing embarking countries and technology holders' countries individually or on bi-/multi-lateral basis will continue in information exchange well beyond the end of the project. The trained staff and in particular young researchers and engineers including women will be interested by these new nuclear power technologies and their multiple applications and are supposed to continue working in the field for the rest of their professional carrier. The participants trained during under the TC project will be the new trainers for the new generations. For embarking countries there will be enhanced understanding of the SMR technologies deployable in their country and domestic nuclear regulatory requirements. To ensure effective linkages between counterparts and end users, regular meetings of the steering committee comprising regional representatives will be held on a regular basis. Depending on the specific topics, partnerships with UN specialized agencies and non-profit organizations will be identified and implemented whenever required; public/private partnerships will be developed wherever relevant.

Safety and Regulatory Compliance: The project has individual segments where safety and regulatory aspects/licensing of SMRs/MRs will be discussed. No operational nuclear activity will be conducted during the project. Therefore, there is no need to consult with relevant regulatory bodies. However, experts from regulatory bodies and TSOs will be engaged for the training activities.

Requirements for participation: Depending on the specific training and workshop and topics to be discussed. The PMO and the TOs have the task to select the participants for the different activities tailored.

Cross Cutting Issues Environment: The project will not have any negative impact on the environment.

Cross Cutting Issues Gender: Both men and women can participate in the project implementation. Gender balance is a key priority throughout the project, with an emphasis on achieving equal representation between male and female participants. Women candidates receive priority consideration in the selection process.

Implementation strategy: The project will deliver workshops, training courses, scientific visits and expert missions which will address capacity building and transfer of knowledge on different aspects of SMRs as clean energy option in energy mixes and their applications: technology development and assessment, deployment issues, development of regulations, licensing, safety assessment, economy including investment schemes, frontend and backend of the fuel cycles, waste management, decommissioning, infrastructures. A small steering group (5-7 staff: PMO and TOs) representing all the different TDs (regions) will adjust topics of workshops/trainings/scientific visits/expert missions and their agenda according to state- of- art knowledge and progress achieved. The representative(s) from a certain region has/have the task to inform the interested Member States of that region. The participating Member States will be informed to confirm their participation in this project and the list of training events, and also to return feedback in due course, in line with TC procedure and practice. The activities implemented by IAEA are with Member States' support through south-south cooperation and north-south cooperation. The steering group is also in charge to select the participants and the experts/lecturers in line with IAEA TC rule and procedure and on the basis of: a) the topics to be presented and discussed; b) the status of knowledge on those topics by the targeted Member States/region(s); c) the interest of Member States/region(s) on specific SMRs/MRs technologies; d) the status of development of their national nuclear programme in energy mixes, clean energy combination. Gender balance and geographical distribution will be applied systematically in the selection process. The sequence of implementing activities will be established with the general criteria to first provide a broad information on the involved technologies and related issues, and then focus on specific needs of global, or regions or group of Member States. The overall implementation strategy will be briefed the newly created Steering Committee of the agency-wide platform on SMRs and their applications.

Monitoring and progress reporting: The project steering group (the core team member) will assemble (or discuss by email) according to necessity maximum once in a year and will set further plans including assessment of progress achieved and update work plan. This includes corrections/approval of PPAR. Contribution to SDGs 6, 7, 9, 12 and 13 will be also monitored and assessed. Effective monitoring and progress reporting will be also ensured through the newly created agency-wide platform on SMRs and their applications.

Lessons Learned: This project is continuation of INT2023. The phase-1, INT2023 “Supporting Member States’ Capacity Building on Small Modular Reactors and Micro-reactors and their Technology and Applications as a Contribution of Nuclear Power to the Mitigation of Climate Change,” provided critical and effective capacity-building and knowledge-sharing amongst 62 Recipient Member States up to date and 13 Donor Countries that are invited potentially to attend as cost-free observers or experts in these thematic areas. From 2022 to the end of 2025, the project will have implemented 51 events (32 workshops, 14 training courses, 2 expert missions, 2 sponsored conference participation, and 1 group scientific visit) on the following topics: 3S (safety, security, and safeguards), technical and economic considerations, infrastructure development (policy and legal framework, human resource development, and knowledge management), and fuel cycle, decommissioning, waste, and overall

