



2022
nuclear.
summit
Trends in Brazilian Nuclear Market

Agency-wide Platform on SMRs and their Applications

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IAEA Support: Key areas



Exchange of
Information through
Meetings and
Dialogue Forums

Design and
Technology
Development,
Advanced R&D

Supply Chain for
Manufacturing of
Structures, Systems
& Components

Construction
Technologies

Economics,
Financing, Market &
Deployment
Competitiveness

Methodologies,
Road-mapping and
Best Practices

Application of
Milestone Approach
to Newcomer
Countries

SMR in Integrated
Energy Systems
(VRE and Non-
Electric App)

Associated Fuel
Cycles

Waste Technology

Decommissioning
approach

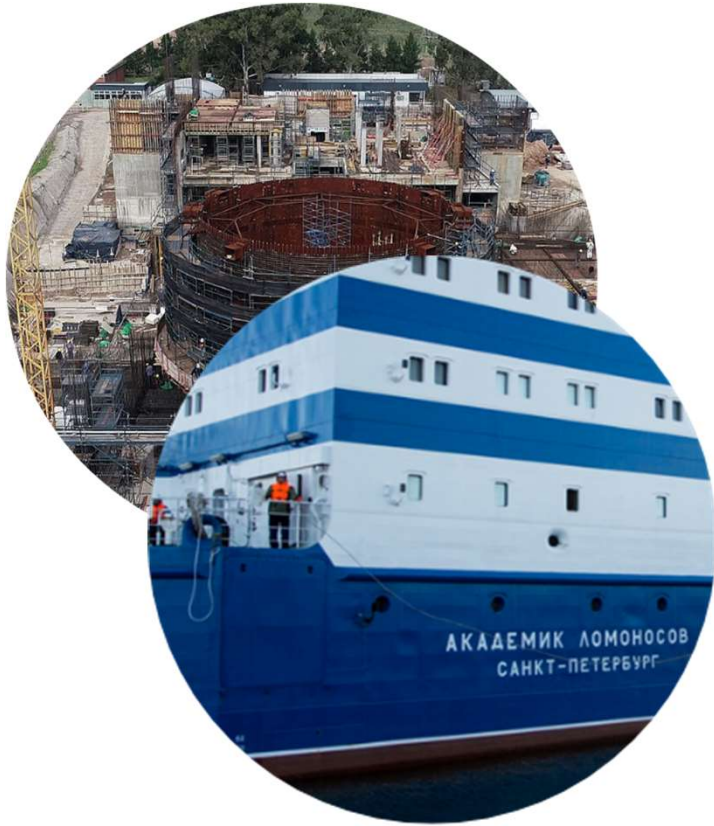
Supports to Safety,
Security and
Safeguard

Nexus with Climate
Change and SDGs

Knowledge
Management and
Preservation

Education & Training

Background



- Already large number of activities on SMR and related applications in 4 Departments (NE, NS, TC, SG)
- Member States request for consistent, coordinated and optimized Agency support for SMR development & deployment
- DG Grossi
 - “Small Modular Reactors (SMR) as an innovation of particular interest to low and middle-income countries, as they have the potential to become a more affordable and more flexible option for communities and industries with smaller grids. **The IAEA has recently kicked off an initiative to provide national governments, experts and regulators with integrated Agency-wide support on all aspects of SMR development, deployment and oversight**”

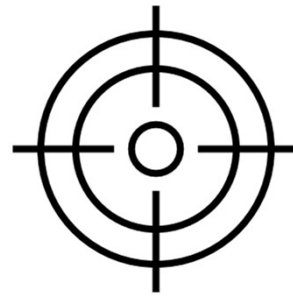
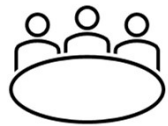
Agency-wide Platform on SMRs and their Applications



Objective: Provide national governments, experts and regulators with integrated Agency-wide support on all aspects of SMR development, deployment and oversight

What?

IAEA's internal governance to coordinate activities consistently with MSs needs and requests
Single access point for MSs and stakeholders



How?



