



Smart grid gives new business opportunities and end-user services

Dagfinn Wåge, Head of Innovation, Lyse Energi AS



Agenda


- › Lyse a multi-utility company
- › The importance of innovation & business models
- › The Lyse Smartgrid customer-facing part: Automatic Metering System (AMS)
 - The beginning
 - The present
 - The future
- › My favourite report – summarized in one page

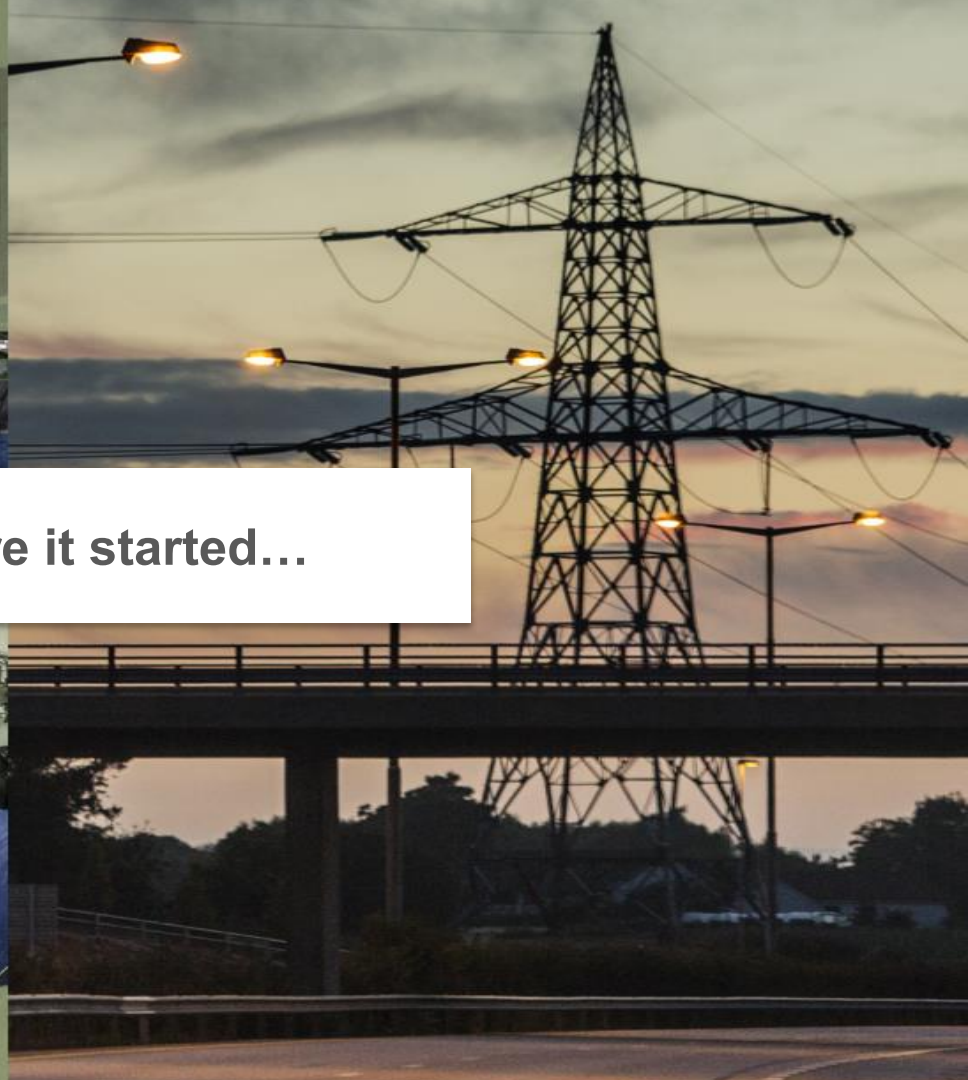
The Lyse Group – a short intro



The Pulpit Rock
located 30 km from the Lyse's main office

#1 natural wonder – **CNN**

#1 most breathtaking viewing platform – 



This is where it started...

Multi utility:

Diversification has been our strategy since 2001



- Electricity
- Natural gas
- LNG
- District heating and cooling
- Bio gas



- Power distribution grid
- District heating grid
- Gas grid
- Fast charging stations
- Bio gas fuel stations
- Fiber grid