management of SMR and MR deployment. The results attained were positive in supporting Member States in receiving technical assistance in line with SDGs 6, 7, 9, 12 and 13, which is also aligned with number 5 out of the 19 Infrastructure Issues of the IAEA Milestones Approach to ensure the safe, secure, and peaceful use of SMRs. The 62 Recipient Member States that are on the INT2023 predecessor project have expressed interest in future SMR events under this new project. INT2023 provided critical and effective capacity-building and knowledge-sharing amongst 62 Recipient Member States and 13 Donor Countries that are invited to attend as cost-free observers or experts in these thematic areas. This project is continuation of INT2023 as phase II, "Supporting Member States' Capacity Building on Small Modular Reactors and Micro-Reactors and their Technology and Applications as a contribution of nuclear power to the mitigation of climate change," which aims to raise awareness and to improve knowledge, capacity-building, and safety review capabilities in developing countries regarding all the fundamental aspects of SMRs and MRs deployment, as well as their electric and non-electric applications are concerned with respect to mitigating climate changes and integrating the basic principles of circular economy. The new SMR project II will continue to promote the IAEA's assistance in improving knowledge, capacity-building, and safety review capabilities regarding all the fundamental aspects of SMRs and MRs deployment, covering their electric and non-electric applications to Member States. Key improvements include tailoring courses to address phase-specific scenarios, implementing standardized agendas, eliminating course overlap, and reducing the overall number of activities to enhance program effectiveness.

Risk management: The main risk that could affect the success of the project is if any of the participating countries is not supported through their national authorities. The Government's commitment of the participating Member States is critical for the success of the programme. There is also risk from external factors (including political and social environment), such as COVID-19 and/or other virus, which may in the future still impede physical training courses, on-site missions, etc. Another risk relates to the staff trained and measures in place to retain such staff so that they continue being part of the team involved in SMRs and MRs, clean energy approach and their technology and applications. Therefore, planning and implementation will be adjusted accordingly. To mitigate the financial risks, in addition allocation TC funds, IAEA could develop a donor contribution and in-kind contribution multi funding strategy that reduces dependence on a single funding source. Conduct comprehensive financial risk assessments at project initiation and periodically throughout the project lifecycle. Develop detailed and realistic budget projections. Encourage donors to support and help the INT projects management through JPOs and CFEs.

CORE FINANCING										
Year	**Human Resource Components** (Euros)						**Procurement Components** (Euros)			**Total** (Euros)
	Experts	Meetings/ Workshop	Fellow-ships	Scientific Visits	Training Courses	**Sub-Total**	Equipment	Sub-Contracts	**Sub-Total**	
2026	0	91 800	0	7 920	0	**99 720**	0	280	**280**	**100 000**
2027	23 760	0	0	0	76 000	**99 760**	0	240	**240**	**100 000**
2028	8 640	307 800	0	0	528 200	**844 640**	0	0	**0**	**844 640**
2029	16 200	486 000	0	7 260	247 000	**756 460**	0	0	**0**	**756 460**

FOOTNOTE-a/ FINANCING										
Year	**Human Resource Components (Euros)**						**Procurement Components (Euros)**			**Total (Euros)**
	Experts	Meetings/ Workshop	Fellow-ships	Scientific Visits	Training Courses	**Sub-Total**	Equipment	Sub-Contracts	**Sub-Total**	
2026	518 400	1 312 200	0	0	539 600	**2 370 200**	0	0	**0**	**2 370 200**
2027	615 600	1 123 200	0	2 640	733 400	**2 474 840**	0	0	**0**	**2 474 840**
2028	307 800	513 000	0	2 640	418 000	**1 241 440**	0	0	**0**	**1 241 440**
2029	394 200	270 000	0	0	190 000	**854 200**	0	0	**0**	**854 200**
First Year Approved: 2026										

Logical Framework Matrix (LFM)

