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- Builds and communicates knowledge through cooperative research
 - Energy industry
 - Authorities
 - Researchers
 - Suppliers, consultants etc.
- Activities in the entire field of energy
 - Initiated to fulfil identified industry needs
 - From PhDs to applied projects
- Building results in the form of technical reports, state-of-the-arts, seminars, workshops, guidelines, educations etc.
- www.energiforsk.se

Nuclear portfolio activities 2020



Concrete & civil works

Strål
säkerhets
myndigheten
Svensk Radiation Safety Authority



GINO Grid/plant interact.

Strål
säkerhets
myndigheten
Svensk Radiation Safety Authority



Outlook & Technology



Polymer aging

Strål
säkerhets
myndigheten
Svensk Radiation Safety Authority



ENSRIC

Strål
säkerhets
myndigheten
Svensk Radiation Safety Authority



Digitalization in nuclear



Vibrations



BREDA
RPV Embrittlement

VATTENFALL 

uni
per

fortum
tvo

Skellefteå
Kraft

ENERGI
karlstadsenergi.se

 Energiforsk

ENSRIC – Energiforsk Nuclear Safety Related I&C

Finalized activities

- Lifetime extension of analogue I&C equipment
 - Field trips to several markets and international seminar
- Wireless
 - Mapping and international seminar
- Industry standard components
 - Mapping and international seminar
- Safety demonstration and harmonized licensing
- Licensing and asset management of digital platforms
- FPGA:s
 - Mapping and international seminar



Download results from finalized activities

Project	Documentation
KKU51335 Safety classed equipment and COTS in other industries, Sofia Guerra, Adelard	Report 2019:627 COTS Digital Devices in Safety Critical Industries Documentation from seminar held Oct. 23, 2019 in Stockholm
KKU51333 Upgrade strategies, Fredrik Bengtsson, ÅF	Report 2019:620 Upgrade Strategies for Digital I&C Systems Executive slides
KKU51332 Licensing of digital platforms, Karin Ferm, Evidente	Report 2019:562 Implementing Computerized Instrumentation and Control Systems at Swedish Nuclear Power Plants Executive slides
KK51328 Seminar wireless in nuclear applications	Report 2018:514 Wireless in Nuclear Applications Seminar Report Link to seminar documentation. Link to executive slides
KK51327 General update SDPG, Marie-Louise Axenborg, Solvina	Report 2018:512 Safety Demonstration Plan Guide
KK51325 Feasibility study Wireless in nuclear, Arto Laikari, VTT	Report 2018:513 Wireless in nuclear
KK51323 Covering NPIC & HMIT 2017, Emil Ohlson, Forsmark	Report 2017:448 Trends in Nuclear Instrumentation and Control Systems 2017
KK51322 Harmonized component level safety demonstration documentation, Nick Chozos, Adelard	Report 2018:475 Harmonized Component Level Safety Demonstration
KK51321 Seminar + synthesis + layout lifetime extension of nuclear I&C	Link to seminar documentation. Link to synthesis report.

Project	Documentation
KK51320 Market survey of France, Anna-Karin Sundquist, Vattenfall	Report 2016:338 Reengineering and reverse engineering
KK50329 Nyttillverkning av analog styrelektronik, Ted Eriksson, Chalmers	Report 2016:266 Nyttillverkning av analog styrelektronik
KK50328 Covering NPIC & HMIT 2015, Emil Ohlson Vattenfall	Report 2015:115 Trender och tendenser inom kärnkraftsrelaterad mät- och styrutrustning
KK50326 Participation in the PLANS project, Pontus Ryd Solvina	Report 2016:237 Safety Demonstration Planning for Digital I&C Projects
KK50325 Experience from asset management of installed safety related programmable platforms/systems in Nordic NPPs, Karin Ferm Semcon	Report 2015:147 Experience from asset management of installed safety related programmable platforms/systems in Swedish NPPs
KK50324 Lifetime extension of present systems - investigation of GE/Westinghouse programs and the strategies of U.S. utilities, Anna-Karin Sundqvist Vattenfall	Report 2015:159 Life time extension of present analogue I&C systems
KK50323 FPGAs in safety related I&C applications in nordic NPPs, Sofia Guerra Adelard	Report 2015:112 Field Programmable Gate Arrays in safety related instrumentation and control applications
50335 Reengineering market survey Germany and Belgium, Annika Leonard	Report 2016:338 Reengineering and reverse engineering
50334 Partial replacement of analogue equipment to digital, Karin Ferm Semcon	Report 2016:324 Upgrading to modern computerized I&C systems
50332 Reengineering or Reverse Engineering- two methods of replacing obsolete equipment, Annika Leonard Vattenfall	Report 2016:307 Replacing obsolete nuclear instrumentation and control equipment
50331 Verification and validation of FPGAs in safety related I&C applications in Nordic NPPs, Sofia Guerra, Adelard	Report 2016:268 Verification and validation techniques for I&C applications in Nordic NPPs
Safety Demonstration Plan Guide, Pontus Ryd, Solvina	Report 2013:85 Development of a Safety Demonstration Plan Guide