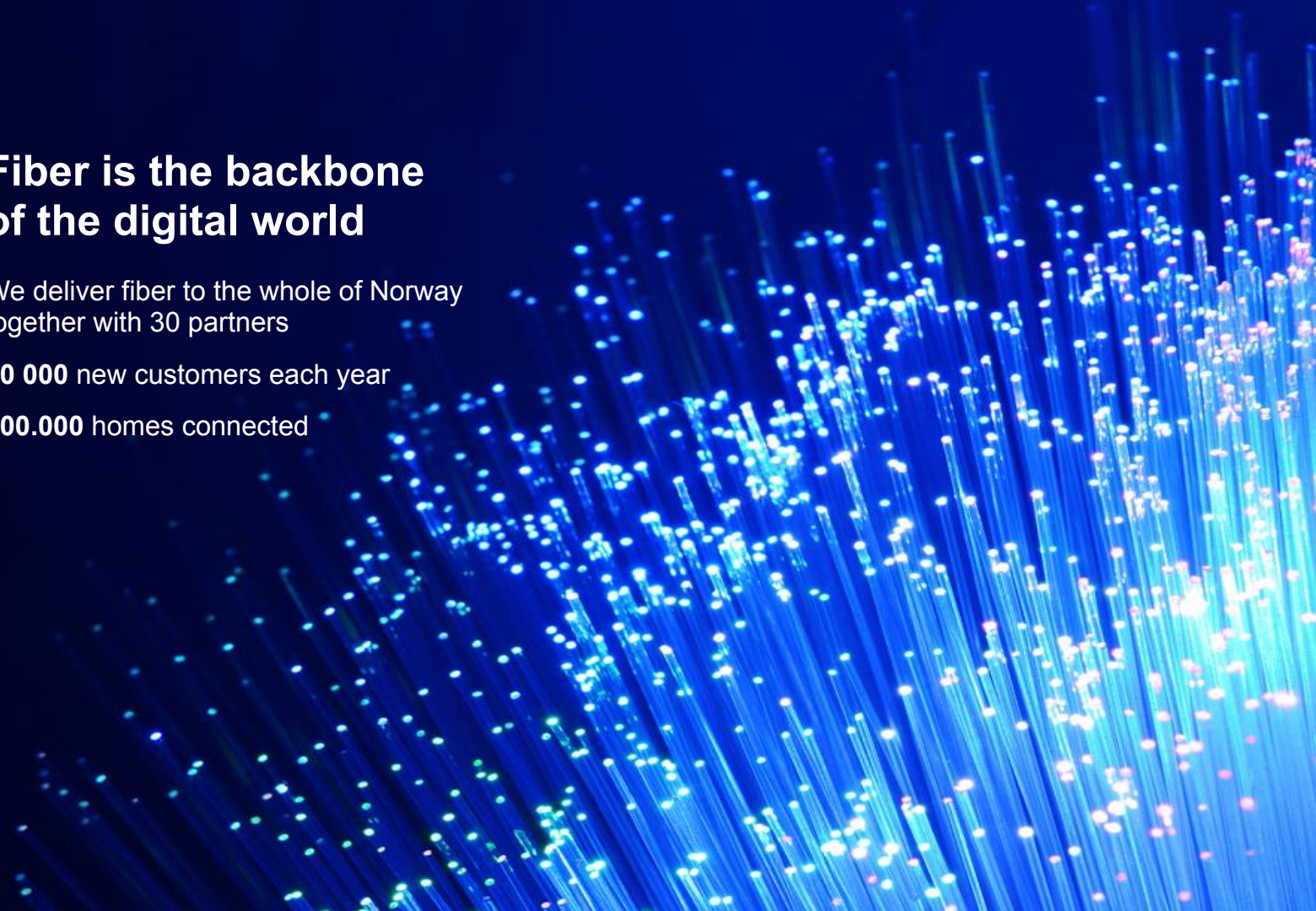
- Internet provider
- Tv and entertainment
- Communication services
- Smart home technology
- Welfare technology