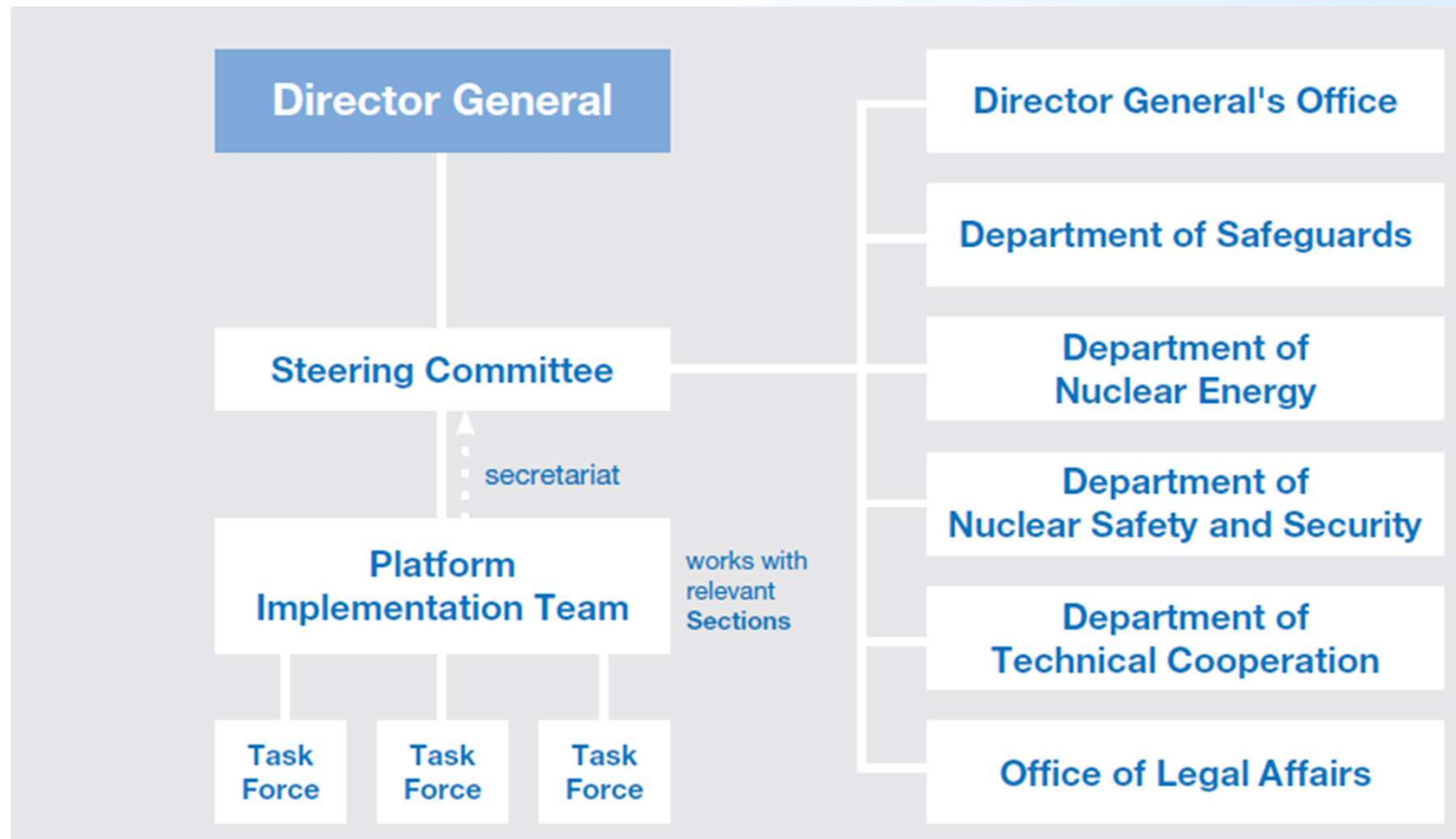
- Develop medium-term strategy on SMR and its applications
- Create enabling environment and a portal to enhance internal as well as external communication

Why?

- Member States request for consistent, coordinated and optimized Agency support
- Effective and efficient support to Member States, International Organizations and stakeholders willing to cooperate with the IAEA



Platform Organization



SMR Platform Brochure



IAEA Platform on Small Modular Reactors and their Applications

The Agency-wide Platform on SMRs and their Applications was established in April 2021 to provide a “one-stop shop” for Member States.



Why?

Member States are asking for the Agency’s consistent and coordinated support related to all aspects of Small Modular Reactors (SMR) development, deployment, and oversight. So far, over 40 Member States have expressed interest in the technology.

