

NordGrid

Webinar I – Introduction to the programme, the first Call, and TSO involvement.

Agenda

- Introduction and welcome
- NordGrid programme – Short introduction
- NordGrid – The first call
- Transmission System Operators priorities
- Q&A

Introduction and welcome



Nordic Energy Research

- Institution under the Nordic Council of Ministers
- Manage and finance international research programs and projects
- Add value to national work in the Nordic countries
- Perform secretariat and analytical functions to support Nordic energy policy cooperation.



NordGrid programme – Short introduction

*«NordGrid is a research, development,
and demonstration program focusing on
smart electricity transmission»*

NordGrid – The first Call

Funded by:

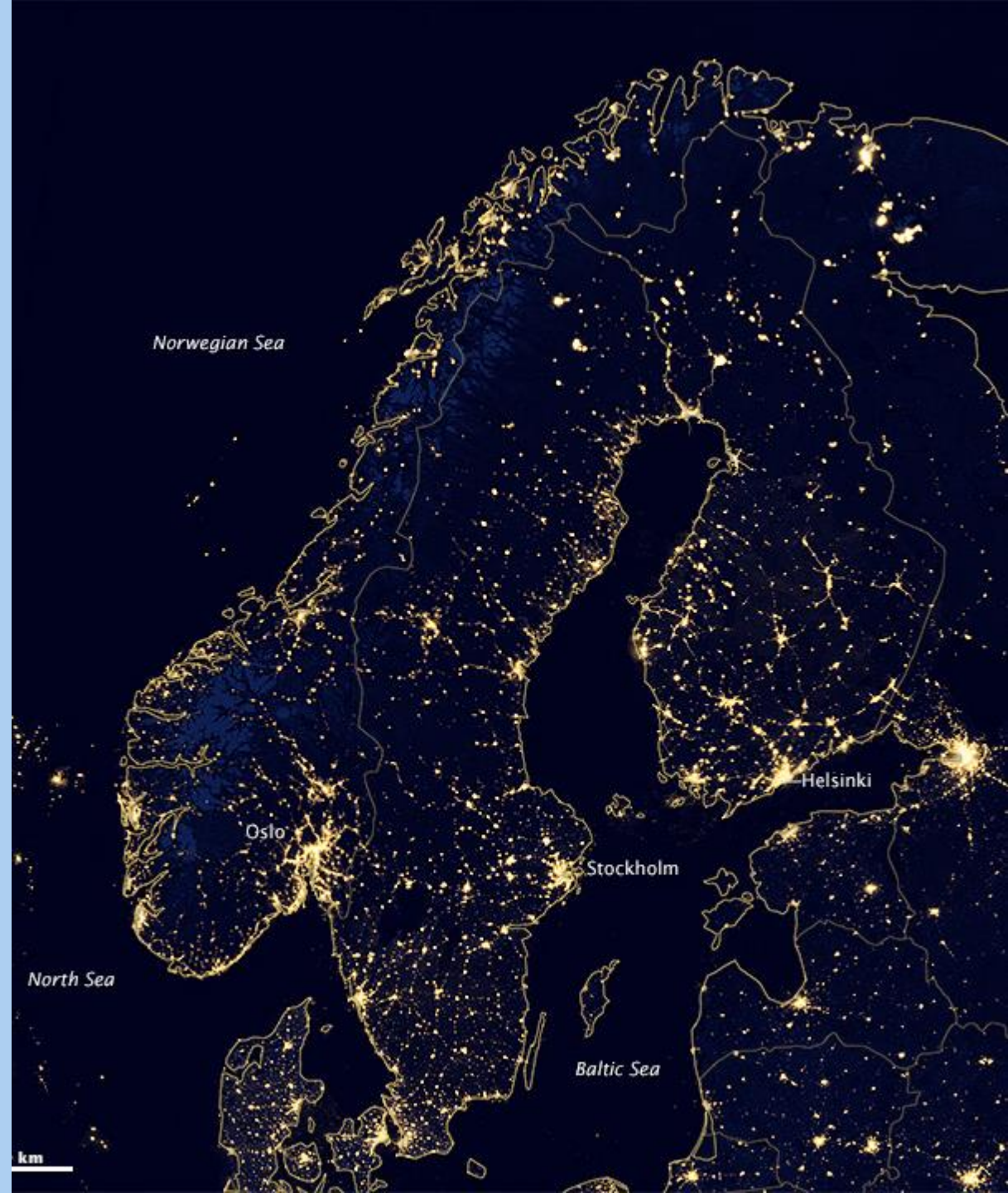


NordGrid




"Decreasing the future digital vulnerability of the Nordic Transmission system"