Fiber is the backbone of the digital world

We deliver fiber to the whole of Norway
together with 30 partners

40 000 new customers each year

400.000 homes connected





**An interactive TV-offering that can be accessed
across a variety of devices**

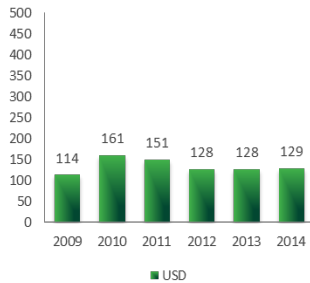
Lyse Group – Figures 2014

Revenue: 764 mill. USD Investments: 244 mill. USD Employees: 1073

Energy
Revenue: 288 mill. USD
Investments: 64 mill. USD
Employees: 109

Infra
Revenue: 129 mill. USD
Investments: 41 mill. USD
Employees: 313

Tele
Revenue: 266 mill. USD
Investments: 95 mill. USD
Employees: 286



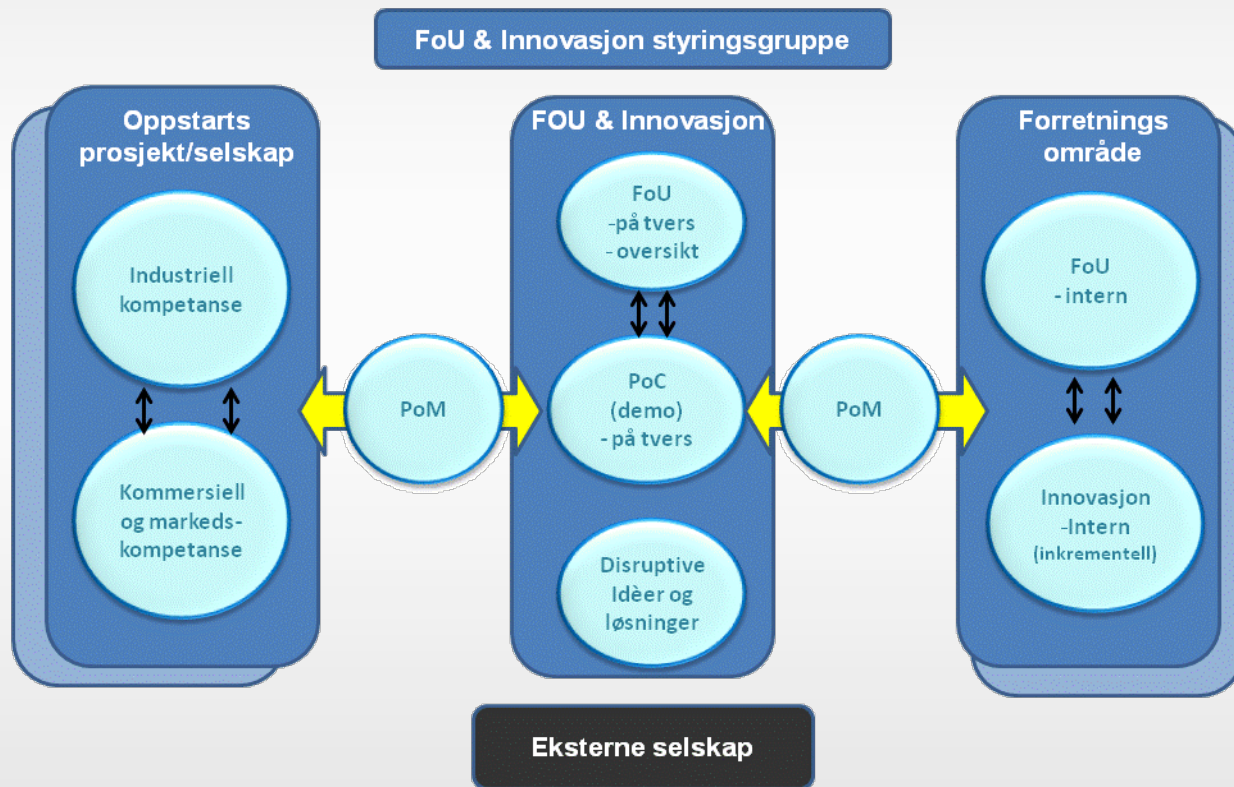
Business model innovation



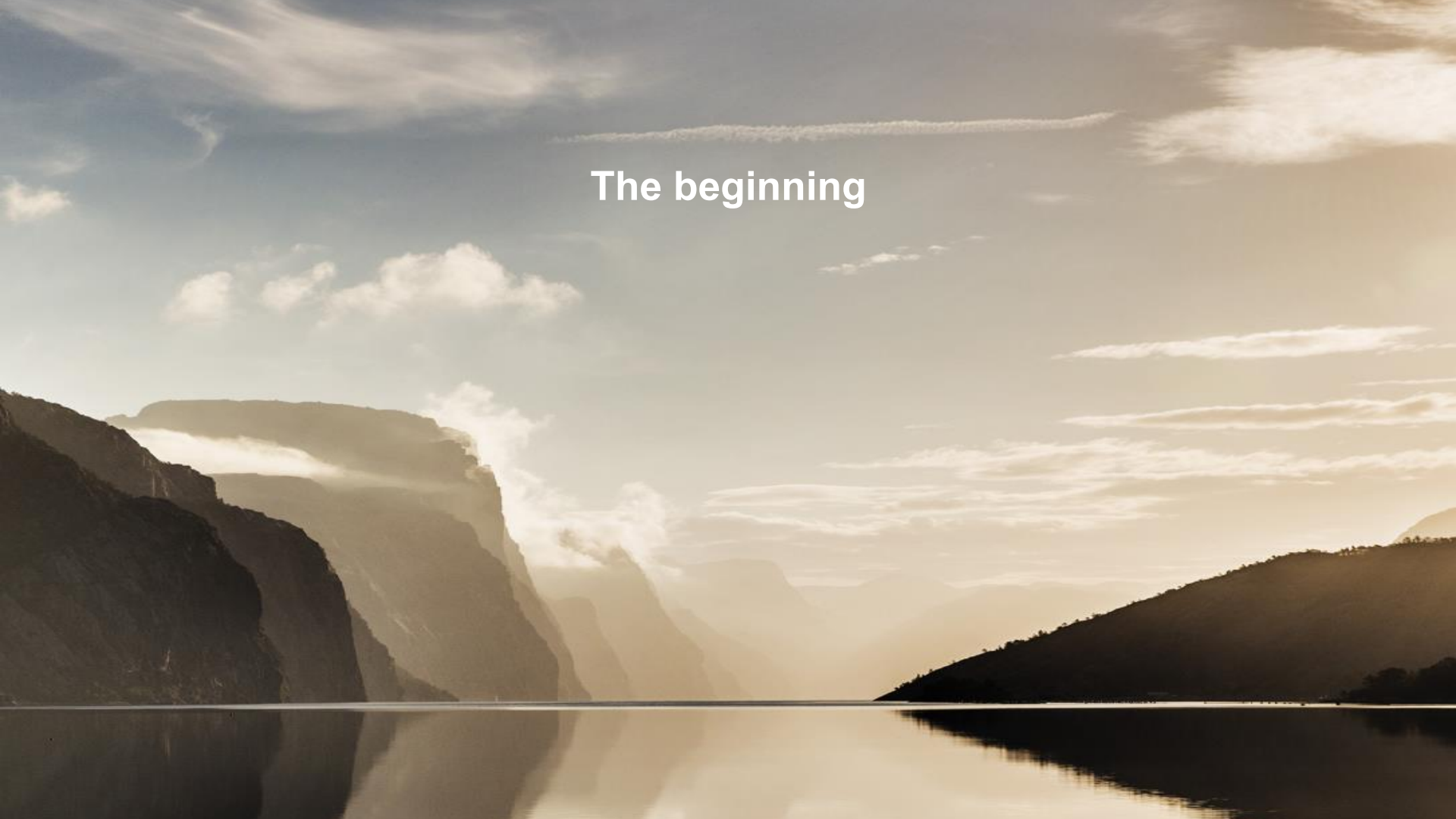
- from Internet/Telecom to utility, from service provider model to ecosystems

Lyse's innovation model:

- a combo of disruptive and open innovation



The beginning



Proof of Concept-pilot (2011-2013): “Joint development project within welfare technology”

