

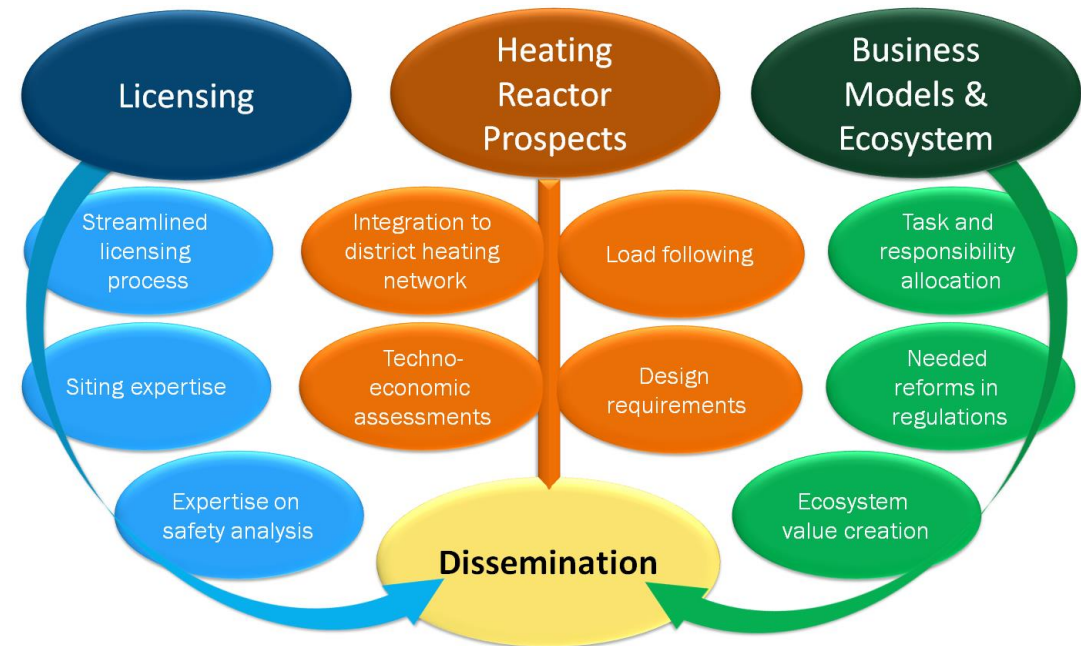
The left side of the slide features a vertical abstract background with a blue color gradient. It contains glowing, intersecting lines and a central circular element that resembles a stylized atom or a complex network structure, all rendered in various shades of blue and white.

EcoSMR

MAIN TAKE AWAYS AND WAY FORWARD

EcoSMR.fi

EcoSMR main take aways



EcoSMR main take aways 1/n

Licensing

- Evaluation of licensing costs is complicated by the lack of publicly available data and due to proving requirements for new safety approaches
- Computational tools available for LWR-type SMRs, but new simulation challenges related to novel passive safety features
- General shape of a new, streamlined licensing process for nuclear reactors is emerging
 - Regulatory approvals of Technology and Site to be sought by respective Owners, independent of specific projects
- Eventual projects can leverage granted approvals

EcoSMR main take aways 2/n

Heating reactor

- Replacing fossil fuels in district heating is challenging, since the usage of biomass and heat from ambient sources (e.g. air and sea water) is restricted by e.g. availability and sustainability criterias
- Heating reactor offers a cheap way of producing heat
- In simulations, heating reactor has been proven to be a technically feasible and safe part of district heating networks
- Finnish district heating networks could accommodate tens of reactors with the unit size in tens of MW to replace production with fossil and bio-based fuels.
- Significant export potential identified for a Finnish reactor in decarbonizing district heating in Poland and desalination worldwide.