The Standing Advisory Group for Nuclear Energy and the Commission of Safety Standards have also stated that concerted and coordinated action by the entire Agency is necessary to provide effective and efficient support to Member States and stakeholders interested in the early deployment of SMRs and their related electric and non-electric applications.

To respond to such requests, the Agency engaged in a comprehensive and holistic effort to establish an Agency-wide Platform on SMRs and their Applications. The Platform aims at supporting Member States in the early deployment of SMRs, including in accelerating their technology development, readiness level, and demonstration, showcasing their competitiveness against other clean energy technologies. At the same time, the Platform ensures that high standards of safety, security, and safeguards are considered at all stages.

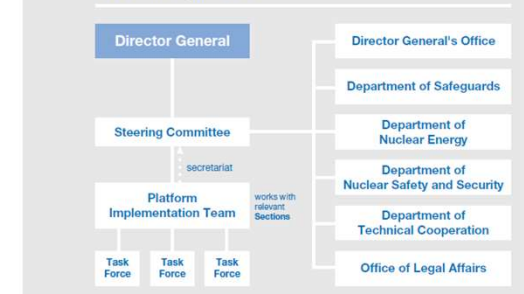
What is the Agency-wide Platform on SMRs and their Applications?

The Agency-wide Platform on SMRs and their Applications was established in April 2021 by the IAEA Director General with the purpose of coordinating the Agency’s activities on SMR and their applications and providing a “one-stop shop” for Member States and stakeholders. Comprising of a high-level Steering Committee and a Platform Implementation Team, the Platform involves all relevant IAEA’s Departments and Offices Reporting to the Director General. It includes expertise from the entire Agency, encompassing all aspects relevant to the development, early deployment, and oversight of SMRs and their applications.

The Platform enables the IAEA to handle Member States’ requests in an effective and efficient manner, providing comprehensive expertise, while ensuring necessary managerial and expert support.



Platform Organization



Governance of the Agency-wide Platform on SMRs and their Applications

The **SMR Steering Committee** is the senior governing body chaired by Deputy Director General and Head of the Department of Nuclear Energy and comprises of Directors from relevant Departments and Offices Reporting to the Director General.

The **SMR Platform Implementation Team** comprises of Heads of Sections from relevant IAEA Departments and Offices Reporting to the Director General. It is chaired by the Head of the Nuclear Power Technology Development Section.

Main Tasks of the Agency-wide Platform on SMRs and their Applications

The Agency-wide Platform on SMRs and their Applications is responsible for developing and periodically reviewing the strategy for Agency support to Member States for the timely development and deployment of SMRs and their applications, while effectively including safety, security, and safeguards considerations.

It also reviews and identifies ways to ensure the consistency, coordination, and optimization of the Agency’s programmatic activities on SMRs and their applications and provide advice to the IAEA Director General and to the Heads of the relevant IAEA Departments, as needed.

The role of the Platform is also to review all requests submitted to the IAEA by Member States and international organizations in the area of SMRs and related applications and to identify the best approaches and mechanisms to address them in a consistent and coordinated manner.

The Platform also ensures coordination of efforts to facilitate international cooperation between the Agency and nuclear and non-nuclear organizations, including related stakeholders working on SMRs and SMR applications.

In addition, the **SMR Coordination and Resource Portal for Information Exchange, Outreach and Networking (SCORPION)**, will provide Member States with a comprehensive and systematic overview of all the Agency’s services and activities on SMRs and their applications. The Portal will also serve as an internal collaboration tool as well as a means of sharing information and data with external stakeholders.

While the above-mentioned tasks have been identified as a priority for the Platform, additional activities will be implemented based on requests from Member States and international organizations.

Main Tasks

- Developing and periodically reviewing the **strategy** for Agency support to Member States for the timely development and deployment of SMRs and their applications
- Review and identify ways to **ensure the consistency, coordination, and optimization** of the Agency's programmatic activities on SMRs and their applications
- **Review all requests submitted to the IAEA by Member States** and international organizations in the area of SMRs and related applications and to identify the best approaches and mechanisms to address them in a consistent and coordinated manner
- **Ensure coordination of efforts** to facilitate international cooperation between the Agency and nuclear and non-nuclear organizations



- **SCORPION**

SMR Coordination and Resource Portal for Information Exchange, Outreach and Networking (SCORPION)

- Will provide Member States with a **comprehensive and systematic overview of all the Agency's services and activities** on SMRs and their applications.
- The Portal will also serve as an internal collaboration tool as well as a means of sharing information and data with external stakeholders.