- › Objective: to make it easier and safer to live at home for longer – in your own existing home.
- › Greater SECURITY, INDEPENDENCE and SELF-SUFFICIENCY for residents and their next of kin.
- › The project group members included:



The entire project was based on three real user stories told by home nurses

The project's 3 service categories:

- › **Smart home services**
 - Automate, simplify and enhance comfort in everyday life
- › **Safety and security services**
 - Greater peace of mind for you and your next of kin
- › **Communication services**
 - Make it easier to keep in touch with, and see friends and family



Security: Fire alarm+

- › Integrated service example
- › Based on the standard Altibox fire alarm
- › Fire alarm+ triggers the following simultaneous actions:
 - Fire alarm with direct connection to the fire services with call-out and user notification (already in existing solution)
 - Alarm sensor takes a photo of the room in question, which is transmitted to the alarm company
 - Front door is automatically unlocked
 - Automatic shut-off of power sources in the event of smoke and fire (e.g. cooker and ventilation systems)
 - All lights in the house are turned on (as long as there is power)



Som om
brannvesenet
har flyttet inn



Hus



Stue



Kjøkken



5°C



Tidsinnstillinger u



Lys



Varme

Varm

E

ort

rt

o



28°C

HJEMME

BORTE

DAG

NATT

ROM 201

Oversikt

ROM 201
OVERSIKT


Ring pasient



Pasient assistanse

ROM 202

Oversikt

ROM 203

Oversikt

ROM 204

Oversikt

ROM 205

Oversikt

ROM 206

Oversikt

LYS

Normal

Dempet

Full

Lys av

VARME

21.7°

Komfort

Natt

PERSIENNE



MEDIA

TV

Radio



Media av



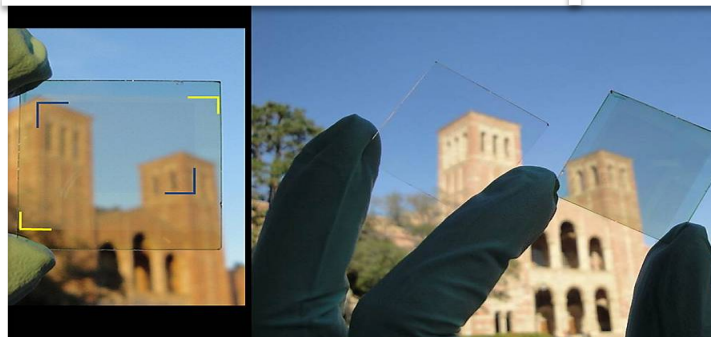
The AMR challenge

Electronic meter reading

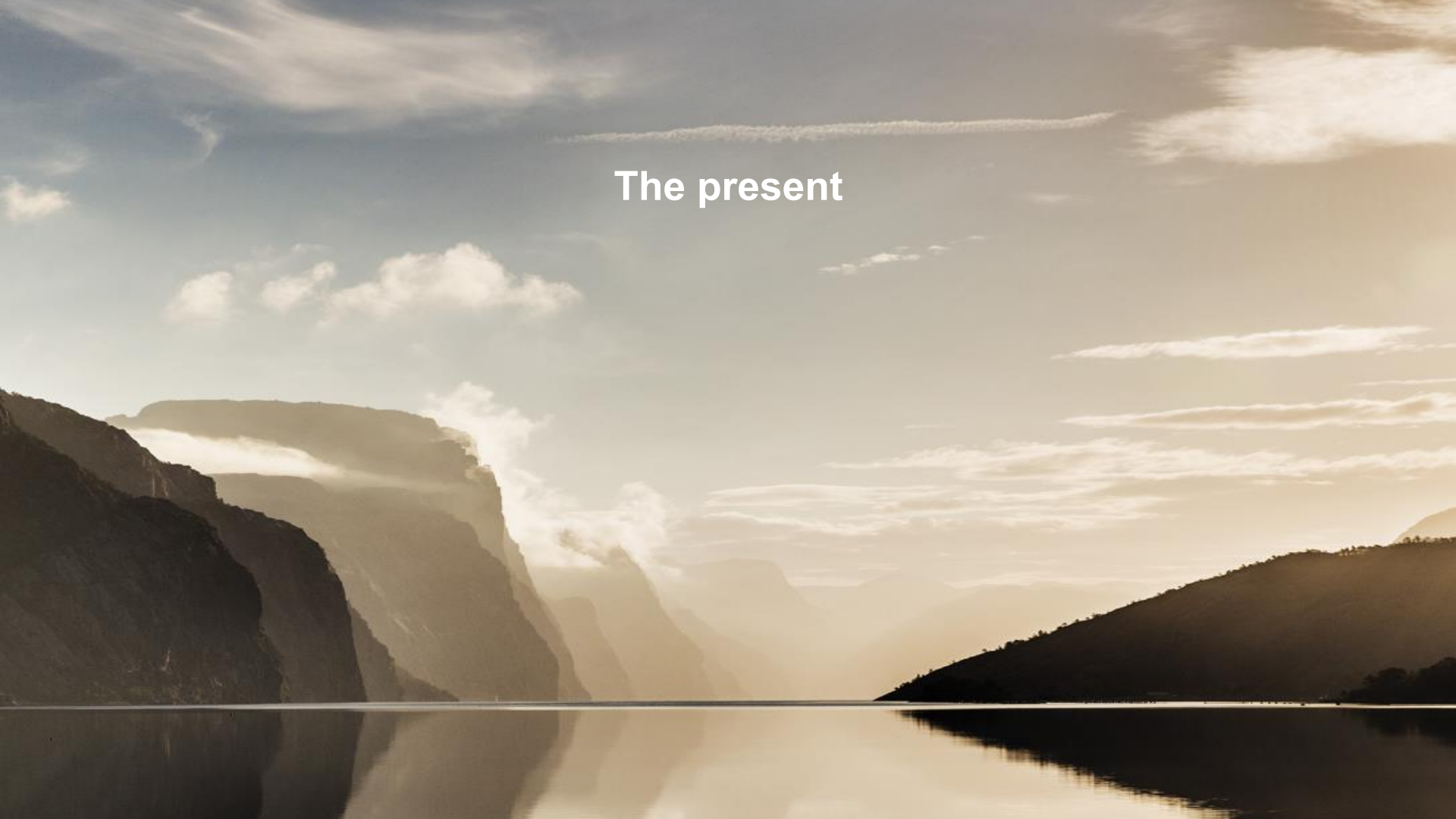
- › More than 150,000 of Lyse's meters in Rogaland need to be replaced by 2018
- › Largest logistics operation in Lyse's history
- › The isolated business case for automatic meter reading was indeed negative.
- › So the question was asked. How can society benefit from this massive rollout?