Full call text available here:

<https://funding.nordforsk.org/portal/#call/2264/details>



Funding:

Total	Financier	EUR 3,85 million
Denmark	 nnovationsfonden	EUR 1 million
Sweden	 <i>Swedish Energy Agency</i>	App. EUR 1 million*
Finland	BUSINESS FINLAND	EUR 1 million
Nordic Co-Fund	 Nordic Energy Research	App. EUR 0,85 million**

Key eligibility criteria for consortiums

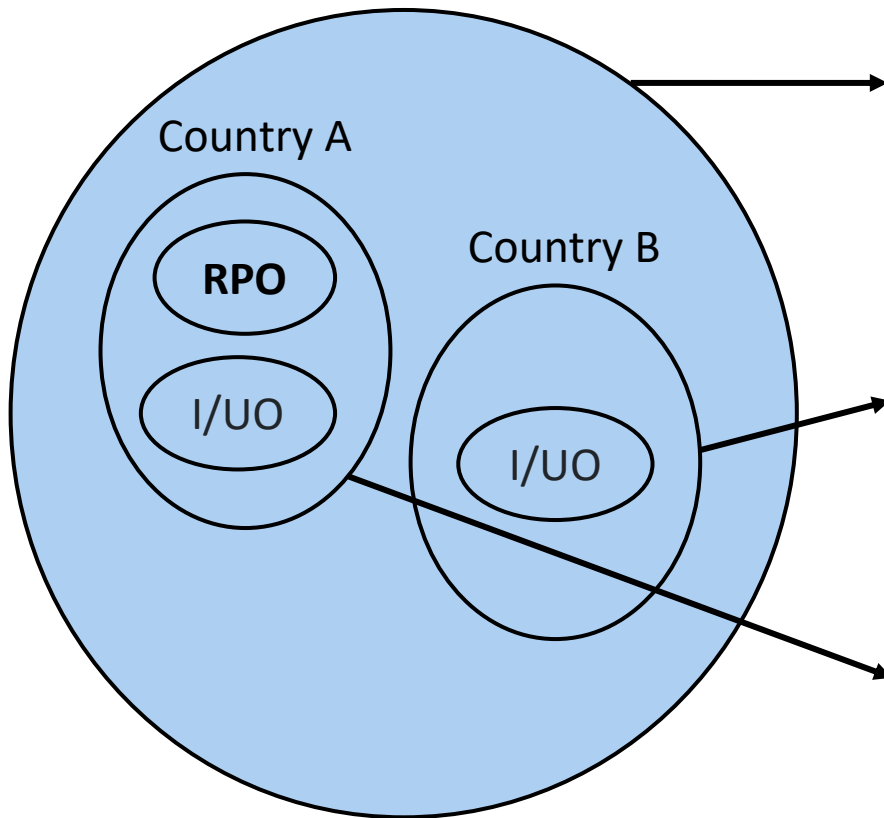
- ✓ Participation from two or more Nordic countries.
- ✓ Project Owner must be a Research Performing Organisation (RPO) based in one of the Nordic countries.
- ✓ Project Manager must be an established senior researcher
- ✓ TRL level 4 or higher
- ✓ Sum applied should not exceed maximum limit (EUR 1,2 million).
- ✓ At least one partner from an industry/user organisation (I/UO) for each national financier sought for funds.

How to apply

How to apply

(If national funds available)

Build a consortium



Ensure eligibility and fundability

Check call text:

- Thematic scope
- Financial framework
- Eligibility

Contact National Financier B

- Eligible for funding?
- National application?

Contact National Financier A

- Eligible for funding?
- National application?

