



GINO – Grid Interference on Nuclear power plant Operation

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Energiforsk – research in collaboration

- Facilitating research within electricity, heat and gas
 - Utilities/industry/researchers/consultants
 - Initiation
 - Follow up
 - Communication
 - Expert services
- Funding activity by activity with strong involvement from the financiers
- Creating benefits in the form of reports, education, seminars, arenas etc.
- Cost sharing and creating common understanding
- www.energiforsk.se



Nuclear portfolio 2016

Concrete

GINO – Grid interference
on nuclear operations

Vibrations

ENSRIC – Safety
related I&C systems.

Strategic
Monitoring

COMRADE – Acceptance
criteria polymeric materials

Stakeholders



Strål
säkerhets
myndigheten

Swedish Radiation Safety Authority



GINO

- Vision: The external grid should not cause any unforeseen impact on systems or functions causing interruption in any plant state
- Focus areas:
 - External grid effects on components
 - Replacement strategies
 - Electromechanical resonance phenomena in the external grid
- Steering group with experts from SSM, OKG, TVO, Forsmark, Ringhals and SvK
- Program period 2016-2018



Activities/project ideas

- Survey of operational events from the off-site power system with focus on retrofit of mitigating actions
 - Results presented today
- Survey of methodologies to verify that the outer grounding line network in the nuclear power plants is intact
 - Pre-study will start within shortly
- Sub-synchronous resonance phenomenon
 - Workshop is planned for fall 2016
- Synthetic inertia
 - Still on an idea stage