Some of the other Energy challenges



The present

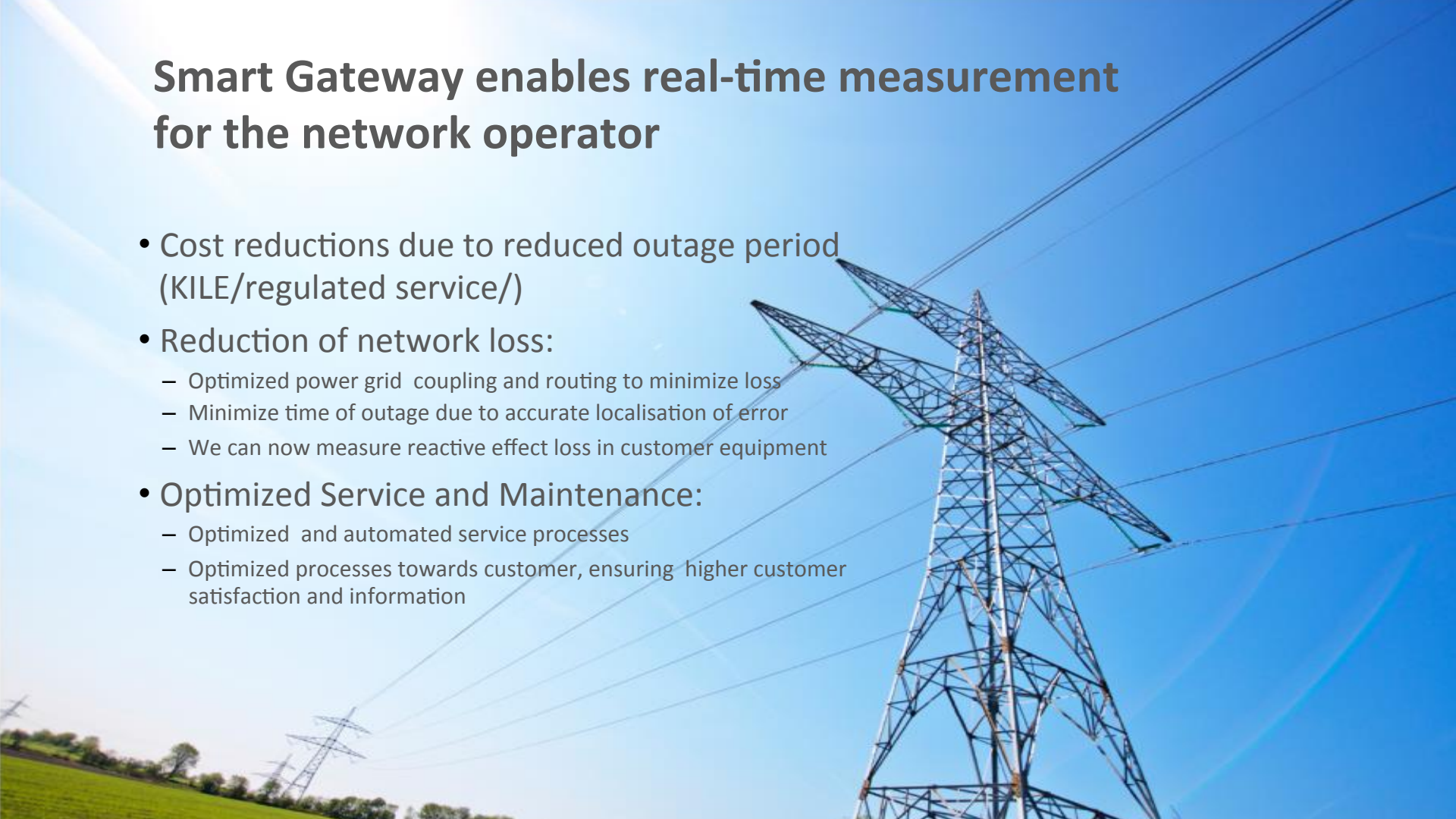


The AMR roll-out is a unique opportunity to solve many societal challenges. We are installing a Smart generic Gateway and a “dumb” meter in 160,000 homes.