Medium Term Strategy (2022-2027)

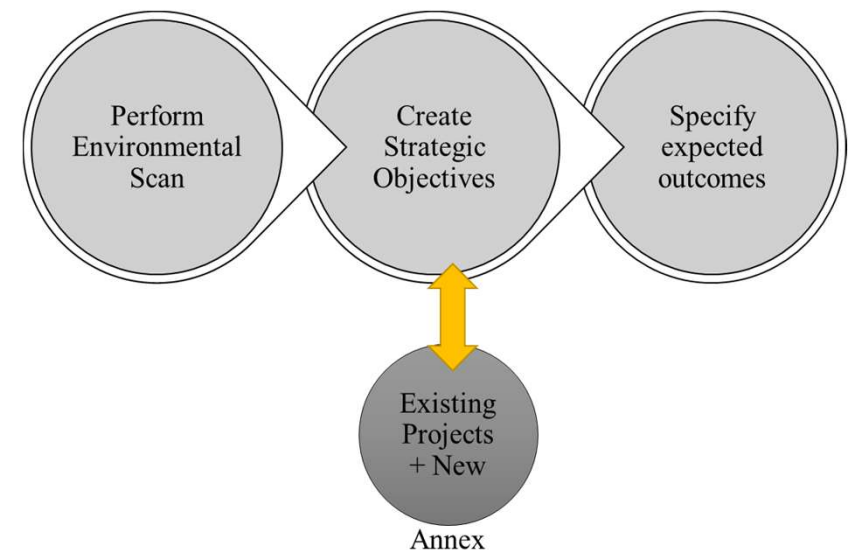


Methodology

- i. First an environmental scan should be performed to identify MSs needs and gaps in IAEA programme
- ii. Based on the environmental scan the IAEA strategic objectives in the medium-term should be established and defined
- iii. Describe the expected outcomes in member states if strategic objectives will be met, along with the associated risk analysis

Draft Structure

- I. Introduction - strategic enablers
- II. Outcomes of the environmental Scanning
- III. Strategic Objectives
- IV. Expected Outcomes in Member States

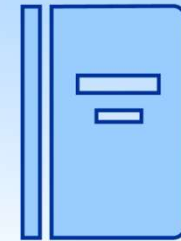


Medium Term Strategy (2022-2027)



- Established the following 7 Strategic Objectives with short summary explaining each objective
 - A. Supporting Member States to become knowledgeable customers and make an informed decision on whether to embark or expand nuclear power based on SMRs*
 - B. Supporting industrial preparedness for SMRs and their applications, including related fuel cycles*
 - C. Promoting, supporting, and developing research and innovation*
 - D. Supporting establishment of institutional, legal and regulatory frameworks for the safe and secure deployment, operation, decommissioning of SMRs, including the management of spent fuel and waste*
 - E. Preparing effective and efficient Agency safeguards*
 - F. Supporting international cooperation on SMRs*
 - G. Providing effective knowledge transfer through technical cooperation*
- Identified ongoing and planned IAEA projects and activities underpinning the 7 objectives

High Level SMR Booklet



SMRs: A new nuclear energy paradigm

- Chapter 1: SMRs and what they can offer: understanding technological and global perspectives
- Chapter 2: Success – what will it look like?
- Chapter 3: Next steps - Future: what's next for SMRs – from a decade to perspective for the century
- Chapter 4: How the IAEA is supporting creation of an enabling environment and technology development and deployment
- *Target audience:*
 - ✓ Primarily policymakers and government officials interested in SMRs, not targeted towards subject matter experts
 - ✓ MSs interested in SMRs may be technology providers, potential customers, both new and expanding countries, or just interested to understand better challenges and opportunities offered by SMRs and their applications in view of possible inclusion in their energy mix

First three chapters would explain the IAEA secretariat's view on SMRs and their applications, and last chapter devoted to the IAEA services to MSs



SCORPION:

SMR Coordination and Resource Portal for Information Exchange, Outreach and Networking