EcoSMR main take aways 3/n

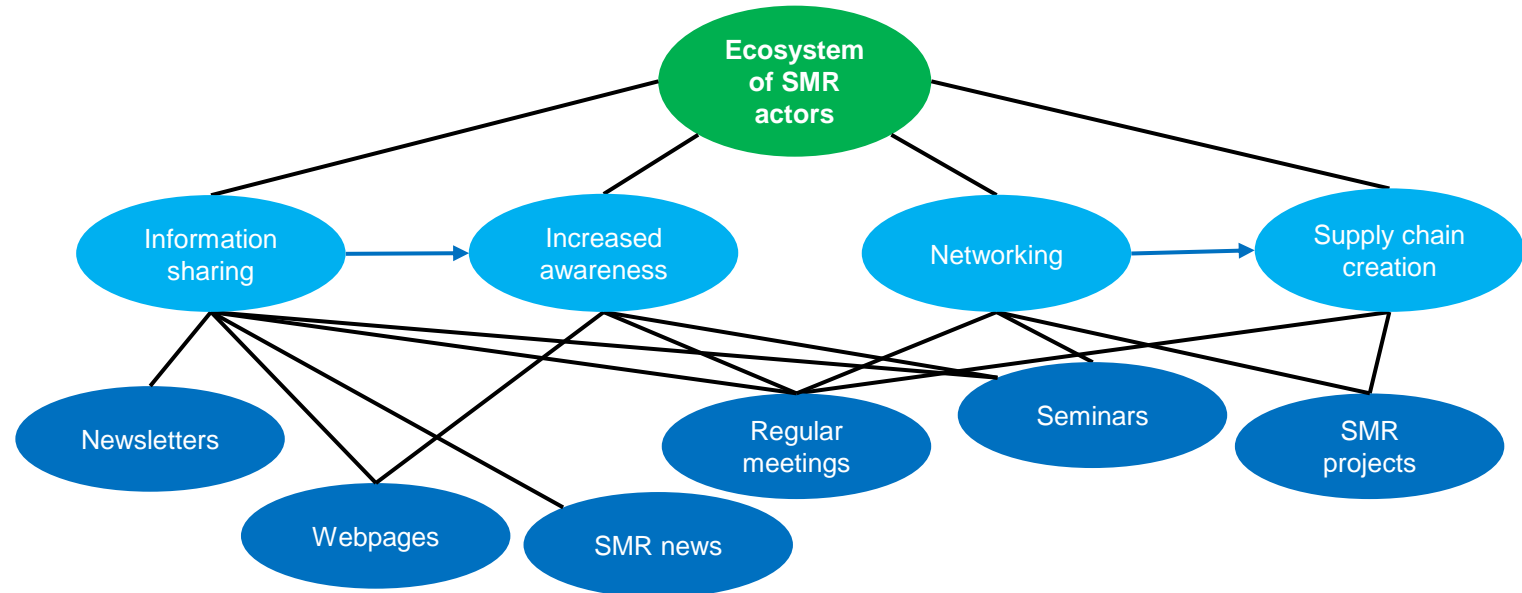
Case studies, business models, ecosystems

- Smaller unit size -> more sites -> learning from diverse cases is important, especially in DH cases where plants are near population centres
- Multiple locations drive "as a Service" business models together with distributed ownership/risks while the service providers have the needed nuclear knowhow
- Volumes, multiple sites and modular manufacturing are novel to nuclear industry -> requires collaborative and innovative ecosystems that both develop and deliver "New Nuclear" goods and services also internationally

EcoSMR main take aways 4/n

- General
 - Interest in SMRs has increased considerably during the project both in Finland and internationally
 - Practically all current reactor vendors have their own SMR design
 - Some interesting designs aim to complete FOAK reactor by the end of this decade. E.g. NuScale's VOYGR™ and GE-Hitachi's BWRX-300
 - Market potential of heating reactors depends essentially on the success of demonstration plant, acceptability and legislation renewal