Smart Gateway enables real-time measurement for the network operator

- Cost reductions due to reduced outage period (KILE/regulated service/)
- Reduction of network loss:
 - Optimized power grid coupling and routing to minimize loss
 - Minimize time of outage due to accurate localisation of error
 - We can now measure reactive effect loss in customer equipment
- Optimized Service and Maintenance:
 - Optimized and automated service processes
 - Optimized processes towards customer, ensuring higher customer satisfaction and information



Active control in the home is important

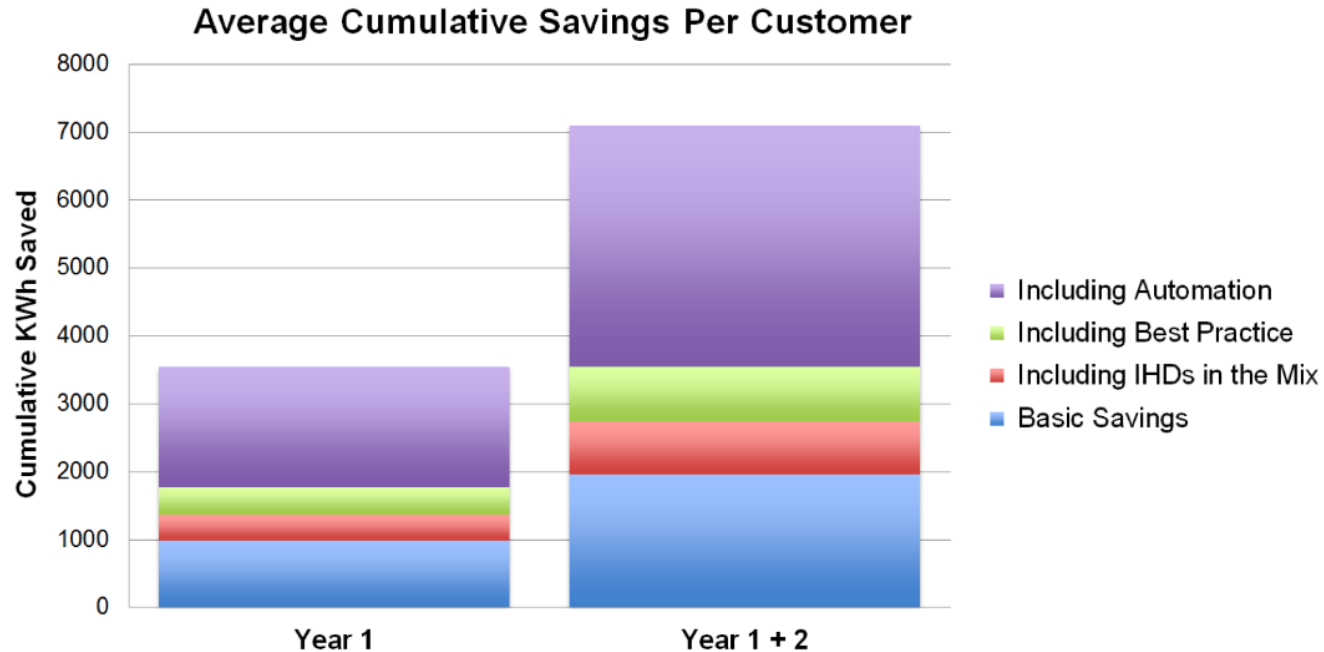
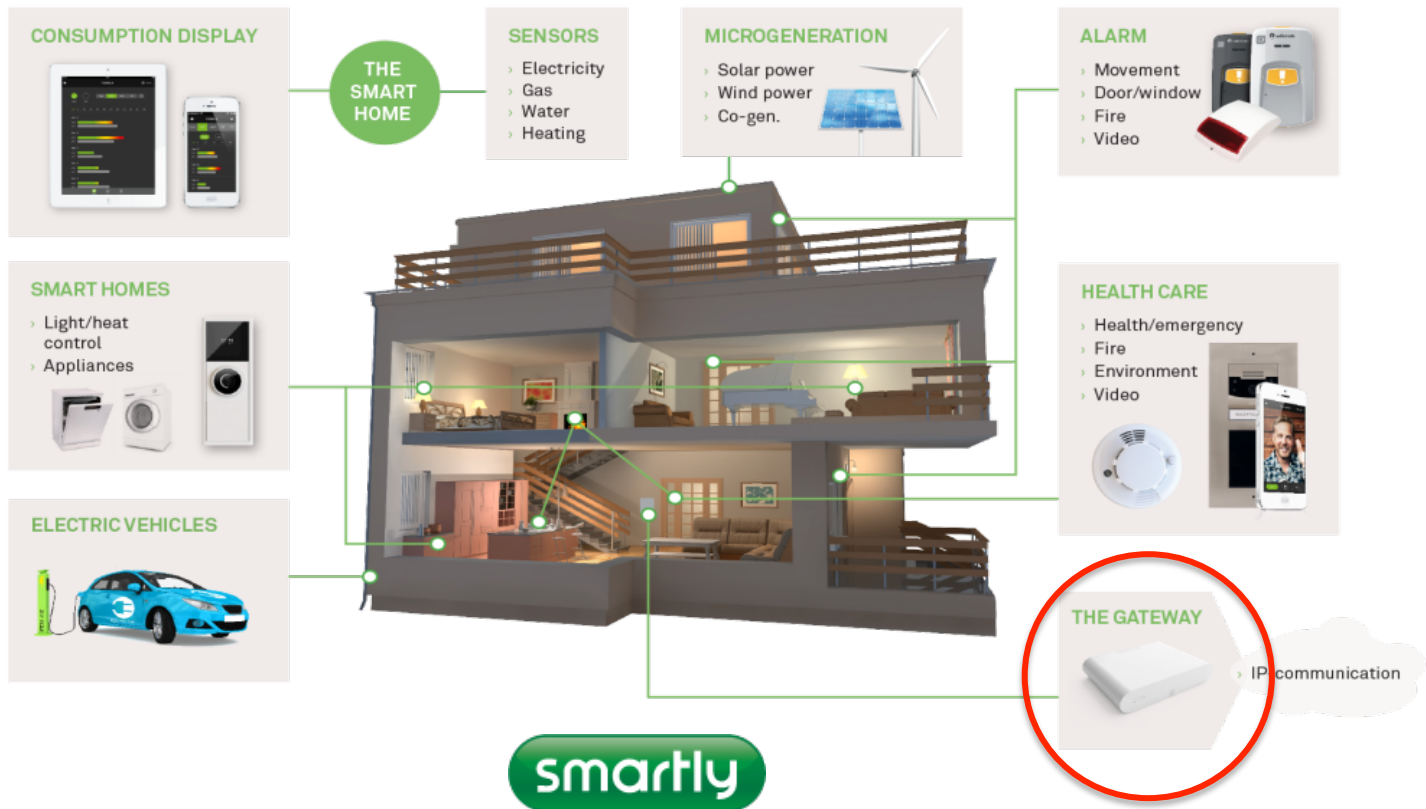


