



Nuclear Norway: Should Thorium be part of the deal?

Norwegian Academy of Science and Letters (DNVA), Oslo, June 11th 2025.

A workshop arranged by DNVA (Groups 8 Teknologi, 3 Geofag, 2 Fysikk) and the Norwegian Nuclear Research Centre (NNRC).

Chair: Deborah Oughton, NMBU (Leader Group 8)

Co-chairs: Arne Brataas, NTNU (Leader Group 2) & Bjørn Jamtveit, UiO (Leader Group 3)

The debate on whether Norway should adopt nuclear energy has been receiving an increasing amount of attention. Technological developments in nuclear energy combined with a desire for emission-free and stable energy sources that can help address the climate crisis have been fuelling this discussion. In addition, a number of private actors in collaboration with Norwegian municipalities have plans for the establishment of nuclear power production. However, if Norway was to go nuclear, what would this potential nuclear future look like? Given Norway's rich thorium resources, what role might thorium play?

To address these questions, we will bring together a broad range of stakeholders, covering academia, authorities and industry, to exchange views and participate in facilitated discussion. Short presentations will address the role of thorium in nuclear industry and its asset as a Norwegian resource; invited presentations from international experts will provide general perspectives on 'new nuclear' from other countries.

In addition to plenary presentations, the workshop will include small break-out group discussion sessions to map out the potential benefits, opportunities and challenges, and to identify areas of consensus and dissent between participants. Summaries of lectures and key conclusions from discussions will be published in a workshop report. All participants will have the opportunity to read and comment on the workshop report before publication.

Topics to be discussed

- Nuclear legacy in Norway
- U or Th fuel? When cheap U from friendly countries is not available
- Reactor technology - Generation III+/IV reactors with U and Th
- Molten Salt Reactors (full scale – China, India) or small modular (e.g. Copenhagen Atomics)
- SMR in general: U or Th
- Potential Thorium reserves in Norway - Links to REE mining
- Th and U cycles, front and back end
- Nuclear driven ships/vehicles
- U and Th being exploited in pharma/medicine
- Nuclear Risks, Security and Proliferation



Programme

09:00 Coffee and Registration

0930-1000 Session I: Introduction and Historical Context

09:30 Welcome: Workshop Objectives and Ground Rules – Deborah Oughton, NMBU/NNRC

09:40 Norwegian Nuclear legacy including the Thorium Committee – Brit Salbu, NMBU

1000-1230 Session 2: Modern Reactor Technology

10:00 Plenary Presentations

- Introduction to modern reactor technology (U and Th) – Sunniva Seim, UiO/NNRC
- Nuclear propulsion – Ole Reistad, DNV and UiO/NNRC
- Thorium reactors – Øystein Asphjell, Thor Energy
- “The view from” – short talks giving perspectives on “new nuclear” from different actors:
 - The EU GIROSCOPE project on off-site consequences of new reactor technology, including the planned High Temperature Gas Cooled Reactor in Poland – Anna Wawrzyńczyk-Szaban, National Centre for Nuclear Research (NCBJ), Poland and Coordinator EU GIROSCOPE project
 - Emergency Preparedness Assessment of SMR including Compact Molten Salt Reactors (CMSR) for marine propulsion – Agnieszka Ewa Hac-Heimburg, Danish Emergency Management Agency, Nuclear Department/Ministry of Defence (DEMA)
 - Sunniva Rose, Norsk Kjernekraft
 - Radioactive Waste Management: lessons learnt from Finland – Ari Ikonen, Envirocase, Finland and Scientific Secretary, BIOPROTA
 - Potential Environmental Impacts of SMRs in Arctic Environments, including Indigenous Perspectives – Carmel Mothersill, McMaster University, Canada,

11:20 Introduction to Breakout Session:

Facilitators

Coffee – “Grab and Go”

11:30 Facilitated Group Discussions (3-4 groups)

1230-1330 Lunch

1330 Plenary Feedback Session I



1400-1730 **Session 3: Resources in Norway**

14:00 Plenary Presentations

- Thorium in the Fen Carbonatite Complex, Telemark, Norway: A realistic future energy resource? – Sven Dahlgren
- Trond Watne, Rare Earths Norway
- Sindre Hassfjell, Thor Medical
- Spent Thorium Fuel Waste or Asset: One person's rubbish is another person's treasure – Simon Jerome, NMBU and METROPOEM

15:00 Facilitated Group Discussions (3-4 groups)

16:00 Coffee

16:30 Plenary Feedback Session II

17:00 Closing Remarks

17:30 Aperitif

18:00 Dinner: Academy of Sciences, sponsored by NNRC

Procedural Notes

This workshop will not discuss WHETHER Norway should adopt nuclear energy, since that is being discussed in many other fora. Instead, workshop will consider the potential role of Thorium, IF Norway decides to “Go Nuclear”. In this way, we can achieve a focused, scientific debate, having sufficient time to explore and discuss the pros and cons of including Thorium in a nuclear programme, and contribute to science policy advice on Norway's potential nuclear future.

All breakout group discussions will be held under the Chatham House Rule: “we report what was said not who said what”. For the purposes of the workshop, participants are assumed to represent themselves rather than their institutions.

A draft report containing brief summaries of plenary presentations, breakout group feedback and overall conclusions will be distributed to all workshop participants by the end of June and comments and suggested revisions will be collected. The final report will be published in August (Workshop Report Editors: Oughton, Salbu, Seim).