	Design Element	**Indicator and Baseline**	**Target**	**Means of Verification**	**Assumptions**
Outcome	Human capacities developed on SMR/MR technologies and their applications to enhance nuclear energy contribution and socioeconomic development in Member States. Clean energy portfolio created by integrating nuclear energy with renewable sources.	Certain number of qualified staff trained, infrastructure and or capacity building strengthen in MSs considering SMRs and their applications. Technical assistance provided to MSs in introducing concept and deploy SMRs and MRs to contribute electric and non-electric applications in addressing Sustainable Development Goals (SDGs)6, 7, 9, 12 and	Group of MSs considering SMRs at global level.	Events report, progress report and PPARs.	1. Commitment of the participating Member States. 2. Availability of appropriate and qualified experts from technology holders' countries 3. Correct selection of participants from target countries to ensure an efficient and effective transfer of knowledge and technology to the appropriate professionals in developing countries

		13, mitigating climate changes and integrating the basic principles of circular economy.			
Output	1 Awareness raised on SMR/MR technology and relevant applications (in technology development and transfer).	Number of Member States participating in TC projects which include activities on SMR/MRs and their applications: Baseline: 10 Time frame: by the end of 2025	Target at the end of the project: 35 Timeframe: by the end of 2025	Information from PCMF	1. Commitment of the participating Member States. 2. Availability of appropriate and qualified experts from technology holders' countries 3. Correct selection of participants from target countries to ensure an efficient and effective transfer of knowledge and technology to the appropriate professionals in developing countries.
	2 Human capacity building enhanced in Member States by developing and/or introducing SMR technology and relevant applications.	Number of trained participants in the workshops, expert and review missions, scientific visits and training courses organized by the project Baseline:100 Timeframe: by the end of2025	Target at the end oftheproject:250 Timeframe: bythe end of2025	Statistics from events organized under this TC project	1. Commitment of the participating Member States. 2. Availability of appropriate and qualified experts from technology holders' countries 3. Correct selection of participants from target countries to ensure an efficient and effective transfer of knowledge and technology to the appropriate professionals in developing countries.
	3 Capabilities developed or strengthened to ensure the	Number of licensing applications to build	Target at the end of the project: 5	Public information+	1. Commitment of the participating

	safety and security of siting, design, construction, commissioning, operation, waste management, decommissioning and transportation of SMR.	SMR Baseline: 2 Time frame: Target at the end of the project: 5 Timeframe: by the end of 2025 Public information+ SMR regulators' Forum 1. Commitment of the participating Member States. 2. Availability of appropriate and qualified experts from technology by the end of2025	Timeframe: by the end of2025	SMR regulators' Forum	Member States. 2. Availability of appropriate and qualified experts from technology holders' countries 3. Correct selection of participants from target countries to ensure an efficient and effective transfer of knowledge and technology to the appropriate professionals in developing countries.
	4 Integration of SMRs into energy mix: Pathways to Secure and Resilient Low-Carbon Energy Systems (supporting clean energy solution, with SMRs option)	Number of trained participants in the workshops, expert and review missions, scientific visits and training courses organized by the project Baseline:100 Timeframe: by the end of 2025	Target at the end of the project:250 Timeframe: by the end of 2025	Events report, progress report.	1. Commitment of the participating Member States. 2. Availability of appropriate and qualified experts from technology holders' countries 3. Correct selection of participants from target countries to ensure an efficient and effective transfer of knowledge and technology to the appropriate professionals in developing countries.
Activity	1.1 To advance reactor technology developments for near-term development, nuclear energy sustainability and nuclear power engineering.				
	1.2 To maintain and preserve nuclear knowledge in advanced reactors' technology including SMRs and				

	microreactors by using of state-of-the-art knowledge management technologies.				
	1.3 The knowledge of approaches and methods for safeguarding nuclear material, facilities, and activities to facilitate safeguards implementation by the IAEA, including Safeguards-by-Design for SMRs.				
	2.1 To chart out energy strategies for energy demand and supply; conducting economic and cost-benefit analyses comparing project costs of NPP using SMRs - consistent with sustainable development goals.				
	2.2 Activities on conducting research for sustainable advanced fuel and fuel cycles and on understanding the behaviour of fuel used in advanced reactors including SMRs and microreactors.				
	2.3 Embarking countries that are selecting sites for nuclear installations, evaluating designs against external events; and countries defining adequate Emergency Preparedness and Response arrangements for SMR deployments, based on a graded approach.				
	2.4 To establish of national policies and institutional infrastructure for safe and secure deployment of SMR in embarking countries.				