Fig. 1. Average cumulative savings per customer. Estimations for Norway.
Source: VaasaETT - NVE-report 72/2014

Building the smart home



Smartly Heating Control



Smartly Heating Control offers:

- › Simple remote control of heating cables and more – by mobile phone
- › Intelligent timing controls. Energy-savings in your absence.
- › Pre-programmed temperature room-by-room

The base package includes:

- › 3 thermostats (room/floor)
- › Control of 3 heat sources (electric radiators/ underfloor heating)

The Welfare and Care service domain



Smart Gateway is fully integrated with
Lyses Automated Meter Reading system



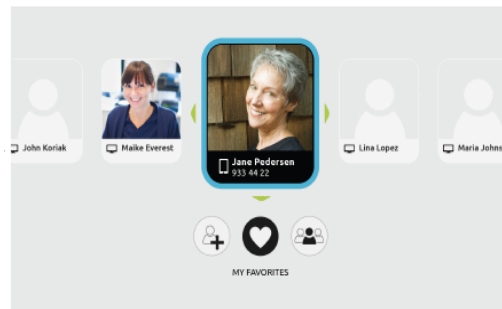
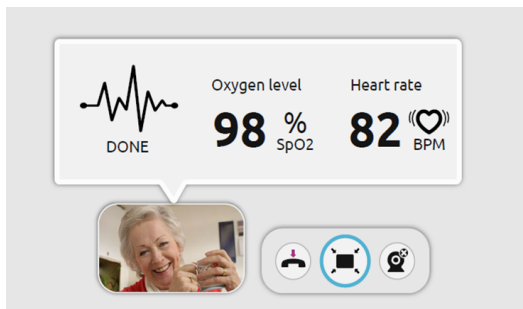
Open innovation is an inherent part of ecosystems



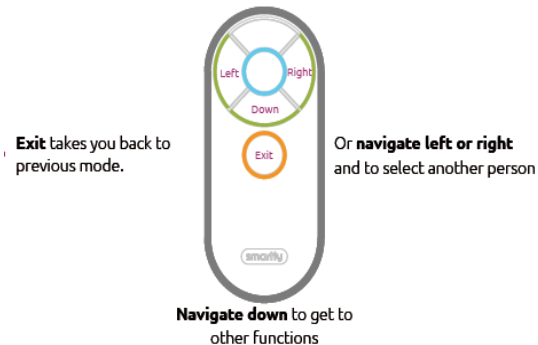
A wide-angle landscape photograph featuring a calm body of water in the foreground, reflecting the sky and the surrounding mountains. On the left, a steep, dark mountain slope rises from the water's edge. In the background, a series of layered mountain ranges are visible, with some peaks partially obscured by soft, white clouds. The sky is filled with long, horizontal cloud streaks, suggesting a time-lapse or a specific atmospheric condition. The overall color palette is dominated by warm, golden-brown and blue tones, creating a serene and majestic atmosphere.

The future

More product & service innovation due to combinatorial innovation. CASE: Video For All



Call centre person directly by pressing central button



Exit takes you back to previous mode.