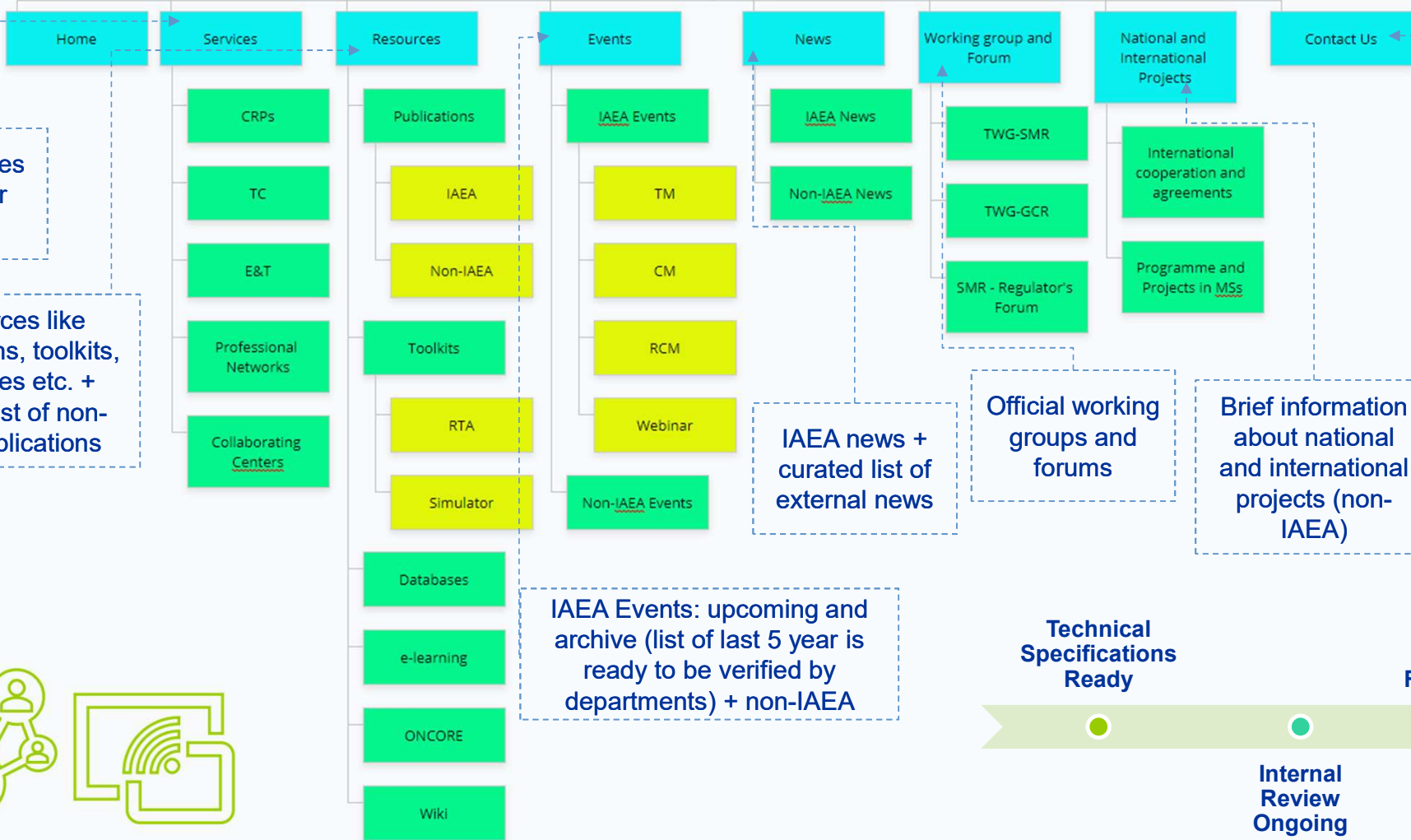
*Develop and maintain an 'SMR Portal' which will serve as a controlled **internal collaboration tool** as well as a means of **sharing information and data with internal stakeholders**. The portal will also serve as a **centralized source of information for external stakeholders** with a mechanism for registration as well as different level of data/info access authorization.*

- The Task (as per point 26(g) of the ToR)



Proposed Design (first major version)

SMR Portal



IAEA services to Member states

Resources like publications, toolkits, databases etc. + curated list of non-IAEA publications

