

The *DeVID* project

Demonstration and Verification of Intelligent Distribution networks

Presentation at IEA DSM Workshop

Trondheim 2012-04-18

Plan

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Background

- The Norwegian electric energy sector faces substantial challenges in the coming years related to the implementation of AMI and other Smart grids technologies
- There is a need to:
 - Test and verify Smart grid methods and technologies
 - Reduce risk related to large investments to come
 - Increase energy industry competence regarding Smart grids issues



Background (ii)

- To face (parts of!) this challenge, the DeVID-project was established on initiative from central actors in the Norwegian Smart grids community
- The Project proposal was submitted October 2011, with a total budget of approx. 38 MNOK (~4.8 M€)
- Support was received from the Research Council of Norway December 2011
- The Project is starting up 2012 (now!)

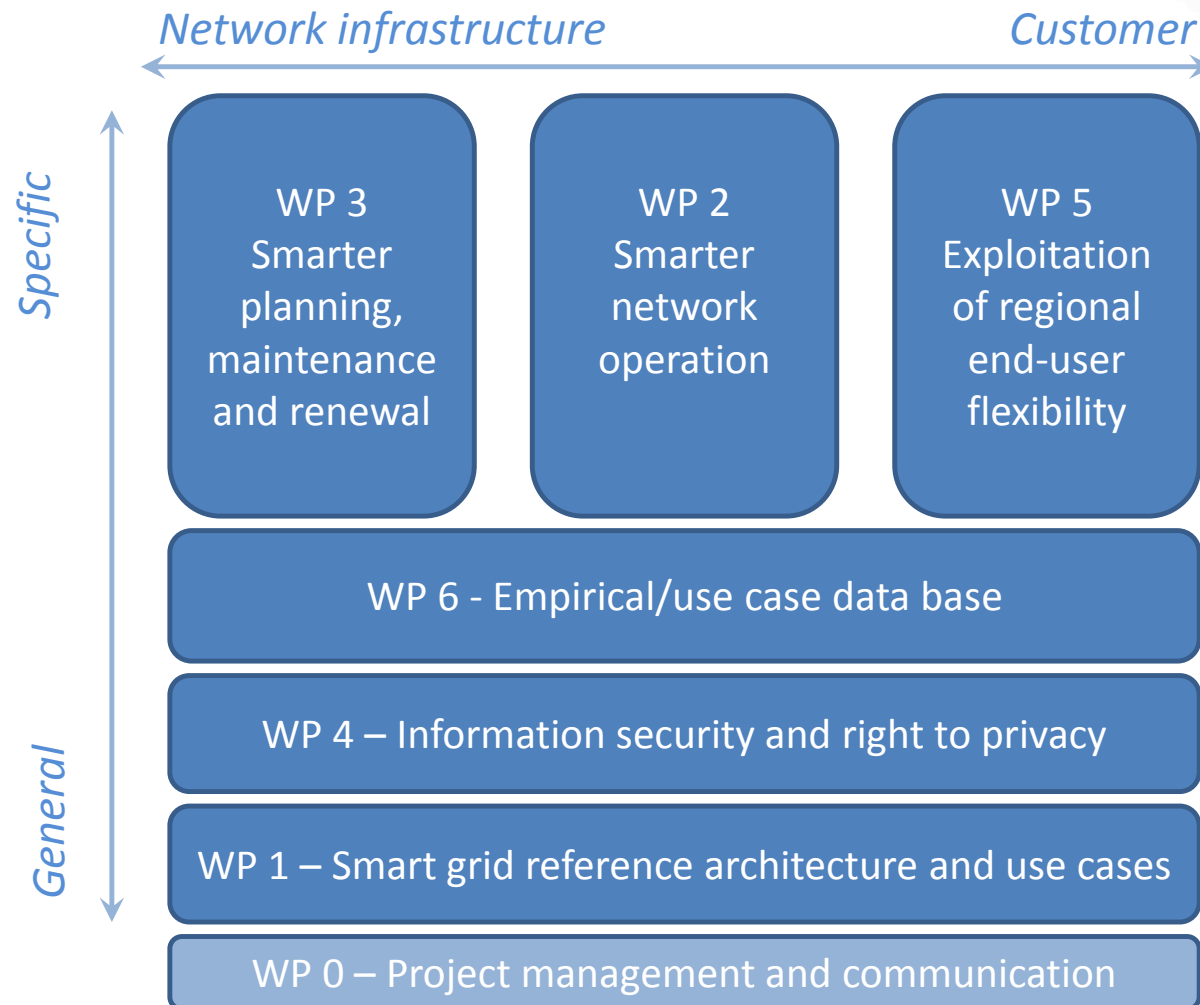
About the project

- The main idea of the project is to provide a novel and better knowledge basis for decision makers who shall purchase, deploy and/or develop Smart grids technologies
