European Commission

Snapshot of the Implementation Working Group (IWG)

NUCLEAR SAFETY

Low-carbon, reliable, secure and efficient energy supply

***SET Plan** Progress Report 2020*

10 Targets *10 Activities* *21 Funding programmes reported*

5800 M€ reported

Joint Research Centre

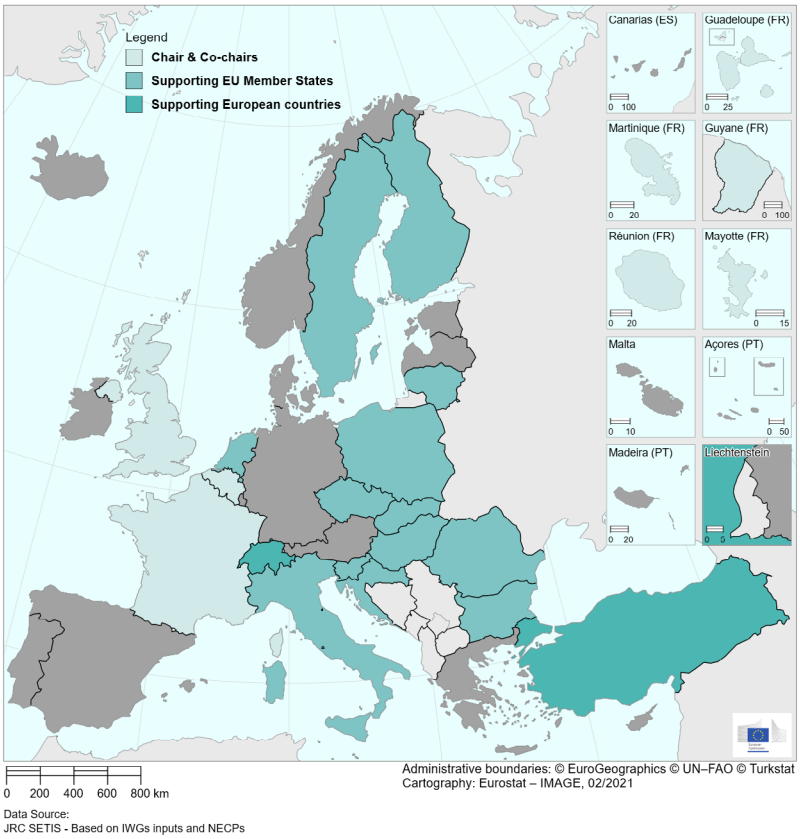

Figure 1 Composition of the IWG

Supporting the EU Green Deal

The Implementation Working Group has proposed new targets to enhance the alignment of the implementation plan with the EU Green Deal.

1. Exploring alternative nuclear applications: hydrogen production, process heat for heavy industry, district heating and medical applications in addition to reliable, flexible and sustainable electricity generation allowing the stability of EU-grid, independence, competitiveness and low carbon source of energy.

2. Developing new SMART technologies, processes and synergies: new designs including small modular and advanced reactors with the potential to close the fuel cycle, digitalisation, artificial intelligence, new manufacturing routes, harmonisations of codes and standards.

3. Focusing on key enablers to deliver the IWG ambitions: EU high quality skills and competences, R&D infrastructures, and international cooperation.

The full list of activities is available here.

Key research and innovation activities

Fission

- DIGITAL TWINS
- REACTOR MULTI-PHYSICS
- LONG TERM OPERATION
- MODELLING & SIMULATION
- ADVANCED SYSTEMS
- SMR

Safety

- INNOVATIVE MATERIALS
- ADVANCED FUELS

- WASTE MANAGEMENT
- GEOLOGICAL DISPOSAL
- DECOMMISSIONING

Fusion

- ITER
- EUROFUSION
- F4E

Fundamental research

- SCIENCE
- ENGINEERING
- TECHNOLOGY
- PARTICLE PHYSICS
- BIG DATA
- SPIN-OFFS
- EDUCATION AND TRAINING
- INTERNATIONAL

Radio-isotopes

- RESEARCH REACTORS
- ACCELERATORS
- NON-POWER APPLICATIONS
- RADIATION PROTECTION
- HEALTH

Other applications

- HYDROGEN PRODUCTION
- INDUSTRIAL PROCESS HEAT
- SPACE TECHOLOGIES
- INDUSTRY
- FOOD
- AGRICULTURE

Areas for collaboration with the IWGs and beyond the SET Plan

• Cogeneration: decarbonised supply of heat and power.

• Hybrid energy systems including the convergence of renewables and nuclear energy to supply low-carbon, reliable, secure and efficient energy.

• Low carbon and reliable H2 production.

• Energy systems integration supporting flexibility and grid resilience.

• Digitalisation of process and cybersecurity.

Figure 2 Collaboration with the IWGs

The Nuclear safety IWG supports energy policy developments for decarbonisation through the collaboration with the NICE future initiative, International Atomic Energy Agency (IAEA), OECD nuclear energy agency (OECD-NEA) and the International Energy Agency (IEA).

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Note: The document is based on and elaborated strictly on the inputs received from the Implementation Working Group.

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