Draft application

Webinar II:
Q&A to
application
portal

Submit
application

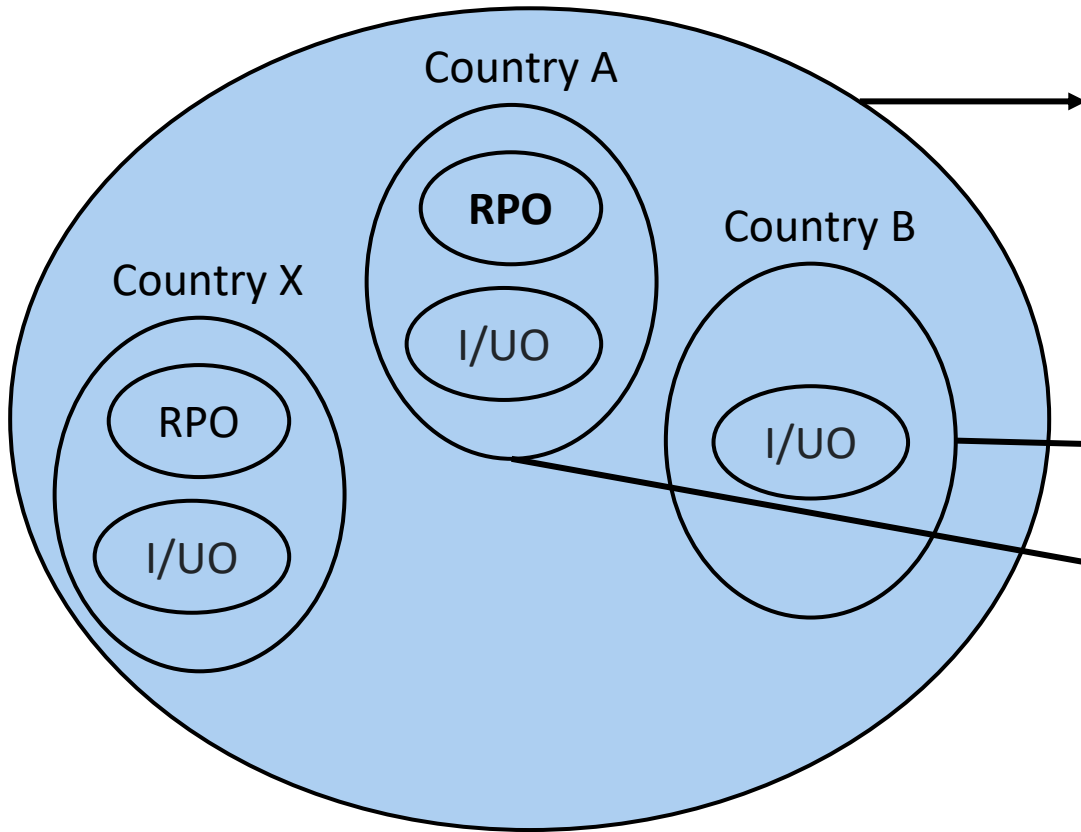
NordGrid

RPO = Research Performing Organisation
I/UO = industry/user organisation

How to apply

(Without national funds available, “country x”))

Build a consortium



Ensure eligibility and fundability

Check call text:

- Thematic scope
- Financial framework
- Eligibility
- And so forth

Contact National Financier B

- Eligible for funding?
- National application?

Contact National Financier A

- Eligible for funding?
- National application?