EcoSMR way forward



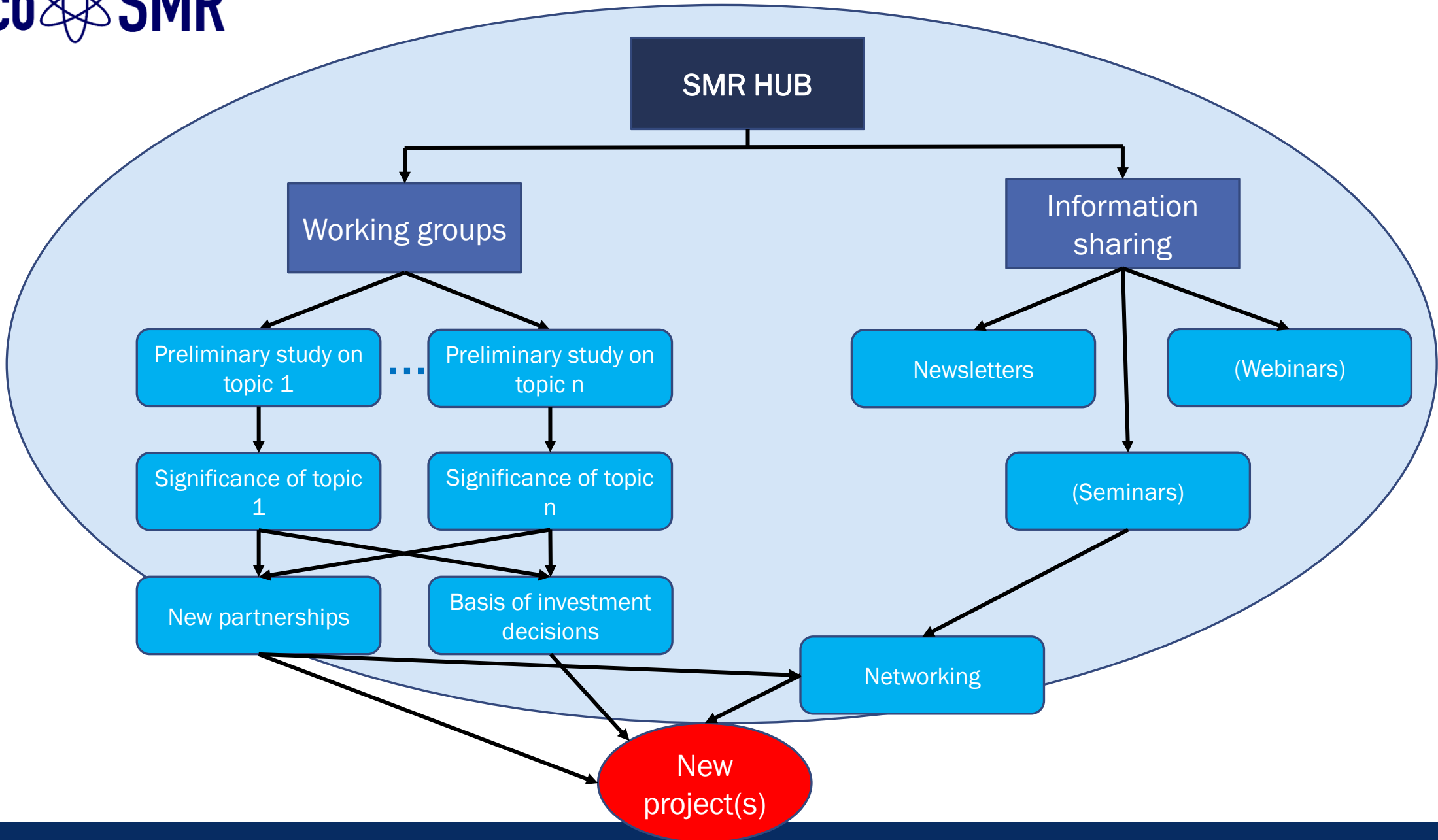
SMR hub challenge and opportunities

- Challenge to tackle

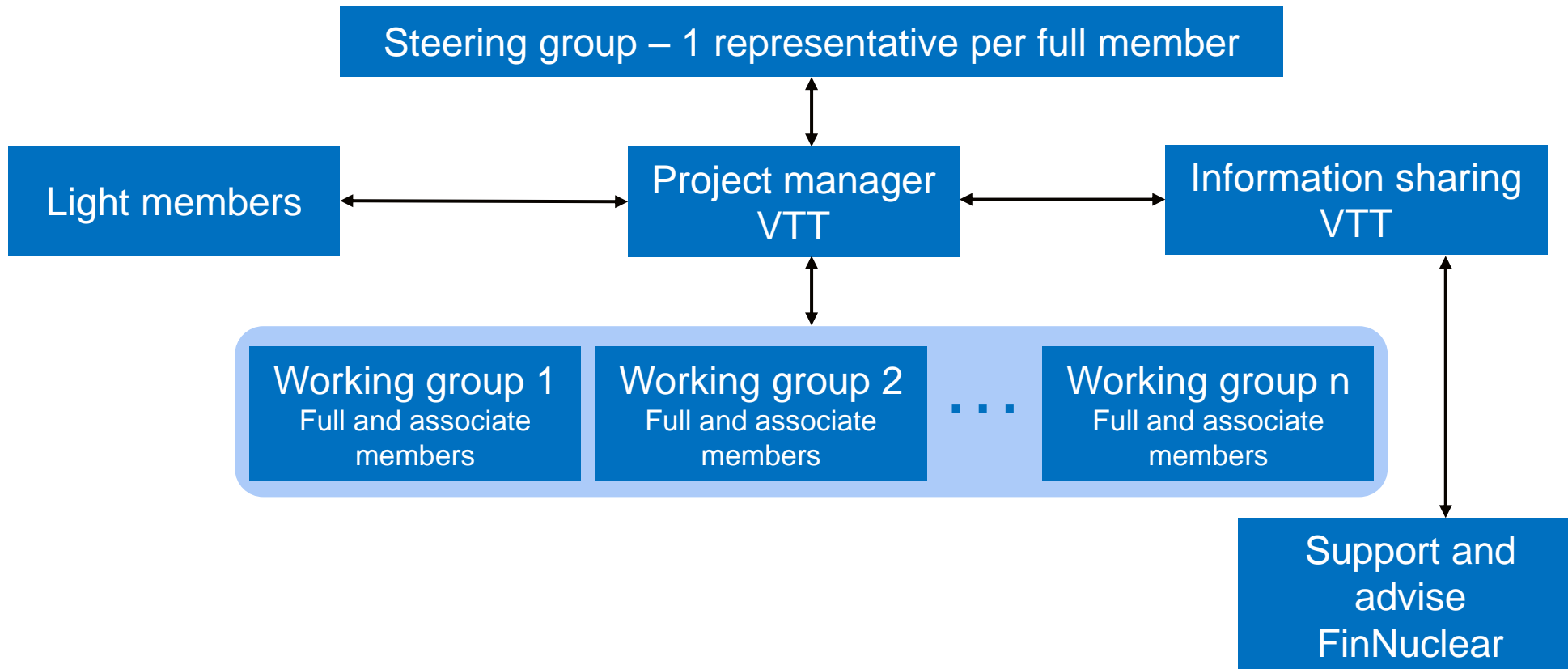
- Competence and supply chain development in SMR related business for Finnish companies in order to enable effective participation in international markets.
- Information sharing and knowledge gathering on available SMR technologies, their feasibility and needed regulatory renewals on the basis of future business decisions for Finnish companies and energy consumers.