- Development and demonstration of technologies and decision support methods is central in the work
- The project is performed in close cooperation with two demonstration sites; *Demo Steinkjer* og *Smart Energi Hvaler*





Project structure



Project partners

- NTE Holding (*project owner*)
- Fredrikstad Energi AS
- The Norwegian Smart grids centre
- SINTEF Energi (*Research partner*)
- SINTEF IKT (*Research partner*)
- NCE Smart Energy Markets (*Research partner*)
- ABB
- Agder Energi Nett
- Arena SmartGrid Services
- BKK Nett AS
- Echelon
- Eidsiva Nett
- Embriq
- EnergiNorge
- Enfo Energi
- Hafslund Nett
- Helgelandskraft
- IBM
- Istad Nett
- Lyse Energi
- Morecom
- Navita
- NCE Smart Energy Markets
- Nordlandsnett
- NTE Nett AS
- Odin Media
- Powel
- Prediktor
- Siemens
- Skagerak Nett
- Statnett
- Sør-Trøndelag Fylkeskommune
- Tieto
- Tiny Mesh
- Troms Kraft Nett
- TrønderEnergi Nett
- Østfold Fylkeskommune

The demonstration sites

Demo Steinkjer

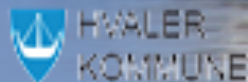
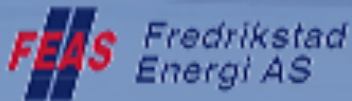
www.demosteinkjer.no

Smart Energy Hvaler

www.smartenergihvaler.no

Smart Energi Hvaler

- «Smart Energi Hvaler» is a frame program involving all research, development and innovation activities related to energy at Hvaler