	3.1 Activities related to the siting, design, safety assessment, construction, commissioning, operation, regulation, waste, decommissioning, radiation protection and transport safety aspects of SMRs.				
	3.2 Activities related the 3S aspects of SMRs				
	4.1 Energy and water demand analysis in energy transition				
	4.2 Integrated planning of climate, land, energy and water interactions				
	4.3 Integration of SMRs into power systems and power markets				
	4.4 Financial and economic dimension of energy transition				
Input	1.1.1 Workshop on Review of Country Specific Users Requirements and Criteria for SMR and Microreactors Technology - Study Cases. TOs from NPTDS, PESS, INPRO, NIDS, NSNI/SAS, NSNI/EESS, SGCP will involve in, 30participants + 3 IEXs, 4days.				
	1.1.2 Training Course on Applying the updated Reactor Technology Assessment Methodology for Identification and Selection of SMR Design and Technology. TOs of NENP/NPTDS, NENP/NIDS, NSNI/SAS, NSNI/EESS will involve TC: 40participants + 2-3 IEXs,4				1. Commitment of the participating Member States. 2. Availability of appropriate and qualified experts from technology holders' countries 3. Correct selection of participants from

	days.				target countries to ensure an efficient and effective transfer of knowledge and technology to the appropriate professionals in developing countries.
	1.1.3 Workshop on Codes & Standards, Design Engineering, Testing &Manufacturing of Components and Supply Chain of SMRs and Microreactors. TOs from NENP/NPTDS, NPES, NSNI/SAS will involve the WS: 20parts + 2-3 IEXs, 4days.				1. Commitment of the participating Member States. 2. Availability of appropriate and qualified experts from technology holders' countries 3. Correct selection of participants from target countries to ensure an efficient and effective transfer of knowledge and technology to the appropriate professionals in developing countries.
	1.1.4 Workshop on Specific Design Considerations of Nuclear Cogeneration Projects using SMR/MR. TOs from NENP/NPTDS will involve the WS: 20parts+2 IEXs, 4 days.				
	1.1.5 Workshop on Advances in Fast-neutron Spectrum and Gen IV type SMR Designs and Safety Features. TOs from NPTDS, NSNI/SAS, NSNI/EESS will involve ME: 15 parts +2 IEXs, 4 days.				
	1.1.6 Training Course on PC-based Educational &Training				

	SMR Simulators. TOs from NPTDS will involve TC:30 parts + 2 IEXs, 4days.				
	1.1.7 Workshop on advances in Microreactor Designs. TOs from NENP/NPTDS, NSNI/SAS, NSNI/EESS will involve ME: 15 parts + 3 IEXs,4 days.				
	1.1.8 Workshop on Modelling, Simulation and V&V to Support SMR Design and Safety Case. TOs from NENP/NPTDS, NSNI/SAS will involve WS: 20 parts + 2-3IEXs, 4 days.				
	1.1.9 Workshop on Specific Issues on Reactor Technology for Marine-based Small Modular Reactors. TOs from NENP/INPRO, NPTDS, NSNI/SAS, EESS, RAS, IEC, OLA will involve ME: 20parts + 2 IEXs, 4 days.				
	1.1.10 Workshop on Development of Taxonomy for SMRs and Microreactors Knowledge Based. TOs from NEPIK/NKM, NENP/NPTDS, NSNI/SAS, NSNI/SAS will involve WS: 15parts + 2 IEXs, 4 days.				
	1.1.11 Training Course on Application of INPRONESA Methodology for Sustainability Assessment of SMRs and Microreactors. TOs from NENP/INPRO will involve TC: 40 parts +3 IEXs, 4 days.				
	1.1.12 Training Course on Stakeholder and Industrial				