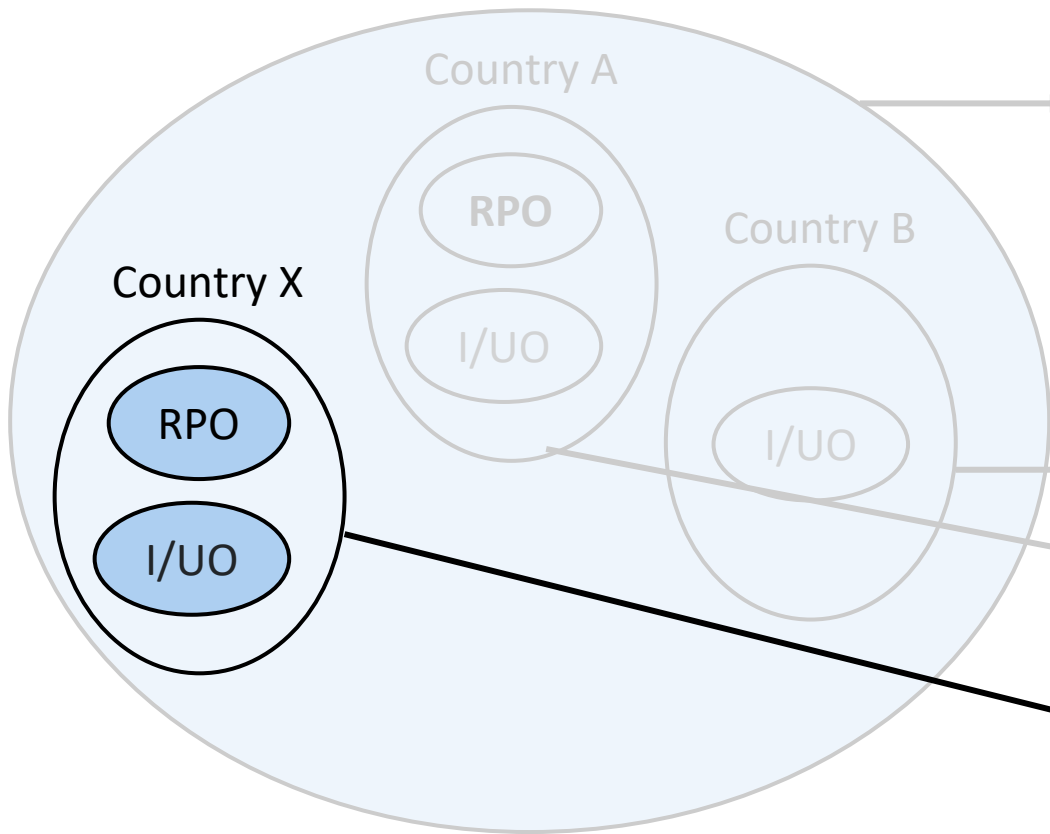
RPO = Research Performing Organisation

I/UO = industry/user organisation

How to apply

(Without national funds available, “country x”)

Build a consortium



Ensure eligibility and fundability

Check call text:

- Thematic scope
- Financial framework
- Eligibility
- And so forth

Investigate: Fundable through National Financier A or B?

Investigate: In-cash available from RPO or I/UO from country A,B or X?

Contact National Financier B

- Eligible for funding?

Contact National Financier A

- Eligible for funding?

RPO = Research Performing Organisation
I/UO = industry/user organisation

Application process

Call opened	11 th of March 2021
Kick-off Webinar for applicants	22 nd of March
Webinar II: Q&A to application portal/process	7 th of June 2021
Submission Deadline	16th of June 2021 , 13:00 (CEST)
Decision communicated	At latest the 15 th December 2021
Project start date	No later than the 15 th March 2022

Next webinar : Q&A to application portal

7th June 2021

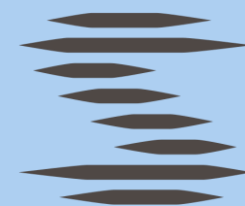
Register here:

<https://www.eventbrite.dk/e/webinar-ii-nordgrid-program-tickets-144376109831>

Transmission System Operators - priorities

FINGRID

Statnett



**SVENSKA
KRAFTNÄT**

ENERGINET



FINGRID

focus and interest areas

Focus and interest areas (1/2)

(Open) data-based assessment of new energy resources in power system operation

How to manage and track fast increase of renewable production* and demand side flexibility**?

How to ensure quality of Nordic forecasts to better estimate the balancing needs and power flows?

How to support decision making in the operation of complex energy system?
(e.g. use of probabilistic and data driven methods, AI)

Increasing the flexibility available from new energy resources

How to accelerate the availability of flexibility from P2X?

How to control new resources*** to release the flexibility?

Focus and interest areas (2/2)

Considering extreme unidentified incidents with large impact on the system

How to prevent cascading situations due to some common mode failure or technical specification?

What are the common system dimensioning principles in different environmental situations (e.g., icing, high/low temperatures etc.)?

How to further increase the reliability of HVDC and telecommunication systems?

Real time coordination between energy sectors

How different control centers coordinates with each others when sectors are strongly integrated?

What data is needed to enable the situation awareness for the whole energy system?