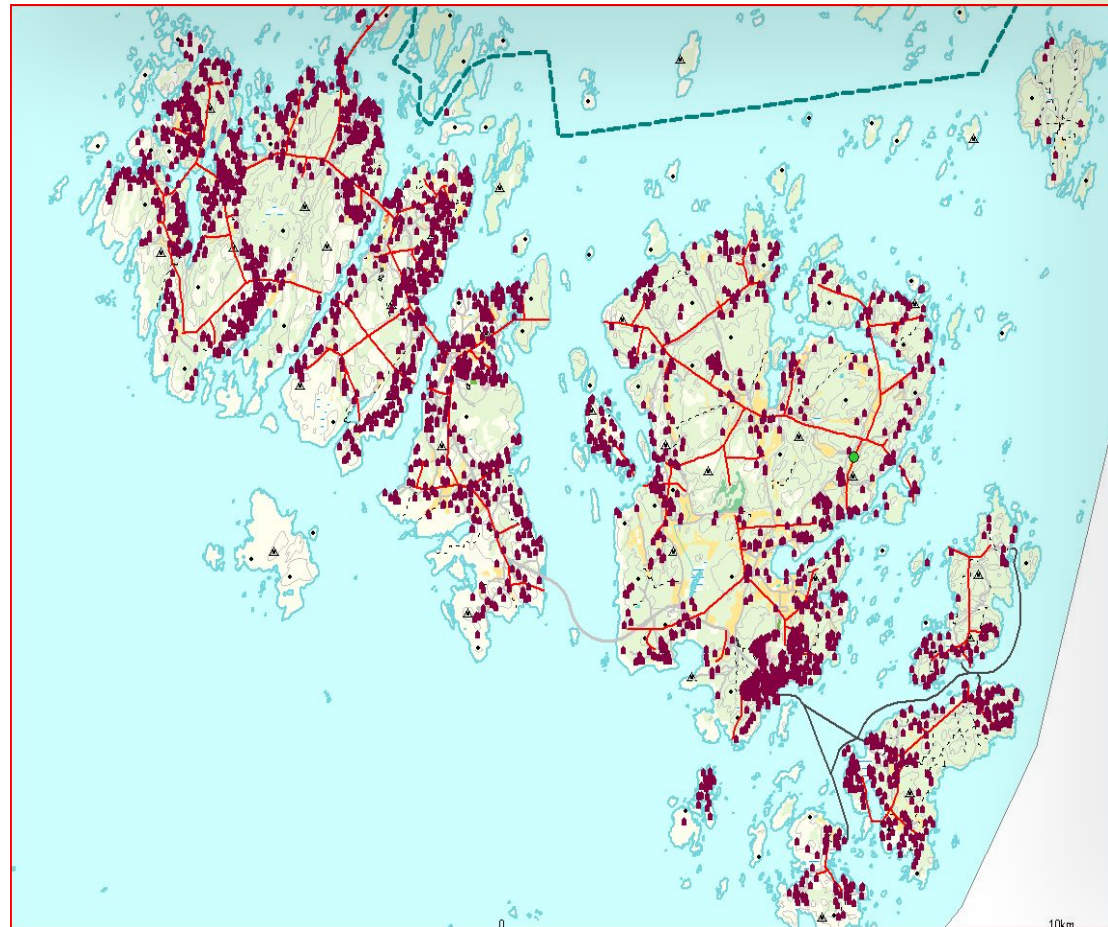


- Slide from Fredrikstad Energi

Smart Energy Hvaler



- Four «main islands» and 16 small ones
- 6.800 load points with AMS
- 4.300 cottages
- 50 kV radial supply
- 1 primary substation, 30 MW
- 18 kV HV network (110 km OHLs)
- 206 secondary substations (MV/LV)



Goals – Demo Steinkjer



The overall goal is to offer a fibre-based **infrastructure** well suited for investigating, testing and benchmarking **technology** and **business models** that will lead to a **smarter** and more efficient use of the power system, focussing on **customer** benefits. This can be divided in the following main activities:

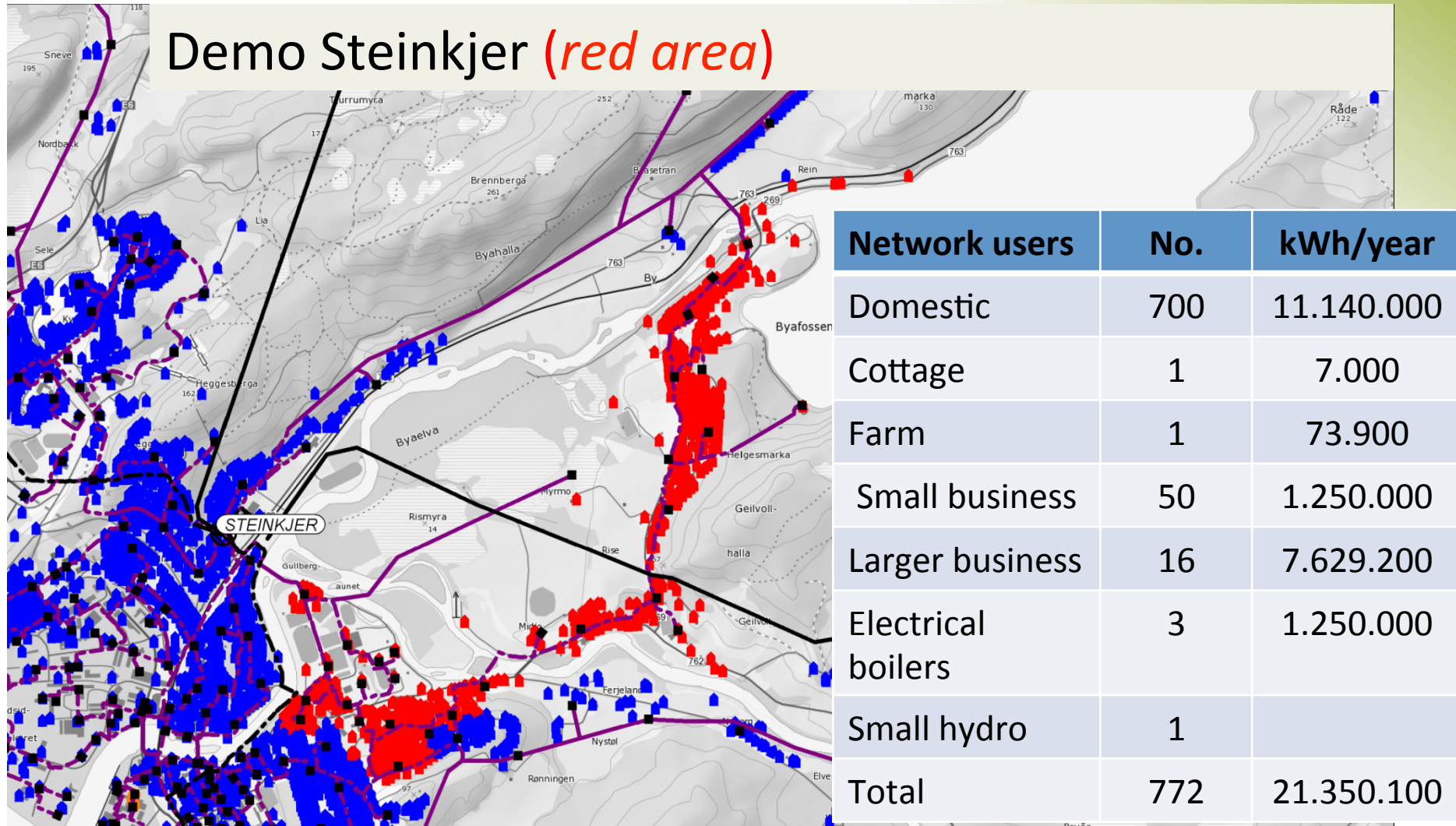
- Optimize power system operation/fully utilize the infrastructure
- Increase QoS (quality of supply) and efficiency (benefit/cost)
- Balance consumption to power production and bottlenecks.
- Seamless integration of distributed generation.
- Show customers how to control their consumption and exploit dynamic prices and tariffs.

- Improving the Mid-Norway power system situation will have a high priority.



- *Slide from NTE*

Demo Steinkjer (red area)



Tegnforklaring Nettdata:

	Trasé m / ukjent innhold		01 Stolpe
	Overførings Linje / Kabel		'Nr Navn' Trafo
	HS Linje / Kabel		A1 Fordelingsskap
	400V Linje / Kabel		001 Inntaksnr.
	230V Linje / Kabel		Kum
	Rør		Fiberkabel

Tittel: Kunder på Steinkjer-22GU1



Krets-nr./navn/Område:

Utskriftsdato:

2010.12.21

Gyldighet:

1 Måned

Sign:

størvold



Målestokk
1:25000

Euref89 zone 32

Project activities

- The work packages are starting during 2012, and some initial activities have already been launched:
 - WP 1: Smart grids reference architecture and use cases
 - WP 2: Smarter network operation
 - WP 3: Smarter network planning, maintenance and renewal
 - WP 4: Information security and right to privacy
 - WP 5: Regional end-user flexibility
 - WP 6: Empirical / use-case database
- The WPs will deliver both short term and long-term results

Conclusions

- The electrical energy system in Norway will see substantial changes in the coming years
- There is a need to improve the knowledge base and strengthen competences regarding Smart grids technologies and their use
- The DeVID project will contribute to meet this need