	Involvements and Public Outreach. TOs from NPES, NIDS will involve TC: 40 parts+ 3 IEXs, 4 days.				
	1.1.13 Safeguards Training Course on: Role and responsibilities of the State, both in implementation and in Safeguards by Design. TOs from SGCP and NSNI/SAS will involve TO: 30 parts + 3 IEXs,4 days.				
	1.1.14 Expert: A 12-month cost free expert (or JPO at level P2) to assist implementation, with SMR technology working experience.				
	1.1.15 Expert: B 12-month cost free expert to assist implementation, with SMR technology working experience.				
	1.1.16 Expert: B 12-month cost free expert (or JPO at level P2) to assist implementation, with SMR technology working experience.				
	1.1.17 Expert: A 12-month cost free expert (or JPO at level P2) to assist implementation, with SMR technology working experience.				
	1.1.18 Expert: B 12-month cost free expert (or JPO at level P2 or P3) to assist implementation, with SMR technology working experience.				

	1.1.19 Expert: A 12-month cost free expert (or JPO at level P2) to assist implementation, with SMR technology working experience.				
	1.1.20 Expert: A 12-month cost free expert (or JPO at level P2) to assist implementation, with SMR technology working experience.				
	1.1.21 Expert: B 12-month cost free expert (or JPO at level P2 or P3) to assist implementation, with SMR technology working experience.				
	1.1.22 Expert: A 12-month cost free expert (or JPO at level P2) to assist implementation, with SMR technology working experience.				
	1.1.23 Expert: A 12-month cost free expert (or JPO at level P2 or P3) to assist implementation, with SMR technology working experience.				
	1.1.24 Expert: A 12-month cost free expert (or JPO at level P2 or P3) to assist implementation, with SMR technology working experience.				
	1.1.25 Expert: A 12-month cost free expert (or JPO at level P2) to assist implementation, with SMR technology working				

	experience.				
	1.1.26 Scientific Visits/expert mission for SMRs deployment at the Countries Request.				
	1.1.27 Scientific Visits/expert mission for SMRs deployment at the Countries Request.				
	1.1.28 Training certificate				
	1.1.29 training certificate.				
	1.2.1 Workshop on Education and Training tools and Knowledge Transfer. TOs from NEPIK/NKM, NENP/NPTDS will involve WS: 15 parts + 2 IEXs,4 days.				
	1.3.1 Workshop on Status of Safeguard-by-Design Implementation in SMR Designs and Technologies for Near-Term Deployment. TOs from SGCP, NENP/NPTDS will involve ME: 20 parts +2 IEXs, 4 days.				
	2.1.1 Workshop on Economic appraisal approaches for SMR/MR projects-Complimentary to the CRP-I1-2007. TOs from NEPIK/PESS will involve WS: 40 parts + 3 IEXs,4 days.				1. Commitment of the participating Member States. 2. Availability of appropriate and qualified experts from technology holders' countries 3. Correct selection of participants from target countries to ensure an efficient and effective transfer of knowledge and technology to the appropriate

					professionals in developing countries.
	2.1.2 Training Course on Energy planning and use of the IAEA's energy system assessment tools for modelling electricity demand and supply strategies and meeting climate objectives. TOs from [NEPIK/PESS will involve TC: 40 parts +2-3 IEXs, one or two weeks.				
	2.1.3 Training Course on Financial Evaluation of SMR & MR Energy Projects and training in the use of the IAEA Tool FINPLAN. TO from NEPK/PESS – supported by one staff and 3 external experts, 20 participants, 1 week				
	2.2.1 Training Course on Fuel designs and fuel cycle options for SMRs. TOs from NEFW/NFCMS will involve TC: 25 parts +2 IEXs, 3 days.				1. Commitment of the participating Member States. 2. Availability of appropriate and qualified experts from technology holders' countries 3. Correct selection of participants from target countries to ensure an efficient and effective transfer of knowledge and technology to the appropriate professionals in developing countries.
	2.2.2 Training Course on Cost-effective Solutions in the Radioactive Waste				1. Commitment of the participating Member States. 2.