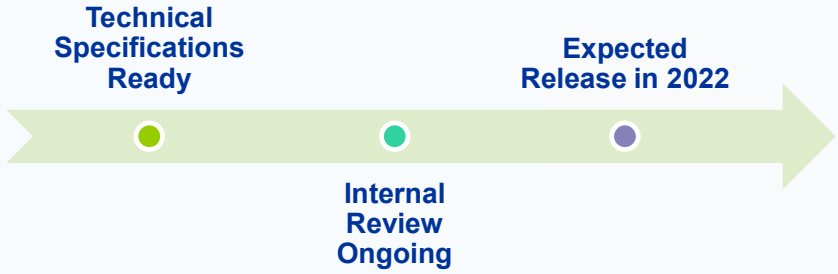
General contact point + forms to address request to SMR - SC

IAEA news + curated list of external news

Official working groups and forums

Brief information about national and international projects (non-IAEA)

IAEA Events: upcoming and archive (list of last 5 year is ready to be verified by departments) + non-IAEA



SCORPION: Under Development



Services ▾ Resources ▾ News ▾ Events ▾ Working Groups ▾ Global Projects Contact Us

Search this site

Select categories:

Safety

Fuel cycle

Topic 3

Topic 4

Topic 5

Topic 6

Topic 7

Topic 8

Topic 9

Topic 10

CLEAR ALL

Welcome to the SMR Coordination and Resource Portal

SMR Coordination and Resource Portal for Information Exchange, Outreach and Networking (SCORPION) will serve as a controlled internal collaboration tool as well as a means of sharing information and data with internal stakeholders.

[Learn More →](#)

SMR

About SMR coordination and resource portal

Small and medium-sized or modular reactors are an option to fulfill the need for flexible power generation for a wider range of users and applications.

To support the work of SMRs in the agency, "SMR Coordination and Resource Portal for Information Exchange, Outreach and Networking (SCORPION)" is developed. This portal will serve as a centralized source of information for internal as well as external stakeholders with different levels of data/info access authorization.

New TC-INT Project Proposal



Supporting Member States' Capacity Building on Small Modular Reactors and Microreactors and their Technology and Applications – A Contribution of Nuclear Power to the Mitigation of Climate Change

Period: 2022 – 2025

Field of Activity (#6 Nuclear Power Reactors)

Objective

To improve technical knowledge, capacity building and safety review capability in developing countries addressing the fundamental aspects of SMRs/MRs and their electric and non-electric applications.

