Imagining energy futures: societal perspectives on existing and emerging nuclear technologies

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Nuclear energy, particularly using advanced technologies and/or Small Modular Reactors (SMR), receives increasing attention worldwide, as a potentially important contributor to reducing global CO₂ emissions, while meeting the energy demands and ensuring energy security. However, technological innovation has to be responsive to citizens' values, views and expectations. The ECOSENS project (Economic and Social Considerations for the Future of Nuclear Energy in Society) sets forth to open up the techno-scientific issues of nuclear energy to the social, political, cultural and ethical context, with the aim to guide policies in the nuclear field. Among others, the project explores: i) citizens' perceptions of SMR risks and benefits and their potential role in the future energy mix; ii) underlying values and expectations for citizen engagement in nuclear energy decision-making; iii) citizens' motivations to engage in climate and energy-related protests. Focus groups, interviews and public opinion surveys were conducted in several European countries. The project also creates interdisciplinary spaces for research, dialogue and collaboration between researchers, civil society and other stakeholders on desired energy futures and sustainability assessment frameworks. Results highlight, among others, that SMR are seen as a promising technology for the future, provided their potential benefits can be proven; however, there are uncertainties about, e.g. the unresolved issues of radioactive waste: economic costs: and timeliness to address the climate urgency. There is a need for: i) better public communication on SMR, with factual information about risks and benefits; ii) opportunities for societal stakeholders (including e.g. academia, local representatives, NGOs, citizens) to weigh in on decisions, particularly regarding site selection and the balancing of sustainability outcomes; iii) processes for long-term participation of diverse stakeholders in decisions related to (nuclear) energy policy. The ECOSENS project has received funding from the Euratom Research and Training programme, a complementary funding programme to Horizon Europe, under grant agreement No 101060920.

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