



**Welcome to the 2024  
Energiforsk GINO  
seminar**

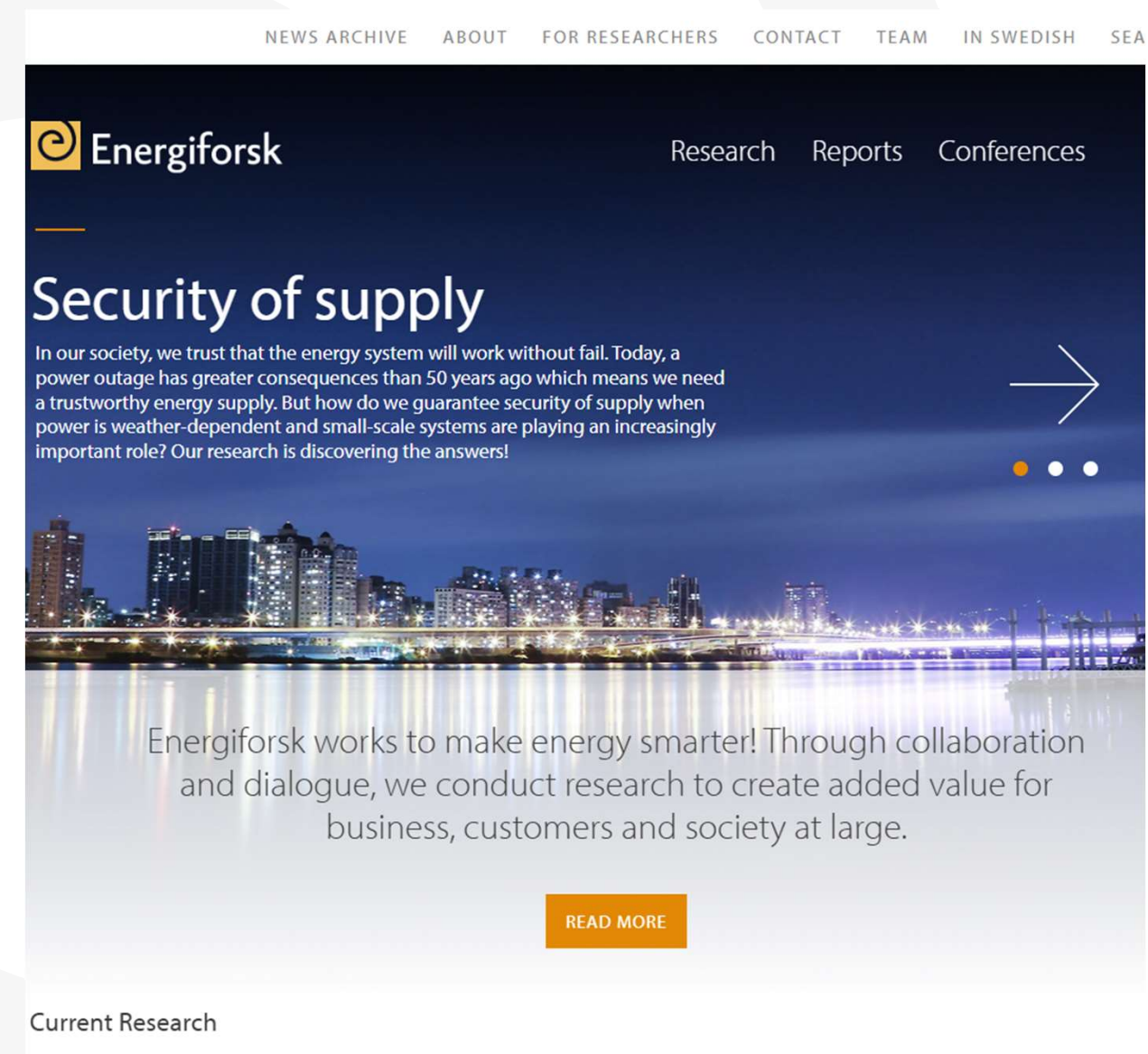
# Who are Energiforsk?

Energiforsk contributes to a robust and sustainable energy system, by facilitating for the energy industry to pool their R&D resources into research and analysis based on industry-wide issues.

Main research areas are:

- **Hydropower**
  - **Thermal energy**
  - **Nuclear power**
  - **Systems & markets**
  - **Solar and Wind**
- also subjects like **Hydrogen, Digitalisation, CCS, forest industry**

Based in Stockholm, main bulk of customers are in Sweden – Nuclear is exception with all Nordic power plants and owners as members



# The Energiforsk Nuclear Portfolio Overview



**The Energiforsk Nuclear Portfolio consists of 7 programs:**

- Concrete technology
- Outlook & Technology
- ENSRIC
- Vibrations
- GINO
- Polymers
- Digitalisation



Karin Westling  
Portfolio manager  
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**The Nuclear Portfolio is funded by all Nordic nuclear power plants and their owners – Fortum, TVO, Vattenfall, Uniper.**

# Energiforsk – Grid Interaction with Nuclear Operations Program

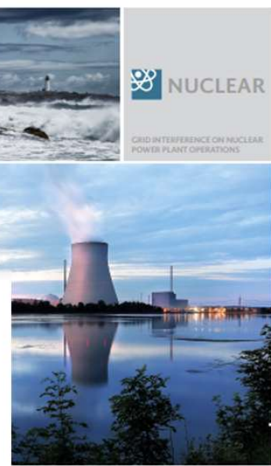
AGEING OF POWER ELECTRONICS IN NPP SAFETY SYSTEMS INCLUDING RECTIFIERS AND UPS SYSTEMS  
RAPPORT 2023/954



SURVEY ON OPERATIONAL EXPERIENCES OF NPPS IN A TRANSITIONING ENERGY SYSTEM GOING FROM BASE-LOAD TO FLEXIBLE OPERATION – GERMANY CASE STUDY  
REPORT 2023/939



SUB-SYNCHRONOUS OSCILLATIONS BETWEEN FPC WIND FARMS, VSC-HVDC LINKS AND NUCLEAR POWER PLANTS  
REPORT 2020/707



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The GINO research programme investigates how events and disturbances in the electricity grid affect the various components of a nuclear power plant.

The purpose is to create a holistic view of the interactions between the external grid and a nuclear power plant. The research will also investigate various specific technical issues concerning the influence from the grid.

<https://energiforsk.se/en/programmes/grid-interaction-with-nuclear-power-plant-operations-gino/>

Program manager: Karin Westling, Energiforsk.

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# Seminar agenda – all times in CET

<b>12.30–12.45</b>	Welcome and introduction – Karin Westling, Energiforsk
<b>12.45-13.25</b>	How to predict space weather - Minna Palmroth, Helsinki University
<b>13.30-14.00</b>	Robustness indicators for power systems - Emil Hillberg & Tommie Lindquist, RISE
<b>14.00-14.20</b>	Coffee break
<b>14.20-14.45</b>	Geomagnetically induced currents in Finnish transmission grid - Ville Volanen, Fingrid
<b>14.45-15.15</b>	Coexistence challenges - Lucas Thomée, DNV
<b>15.15-15.25</b>	Wrap up – Karin Westling, Energiforsk

A scenic landscape featuring a dirt road that winds through a valley towards a large body of water. The sky is filled with dramatic, dark clouds, with a bright light source breaking through, creating a lens flare effect. The terrain is rugged and appears to be in a high-altitude or mountainous region.

**End of seminar**

*Thank you for today!*