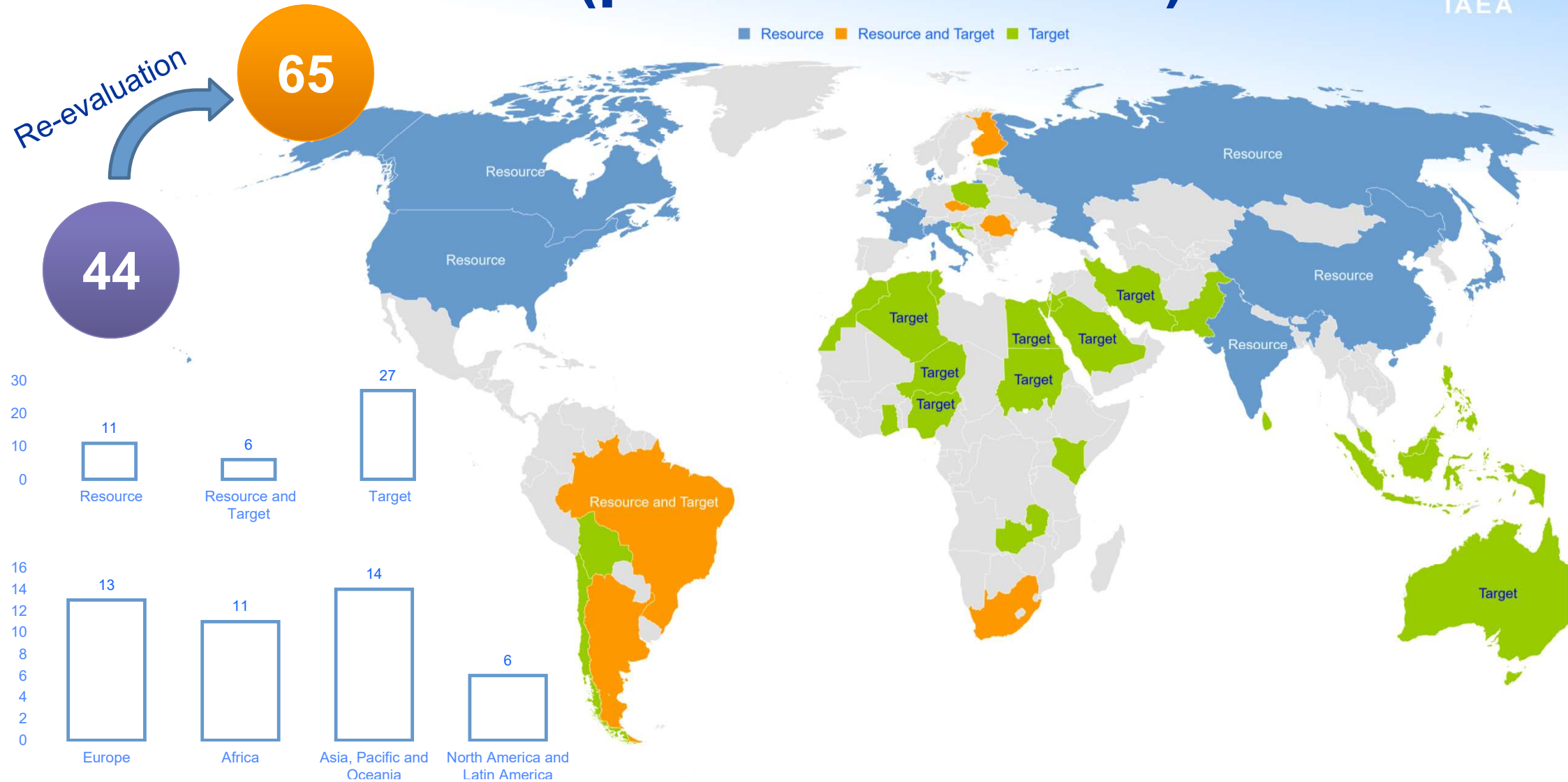
Outcome

Awareness raised on SMRs/MRs technology and their applications to enhance nuclear energy contribution in social-economic development in Member States

Member States (potential interest)



■ Resource ■ Resource and Target ■ Target



TC INT 2023



- Implementation of activities to start from July 2022
- Some planned Workshop/training courses in 2022-2023:
 - PC-based Educational & Training SMR Simulators
 - Review of Country Specific Users Requirements and Criteria for SMR and Microreactors Technology
 - Stakeholder's Involvement and Public Outreach
 - Economic Competitiveness and marketability, bankability of SMR/MR Technology
 - Fuel design optimization and fuel cycle options for SMR
 - Cost-effective Solutions in the Radioactive Waste Management for Near-Term Deployable SMRs; Decommissioning by Design
 - Policy, Strategy and key aspects of infrastructure for SMR
 - International and National Legal Framework for SMRs

Task Forces to support MSs requests

Task Forces



	Task force area	Background/Short description	Status	Chair
1	High level SMR booklet	Task force to draft a high-level IAEA publication on SMRs: A new nuclear energy paradigm (as explained in previous slides)	Already functional	Henri Paillere (NE-PESS)
2	Jordan Expert mission	To conduct an expert mission on “Using Small Modular Reactors (SMRs) including Economic Analysis for Electric Power Generation, and Nuclear Desalination”	Created in March 2022	Stefano Monti (NE-NPTDS)
3	Design issues of SMRs in relation to external hazards	To create guidelines regarding SMR’s seismic behaviour and the implementation of a standard design for high seismicity sites.	Created in March 2022	Paolo Contri (NS-EES)
4	Facilitate the accelerated Deployment of SMRs	To understand the key enablers to accelerate deployment of SMRs	Created in March 2022	Jose Bastos (NE-NIDS)/new SH
5	Transportable/Floating nuclear power plants	To enlarge and consolidate IAEA activities in this area, taking into account work already performed under INPRO	Created in March 2022	Brian Boyer (NE-INPRO)

Also, support to ABDAN in the frame of the IAEA-ABDAN Practical Arrangement

Thank you!