A growing global market is always interesting

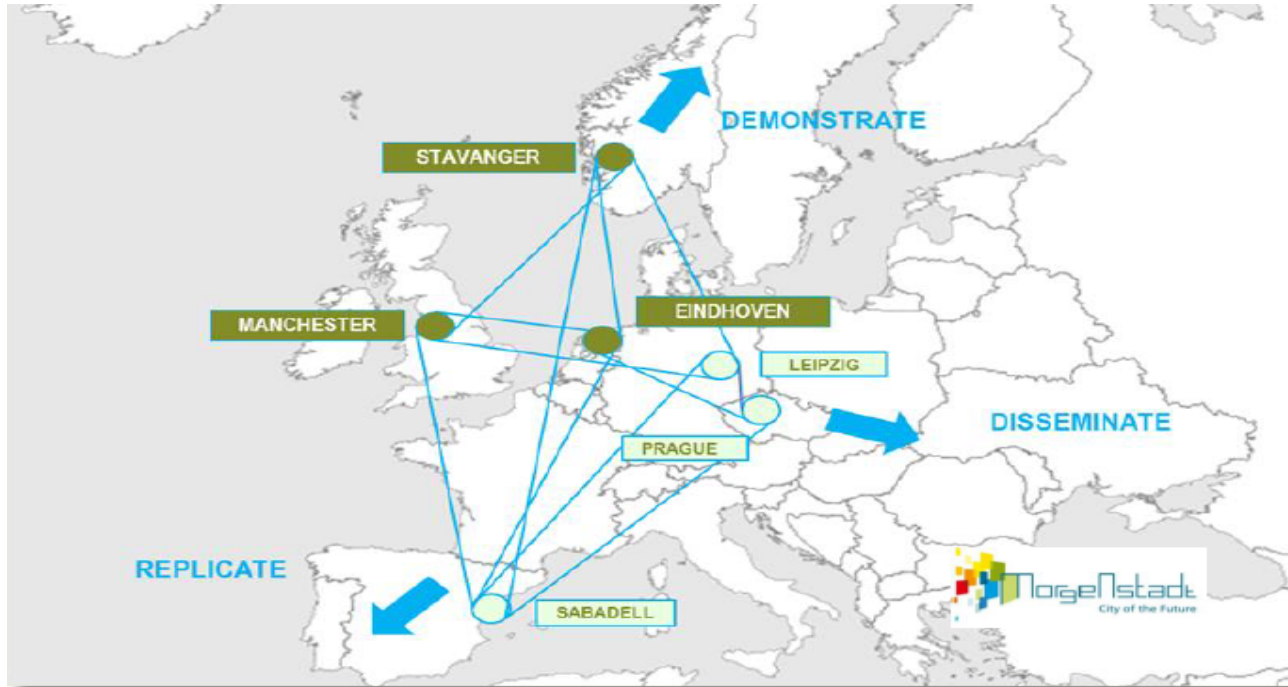
Today 50 % of the worlds population lives in cities.
In 2050 70% of us lives in cities

Source: UN State of World Cities report

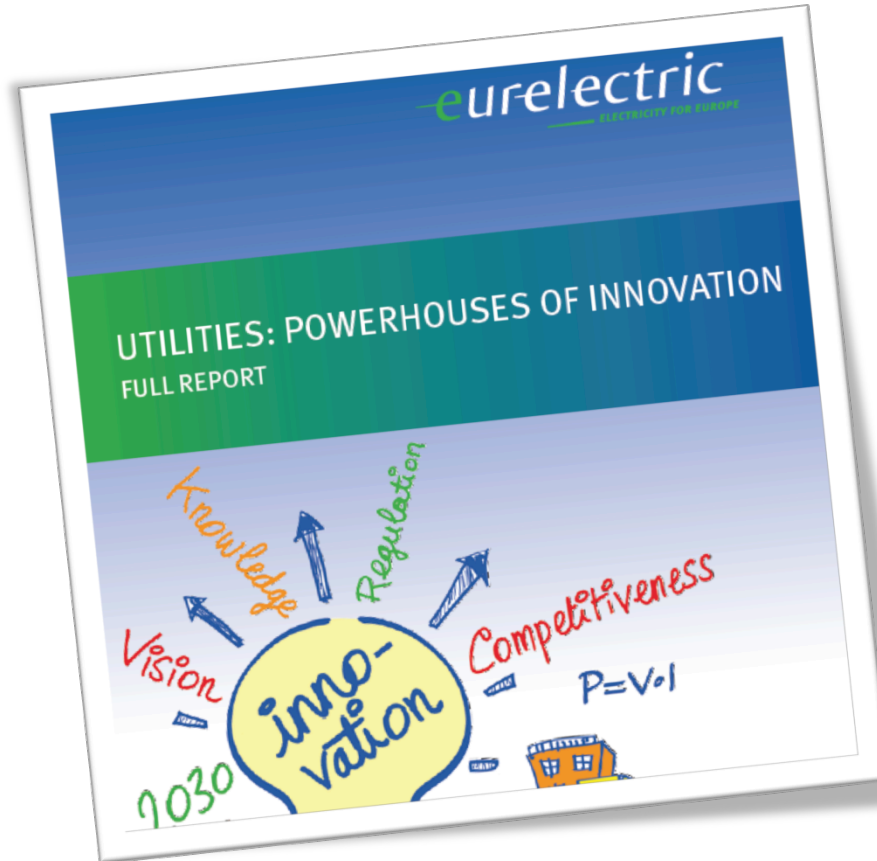
Cities today has 80% of GDP, and 70% of energy and
green house gas emissions. <http://newclimateeconomy.report/cities/>

For Lyse this equals new needs and business
opportunities.

The SCC project Triangulum – some facts



Eurelectric Report: 3 key recommendations (July 2013)



“Power sector participants, including utilities, need to innovate on three fronts:”

1. Master new technology

“Power sector participants will need not only to find the means to finance solutions that require higher capital expenditure upfront, **but also to translate technologies into workable end-user offerings in the context of the overall power system.**”

2. Get close to customers

“Specifically, more aware and engaged, **customers will demand socially and environmentally responsible practices, place a higher value on convenience and experience,** and use more complex criteria for their purchasing decisions.”

3. Develop new business models and services

“To judge by other sectors, such as telecommunications, **future power sector business models could be based on a range of solutions to meet energy service needs, such as heating or cooling comfort, mobility, or lighting.** New end-use technology will help, while smart grids and Big data will be indispensable enablers.”

There is a "new wind blowing" in the US too ...

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Dagfinn Wåge



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Thank You!

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