	Management for Near-Term Deployable SMRs; Decommissioning by Design. TOs from [NEFW/WTS, NEFW/DERS will involve TC: 30 parts + 2-3IEXs, 3 days.				Availability of appropriate and qualified experts from technology holders' countries 3. Correct selection of participants from target countries to ensure an efficient and effective transfer of knowledge and technology to the appropriate professionals in developing countries.
	2.3.1 Expert Missions: (upon request) to interested Member States to provide advice on site selection and environment. TOs from NSNI/EESS will involve TC: 2 or 3 IEXs, 3 days				
	2.3.2 Training Course on Next Generation Reactors and Emergency Preparedness and Response, including reference to the CRPI31029 and new IAEA guidance on SMR EPR.TOs from NS/IEC will involve TC: 25 parts +2 IEXs, 4 days.				1. Commitment of the participating Member States. 2. Availability of appropriate and qualified experts from technology holders' countries 3. Correct selection of participants from target countries to ensure an efficient and effective transfer of knowledge and technology to the appropriate professionals in developing countries.
	2.3.3 Expert Missions: (upon request) to interested Member States to provide advice on SMR Emergency				

	Preparedness and Response arrangements				
	2.3.4 Workshop on Geotechnical aspects, seismic hazards, and volcanic hazards in site evaluation for SMR power plants - with Country Cases. TOs from NSNI/EESS will involve: 20 parts + 2IEXs, 4 days.				
	2.4.1 Training Course on Policy, Strategy, and key Aspects of infrastructure (roadmap for beginner country in capacity building through experience and practical knowledge in design and construction) related to SMR and MRs: 40 parts + 3 IEXs,5 days.				
	2.4.2 Training Course on optimisation of siting and response for SMRs: including emergency planning zone, etc 5d x 30p. NE and NS.				
	2.4.3 Training Course on scalability of SMR for municipal applications in small and medium size cities. 5d x 30p.NE.				
	2.4.4 Training Course on adaptivity of SMR to local power grid, especially for countries/regions with less-developed infrastructure and different seasonal power generation/consumption patterns. 5d x 30p. NE.				
	2.4.5 Workshop on the safety and security of SMRs (can be either joint with other NE topics or separately) NS with				

	NE participation. 4d x 30p (annual meeting)				
	2.4.6 SMR School: Interregional Workshop on Key Aspects of SMR Development and Deployment, TO from SMR Platform, TO from SMR Platform, 25 parts, 5+ days				
	2.4.7 Workshop (WS) on International and national legal framework for SMR.TOs from OLA, NSNI will involve WS: 30parts + 2 IEXs, 4 days.				
	2.4.8 SMR School: Interregional Workshop on Key Aspects of SMR Development and Deployment, TO from SMR Platform, TO from SMR Platform, 25 parts, 5+ days				
	2.4.9 SMR School: Interregional Workshop on Key Aspects of SMR Development and Deployment, TO from SMR Platform, TO from SMR Platform, 25 parts, 5+ days				
	2.4.10 SMR School: Interregional Workshop on Key Aspects of SMR Development and Deployment, TO from SMR Platform, TO from SMR Platform, 25 parts, 5+ days				
	2.4.11 SMR School: Interregional Workshop on Key Aspects of SMR Development and Deployment, TO from SMR Platform, TO from SMR				

	Platform, 25 parts, 5+ days				
	2.4.12 SMR School: Interregional Workshop on Key Aspects of SMR Development and Deployment, TO from SMR Platform, TO from SMR Platform, 25 parts, 5+ days				
	2.4.13 SMR School: Interregional Workshop on Key Aspects of SMR Development and Deployment, TO from SMR Platform, TO from SMR Platform, 25 parts, 5+ days				
	2.4.14 SMR School: Interregional Workshop on Key Aspects of SMR Development and Deployment, TO from SMR Platform, TO from SMR Platform, 25 parts, 5+ days				
	3.1.1 Training Course on SMR Safety and Regulation, three weeks, 25 participants, 3 experts				1. Commitment of the participating Member States. 2. Availability of appropriate and qualified experts from technology holders' countries 3. Correct selection of participants from target countries to ensure an efficient and effective transfer of knowledge and technology to the appropriate professionals in developing countries.
	3.1.2 Training Course on SMR Safety and Regulation,				