SMR@iaea.org

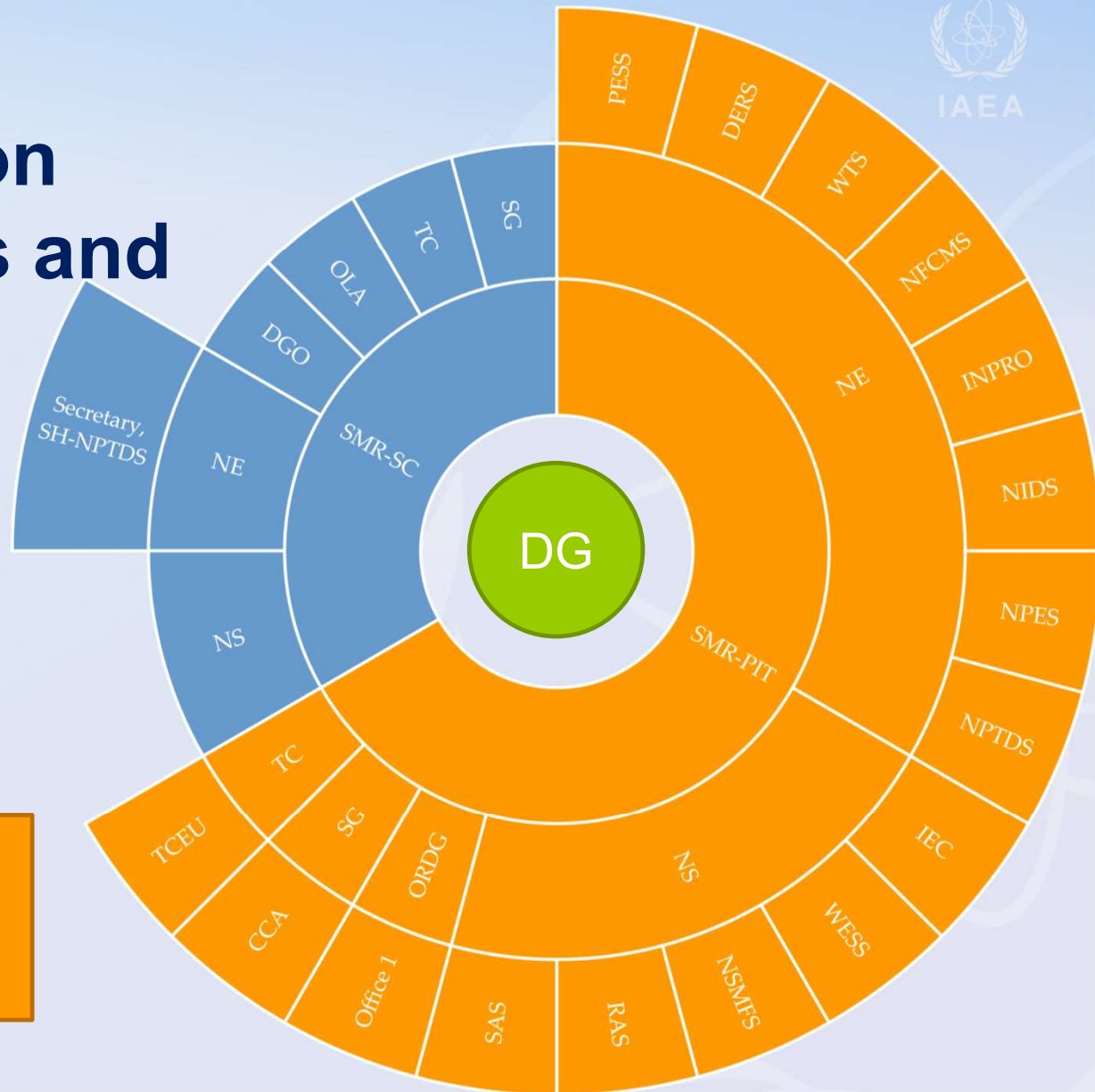
Agency-wide Platform on Small Modular Reactors and their Applications

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SMR Steering Committee (SMR-SC)

+

SMR Platform Implementation Team (SMR-PIT)



Led & coordinated by NE Department

Medium Term Strategy (2022-2027)



II. Environmental Scanning

Advisory Groups

MS Requests

MS Initiatives

Other Forums

SMR-PIT

SMR-SC
Table of Contents and Executive Summary

DG

First draft structure ready

Expected submission for DG approval in 2022

Under internal Review