

JOINT PROJECT WEBINAR on

Taxonomy and Small Modular Reactors (SMR)

Friday July 8, 2022, 11:00 AM – 12:30 PM CEST (Vienna time)

Report

On July 6 the European Parliament (EP) has not voted against adding gas and nuclear to the EU taxonomy. This leads to the inclusion of the so-called Advanced Reactors as a Green transitional technology.

We discussed what the EP decisions will mean for the development of nuclear energy and the SMR/Advanced Reactors in particular.

24 participants from 14 countries registered for the webinar.

Patricia Lorenz, Friends of the Earth Europe, informed on the outcome of Taxonomy Complementary Delegated Act CDA vote in the European Parliament. The CDA including nuclear and gas in the taxonomy was not refused in the European Parliament's vote on 6 July 2022; this is the final decision. The European Council did not vote on it before the deadline of July 11, thus the CDA is accepted by the Member states (MS); a qualified majority would have been necessary to prevent this. However, it would have been possible for the European Parliament to stop gas and nuclear in taxonomy and this option was not utterly impossible until the very last moment. The large and split EPP group met the day before to debate the taxonomy. A letter from the Ukrainian energy minister, well-timed presented right then, saying that Ukraine would need the decision for nuclear in the taxonomy might have influenced the result. Certainly not a coincidence that this minister is the former head of Energoatom, the operator of the nuclear power plants in Ukraine.

Austria and Luxembourg will take the European Commission to the European Court for violating the taxonomy regulation.

Existing sustainable investment labels will not change to include gas and nuclear, new might develop and be called Taxonomy Plus to exclude one or the other and some might follow the new rules. In this case – e. g. French government bonds – might make use of this option. 3 types of nuclear investments could be included in taxonomy: investing in new nuclear power plants (NPP), measure for lifetime extension of NPP, and research and demonstration project for advanced reactors like SMR. Those are regulated in the Complementary Draft Delegated Act Annex I and II (4.26-4.28).

Patricia Lorenz is the anti-nuclear campaigner with Friends of the Earth in Brussels, campaigning and lobbying on key nuclear issues.

Paul Dorfman, Science Policy Research Unit, University of Sussex, made an input on economic and political aspects of SMR.

The decision to include nuclear in the taxonomy will divert money from truly green projects, it is greenwashing. The Financial Times already reported: "Several financial institutions including the European Investment Bank, the EU's lending arm, have already said they are likely to ignore the gas and nuclear designation." Taxonomy is aimed at investors, and nuclear remains uneconomic for market forces.

A letter to European Parliament from pro-nuclear EU heads of state was analyzed by members of the Nuclear Consulting Group: Three quarters of claims prove largely false (see <https://www.nuclearconsult.com/blog/letter-to-european-parliament-from-pro-nuclear-eu-heads-of-state-three-quarters-of-claims-prove-largely-false/>)

Will this decision enable Government investment? Probably yes, but still there is a dependence on state aid.

Economy of scale (the bigger is better) was the strategy to make large NPP competitive. For SMR, this cannot be compensated for by factory manufacturing, a huge supply chain is needed in order to make a factory run. SMRs are a long way from any deployment. Has this acceptance of nuclear as sustainable investment anything really changed? The economics absolutely have not. In order to make SMRs investible, there need to be substantial orders, but you cannot have them until you produce.

There are problems with SMR that are more problematic than for large reactors, like backup systems that are incompatible with small designs, esp. for designs with no containment. Larger SMR have cooling problems similar to larger NPPs.

Recent paper on waste of SMR: Alison Macfarlan, one of the authors, was head of US regulators: SMR wastes are pretty much more complicated than of large NPPs. No academic critical response to this yet. (see <https://www.pnas.org/doi/10.1073/pnas.2111833119>)

Types of advanced reactors versus SMR: what might be labelled as advanced reactors: Rolls Royce: nearly 500 MW, down to 50 MW.

Investment in research in the taxonomy: In the UK, it is public subsidy, Rolls Royce has a long way to go. Private investment are mainly made in US. Can someone seriously imagine private investments in SMR in Europe? The US version of the RAB model caused huge debts. (more information on RAB model: https://www.nuclearconsult.com/wp/wp-content/uploads/2019/10/NCG_RAB_submission.pdf)

Does taxonomy incentivize it? Where will the money come from? See price of kWh of nuclear versus wind energy.

Paul Dorfman is member of the Irish Govt. Environment Protection Agency Radiation Protection Advisory Committee, he is founder of the Nuclear Consulting Group, member of the International Nuclear Risk Assessment Group (INRAG) and consultant to Greenpeace Environmental Trust. His areas of expertise are nuclear policy, environmental risk, pollution control, and participatory democracy.

Gabriele Mraz, Austrian Institute of Ecology, made a presentation on the results of a survey Joint Project had conducted in the last months among nuclear regulators. We have asked them 14 questions on their actual status of preparedness for regulating SMR and received detailed answers from several regulators. No one has a license regime ready yet. Most expect simplified licensing for SMR and new types of operators will emerge. Safety and security rules for large NPPs might not be changed for SMR, but alternative way for safety demonstration might speed up the process. Cooperation between nuclear industry and regulators have been started to harmonize standards.

Gabriele Mraz works on participation in nuclear topics, radiation protection and radioactive waste issues. She is a consultant to the Austrian Federal Environmental Agency on environmental impact assessments for nuclear projects and a member of the Austrian Radioactive Waste Advisory Board. She is a member of INRAG and Nuclear Transparency Watch.

Discussion:

Will the new accident tolerant fuel be used in SMR? The licensing of new fuel takes a few years.

In 3 years will be an update of taxonomy.

SMR factory: Researcher calculated that 16 SMRs have to be on the order book to become economically feasible. The SMR deployment needs a huge investment in the supply chain; to prove that markets exist, a full order book is a precondition, but that will not happen until a product is ready.

Estonia does not have a nuclear regulator and yet Estonian lobby for SMR is very optimistic to have the first SMR in operation by 2032 (government says 2035; nuclear lobby says 2032); the favored model should come from Canada, Ontario power generation BWRX-300 Hitachi should be ready in 2028: when inquiring in Canada information was given that it will even be quicker ready now, it will be a first-of-a-kind, the next one will be more expensive; this might be where the road ends that there will never be a factory based one.

Security: A main problem is security, this was defined by a major player in SMR vendors. We need to follow up how SMR security would perform in a war

Is SMR always modular, or customized? The modular reactors would have to withstand all possible external events in all possible sites, this will be expensive.

How will taxonomy effect non-EU countries?

Patricia informs about the upcoming legal challenge of Austria and Luxemburg: The Austrian climate Ministry BMK has prepared an analysis with key issues they want to take to Court on the CDA. The primary law is breached, they also challenge content, not only procedural stuff. Direct action, they will call for annulment, will be brought before General Court. Germany will not join the legal challenge, however some other political statement should be the goal.

2 months after the decision, the CDA will be published in the Official Journal, after that there are two months' time to challenge it.

There is a need to identify "grey areas" in the requirements in the CDA: Permits before 2025 – DGR operable in 2050. Thresholds of GHG for advanced reactors is also 100 g , a review by independent party is foreseen.

CZ says that the HLW repository does not need to be ready in 2050 but when needed and will try to get rid of this condition in the round of update. One of the possible ways to keep nuclear out of getting cheap funds is to prove that the funds for financing DGRs are not sufficient; fixing this fact by raising fees will kill economics of nuclear power plants, as became already clear in CR and Slovenia.

This event is organized by the Joint Project – Nuclear Risk & Public Control (<http://www.joint-project.org/>)