Statnetts R&D Programs and focus in 2020 - 2023

Stat**nett**

Statnetts R&D Programs and focus in 2020 - 2023



Co-operation in the energy system

Develop and drive interaction between network level, customers and industries and mature markets for flexible resources and capacity. Data driven grid planning.



Digital, safe and cost-effective assets

Develop expertise, methods, solutions and technology that contribute to digital, secure and cost-effective assets and their management



Real-time control and effective markets

Develop methods and system solutions that contributes to effective data-driven and automated decision support for future challenges in market and system operation.



Continuous know-how development

Build strategic knowledge environments at universities, research institutions and the industry in general through strategic alliances with selected environments to develop competence for the future.



EHS



Cost





Digitalization




Know-how



Value creation

Program	Area	Specific Challenges
Co-operation in the Energy System 	Electrification and co-operation	<ul style="list-style-type: none"> • How can decarbonisation be realised in a social economic and sustainable way, including the role of energy storage? • How can communication between stakeholders be increased? • How can Norway contribute to the energy transition of Europe
	Smart and flexible grid development	<ul style="list-style-type: none"> • Solutions for increased flexibility in the energy system
Digital, safe and cost-effective assets 	Primary Components, external impact and retrofit	<ul style="list-style-type: none"> • State estimation • Re-investment and retrofit methods • Interoperability • Compact installations, new technology and solutions
	Digital Assets	<ul style="list-style-type: none"> • Digitalisation of components and assets
	Personnel safety	<ul style="list-style-type: none"> • Use of drones and robot to reduce the use of helicopter and methods to improve SHE • Secure assets against external influences and environmental aspects of assets

Program	Area	Specific Challenges
Real-time control and effective markets 	Monitoring and control philosophy	<ul style="list-style-type: none"> • How to use data for optimal decision support • Automated solutions for monitoring, protection and control • Real time communication and data exchange between countries • Early identification of failures and instabilities • How fast is real time and how fast should it be?
	Operational challenges and market design	<ul style="list-style-type: none"> • How to design good on-line market models: Technologies and methods for integration of irregularly renewable • Increased automation of operation and market solutions • Increased efficiency and better use of infrastructure with help of data supported decisions
	Smart data and cyber security	<ul style="list-style-type: none"> • How to secure security of supply when the IT teams let us down? • How to build in cybersecurity in the digitalised power system with AI, sensors, communication and - protocols? • Which know-how is needed to operate a more automated control? • What technologies are best suited to solve our operational challenges • How to automatise testing with the system on-line? • How to ensure data integrity • Which technologies are best suited for detection, handling and repair of cybersecurity threats and events?

How to submit project proposals

<http://www.statnett.no/en/Sustainability/Research-and-Development-/Project-proposals/ProjectProposal/>

- More up to date information about areas open for proposal submission

[Do you have a project proposal? | Statnett](#)

- More information about Statnett's R&D

[Research and development | Statnett](#)

- Contact information

[Research and development | Statnett](#)

Submit R&D proposal

Required fields are marked with asterisk (*)

About proposer

First name *	Surname *
<input type="text" value="John"/>	<input type="text" value="Doe"/>
Organization *	
<input type="text" value="Organization name LTD. or 'Private person'"/>	
Phone number *	E-mail *
<input type="text" value="+4712345678901234567"/>	<input type="text" value="john.doe@example.com"/>

Your proposal

Title *
<input type="text"/>
What kind of problem do you want to solve? *
<input type="text" value="Describe the problem you want to solve and why"/>



NORDGRID webinar

Robert Eriksson / Göran Ericsson

2021-03-22



**SVENSKA
KRAFTNÄT**

R&D areas of interest I

- > Security aspect in control room applications and digitalization
 - > Human interaction and interpretation of data
 - > Spoofing
 - > Detection of abnormalities in decisions or control actions

R&D areas of interest II

- > Power system operation
 - > Security of cloud control and digitalization in flexibility for example EV charger
 - > Risk assessment and decision support (eg. Big data analysis and AI)
 - > in case of events including look ahead forecasting
 - > during maintenance
 - > new flow patterns
- > Real time control

