

## **SNETP Forum**

# ECOSENS - a European project on Economic and Social Considerations for the future of Nuclear Energy in Society



D. Diaconu<sup>1</sup>, M. Constantin<sup>1</sup>, C. Turcanu<sup>2</sup>, G. Meskens<sup>2</sup>, R. Geysmans<sup>2</sup>, T. Perko<sup>2</sup>, M. Durdovic<sup>3</sup>, C. Mays<sup>4</sup>, M. Poumadère<sup>4</sup>, G. Locatelli<sup>5</sup>, G. Dei<sup>5</sup>, N. Zeleznik<sup>6</sup>, R. Salla<sup>7</sup>, L.Gonçalves<sup>7</sup>, M. Martell<sup>8</sup>, A. Luypaert<sup>9</sup>, P. Thijssen<sup>9</sup>, P. Mihok<sup>10</sup>, B. Mignaca<sup>11</sup>, F. Abraham<sup>12</sup>, S. Molyneux-Hodgson<sup>12</sup>

<sup>1</sup>RATEN, Romania; <sup>2</sup>SCK CEN, Belgium; <sup>3</sup>ISAS, Czech Republic; <sup>4</sup>Inst. SYMLOG, France; <sup>5</sup>Politecnico Milano, Italy; <sup>6</sup>EIMV, Slovenia; <sup>7</sup>CIEMAT, Spain; <sup>8</sup>MERIENCE, Spain; <sup>9</sup>Univ. Antwerp, Belgium; <sup>10</sup>University Matej Bel, Slovakia; <sup>11</sup>Univ. Cassino and Southern Lazio, Italy, <sup>12</sup>University Exeter, UK;

#### **ECOSENS: Economic and Social Considerations for the future of Nuclear Energy in Society**



Our society faces significant challenges shaping desired energy futures: growing energy demand, decarbonization, and ensuring the economic, environmental and social sustainability of energy systems.

perspective<br/>on existing<br/>and new<br/>nuclear<br/>technologiesSustamability<br/>assessment of<br/>the whole<br/>nuclear<br/>power cycleMarket<br/>sease<br/>sease<br/>technologiesSustamability<br/>assessment of<br/>the whole<br/>nuclear<br/>power cycleMarket<br/>based on the system<br/>of provisionsSustamability<br/>assessment of<br/>the whole<br/>nuclear<br/>power cycle

Societal perspective on existing and emerging nuclear technologies

Methods: desk research in 6 European countries; focus groups (BE, CZ, ES, SI); interviews (SI, SK UK); surveys (BE, CZ ES, UK); international stakeholder workshops. Sustainability assessment of the whole nuclear power cycle

Method: Life Cycle Assessment indicators based 62 on (environment, economics and social), involving experts in energy, social scientists, and stakeholders. **Results**: comparative assessment of renewables, nuclear, hydro, and gas technologies over the entire life shown that all technologies are seen as having similar levels of effectiveness or suitability, with no option single emerging as significantly superior or inferior to the others.

Nuclear energy presents a potentially important yet contested low-emission option for tackling these challenges.

The European **ECOSENS** project (2022-2025) set forth to open up the techno-scientific issues of nuclear energy to the social, political, cultural and ethical context, and guide policies in the nuclear field. It aims at creating an interdisciplinary space for research, dialogue and collaboration between researchers, civil society and other stakeholders.

> A new economic model based on the system of provisions

Methods: single case studies (FR), multiple case studies (IT, DE, UK, FR), interviews (IT), and expert workshops.

Focus: public attitudes to nuclear and SMR; experiences and needs for public engagement; climate and energy protests; stakeholder views on sustainable energy systems.

If there were an initiative to involve citizens in the decision-making process concerning construction of a SMR in your municipality (offered at flexible dates and hours), and anybody could participate, to what extent would you like to do so? (BE, CZ and ES together, N=3223)



I only want to receive information about

I don't want to participate

I want to receive information and express my opinion
I want to participate in a dialogue towards a decision
I want to be a full partner in the decision-making process
I don't know

#### **Selected findings:**

 National differences in attitudes to nuclear and SMR;

#### **Selected findings:**



Socio-economic Focus: outputs, and impacts of nuclear outcomes programs on several provisioning systems; development and resilience of Large Technological Systems (LTSs); stakeholders' social acceptance and local communities' engagement in nuclear power plants; and circular economy principles in the nuclear sector.

#### **Selected findings:**

- Value dynamics in nuclear programs planning and development;
- Determinants, prerequisites, barriers and enablers of nuclear LTSs development and resilience;
- Reconfiguration of nuclear LTSs after external major events (tipping

12-16 May 2025, Warsaw, Poland

- Strong need for transparency and active public engagement;
- Public lacks information about SMR; future deployment seen as potentially valuable, but vague and uncertain;
- Mixed views on SMR compared with traditional reactors and renewables.

points);

 Social acceptance of nuclear power higher at the local level than at the national level.

### Contact

Project coordinator: Daniela Diaconu daniela.diaconu@nuclear.ro

ECOSENS project: <u>https://ecosens-project.eu/</u>

This Project has received funds from the European Commission under the Horizon Europe EURATOM Programme, GA 1010920

11<sup>th</sup> European Commission Conference on EURATOM Research and Training in Reactor Safety & Radioactive Waste Management

European Commission POLAND25.EU