- Opportunities for partners

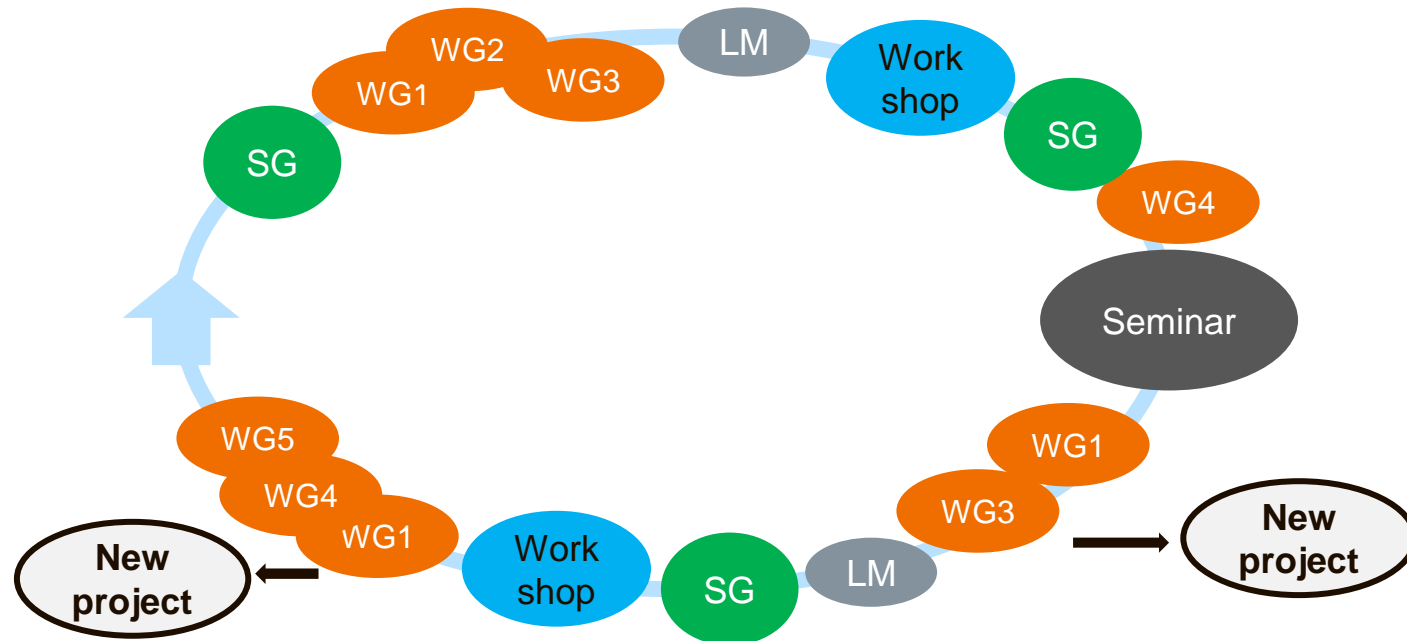
- Becoming part of Finnish and/or international SMR supply chains.
- Gaining know-how needed for participating in international SMR opportunities.
- Insights on suitable SMR investment targets.
- Keeping up-to-date on international SMR news and development.
- Visibility on the project webpages and possible public events such as webinars and seminars



SMR hub organization



SMR hub annual clock



- SG = Steering Group
- WG = Working group
- LM = Light member

SMR hub partner categories

- Full member
 - Companies with a Finnish business ID
- Light member
 - Companies and other organizations new at nuclear and interested in SMRs
- Associate member
 - Like full members, but without access to steering group. Aimed for foreign companies

SMR hub fees (suggestion)

- Light members 500 €/y
- Full and associate members' fee based on company revenue

Revenue [M€]	Fee per year [€]
100 -	6000
10 - 99.999	5000
1 - 9.999	3000
0.1 - 0.999	2000
0 - 0.0999	1000

For more information:

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<https://www.vttresearch.com/en/ourservices/nuclear-energy>

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