ENERGINET

Poul Brath, Senior Innovation Manager, Energinet

TWO EXAMPLES WITHIN THE MARKETS AND SUPPLY SECTOR

BUT ENERGINET'S INTEREST IN DIGITALIZATION IS LARGER

IEC 61850 standard communication protocol

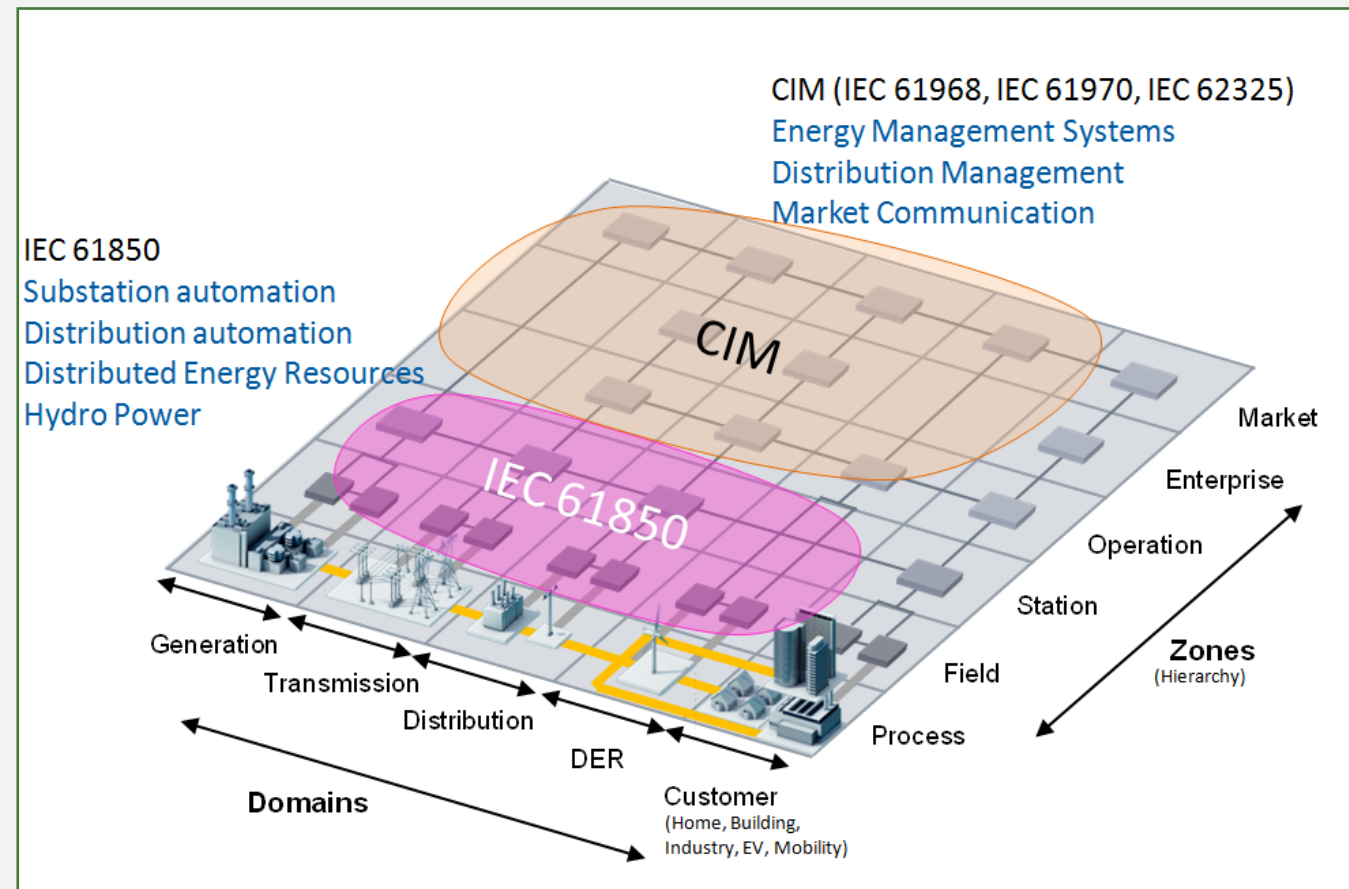
New Nordic Early Warning Preventic System
NEWEPS