	13 days, 25 participants, 2 experts				
	3.1.3 Workshop on SMR Siting and External Event Protections, one week, 25 participants, 1 expert				
	3.1.4 Workshop on Emergency Preparedness and Response for SMR, one week, 25 participants, 1 expert				
	3.1.5 Training Course on SMR Safety and Regulation, two weeks 25 participants, 2 experts				
	3.1.6 Workshops on Management of Spent Fuel and Radioactive Waste and Decommissioning for SMR, one week, 25 participants, 1 expert				
	3.1.7 Training course on SMR Safety and Regulation, two weeks, 25 participants, 2 experts				
	3.1.8 Workshop on SMR Siting and External Event Protections, one week, 25 participants, 1 expert				
	3.1.9 Workshop on Emergency Preparedness and Response for SMR, one week, 25 participants, 1 expert				
	3.2.1 Workshop on Safety, Safeguards and Security Interfaces in SMR Design, one week, 25 participants, 1 expert				

	3.2.2 Workshop on Safety, Safeguards and Security Interfaces in SMR Design, one week, 25 participants, 1 expert				
	3.2.3 2-month Consultant1/cost free expert to support country in safety regulatory capacity building, shared with donors' country EB.				
	3.2.4 2-month Consultant1/cost free expert to support country TSO in safety regulatory capacity building.				
	3.2.5 2-month Consultant/cost free expert to support country in safety regulatory capacity building.				
	3.2.6 2-months consultant/cost free expert to support TSO in safety capacity building.				
	4.1.1 Workshop on Energy Demand Analysis. TOs from PESS will involve TC: 20 parts + 2 IEXs, 5 days.				
	4.1.2 Workshop on Water Demand Analysis. TOs from PESS, 20 parts + 2 IEXs, 5 days				
	4.1.3 Training Course on Energy / Water Demand Analysis. TOs from PESS, 20 parts + 2 IEXs, 5 days				
	4.1.4 Expert missions to MSs interested in Energy and Water Demand Analysis (at				

	countries request)				
	4.1.5 Scientific Visits/expert mission for Energy and Water Demand Analysis in Energy Transition at the Countries Request				
	4.2.1 Workshop on CLEWs Approaches. TOs from PESS will involve TC: 20 parts + 2 IEXs, 5 days.				
	4.2.2 Workshops on Energy Storages Technologies. TOs from PESS will involve TC: 20 parts + 2 IEXs, 5 days.				
	4.2.3 Workshop on Desalination Technologies. TOs from NPTDS will involve TC: 20 parts + 2 IEXs, 5 days.				
	4.2.4 Training Couse on Long Term Development and Integrated Energy System Analysis (MESSAGE training), TOs from PESS will involve TC, 20 parts+2 IEXs, 10 days				
	4.2.5 Training Course on Use of FRAMES. TOs from INPRO, NSNI will involve TC: 20 parts + 2 IEXs, 4 days.				
	4.2.6 Expert missions to MSs interested in Integrated Modelling of Energy and Non-Energy Systems (at countries request)				
	4.2.7 Expert mission for Integration of SMRs into Power Systems and Power Markets at the Countries				

	Request				
	4.3.1 Workshop on Integration of SMRs into Power Systems with High Share of Variable Sources. TOs from PESS will involve TC: 20 parts + 2 IEXs, 5 days.				
	4.3.2 Workshop on Power Market Aspects in Energy Transition. TOs from PESS will involve TC: 20 parts + 2 IEXs, 5 days.				
	4.3.3 Scientific Visits/expert mission for Integration of SMRs into Power Systems and Power Markets the Countries Request				
	4.4.1 Workshop on Financial Aspects of Energy Transition, TOs from PESS will involve TC: 20 parts + 2 IEXs, 5 days.				
	4.4.2 Training Course on Financial Analysis of Energy Projects with Emphasis on Nuclear Power (SMRs) and Use of FINPLAN Tool, TOs from PESS will involve TC: 20 parts + 2 IEXs, 10 days.				
	4.4.3 Training Couse Macroeconomic Analysis of Energy Transition Plans and Projects with Emphasis on Nuclear Power (SMRs) and Use of EMPOWER Tool, TOs from PESS will involve TC,20 parts+2 IEXs, 10 days				
	4.4.4 Expert missions to MSs Interested in Financial Analysis (at countries request)				

	4.4.5 Scientific Visits for Financial and Economic Dimension of Energy Transition at the Countries Request				