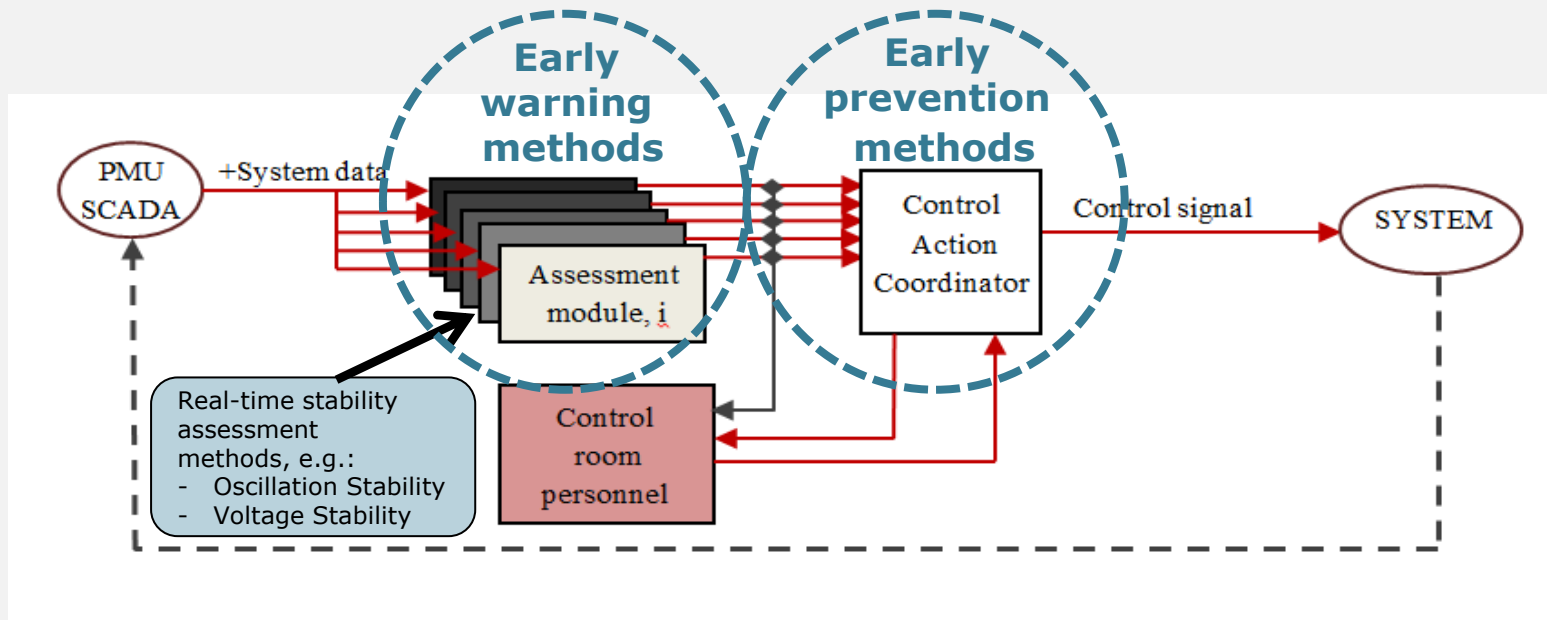
Why?

- Market solutions for integration of production and demand agents are critical for future balancing of the grid.
- For smooth activation and communication with DER, flex assets and power plants a standard protocol is required
- We aim at open source standard to accelerate the use

IEC 61850 STANDARD COMMUNICATION PROTOCOL



- Need European participation to enable market pull
- Hence, broad European cooperation
- Global institute to host open source standard



Intention:

Capacity and operational limits to be better known.

System **predict** and warn in near real-time when margins are critical **calculate the best available countermeasures**

The problem to target:

Rapid change in power production and market conditions

The solution:

Improved monitoring and control to secure optimal utilization of assets

NEW NORDIC EARLY WARNING
PREVENTIC SYSTEM - NEWEPS

Read more on Nordic TSO
involvement here:

<https://www.nordicenergy.org/article/nordgrid-call-opens-the-nordic-tsos-are-looking-for-co-operation/>

Q&A

Kevin Johnsen, Senior Adviser

Email: kevin.johnsen@nordicenergy.org

Svend Søyland, Senior Adviser

Email: svend.soyland@nordicenergy.org

