



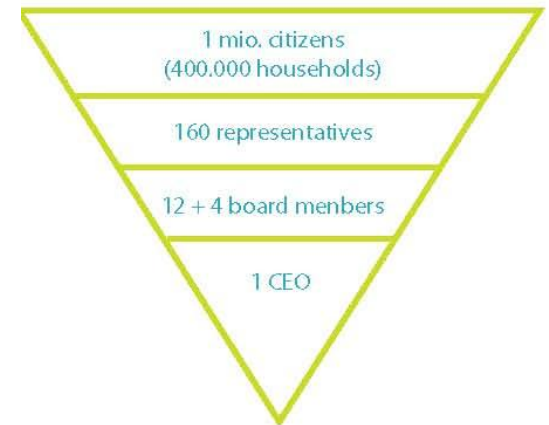
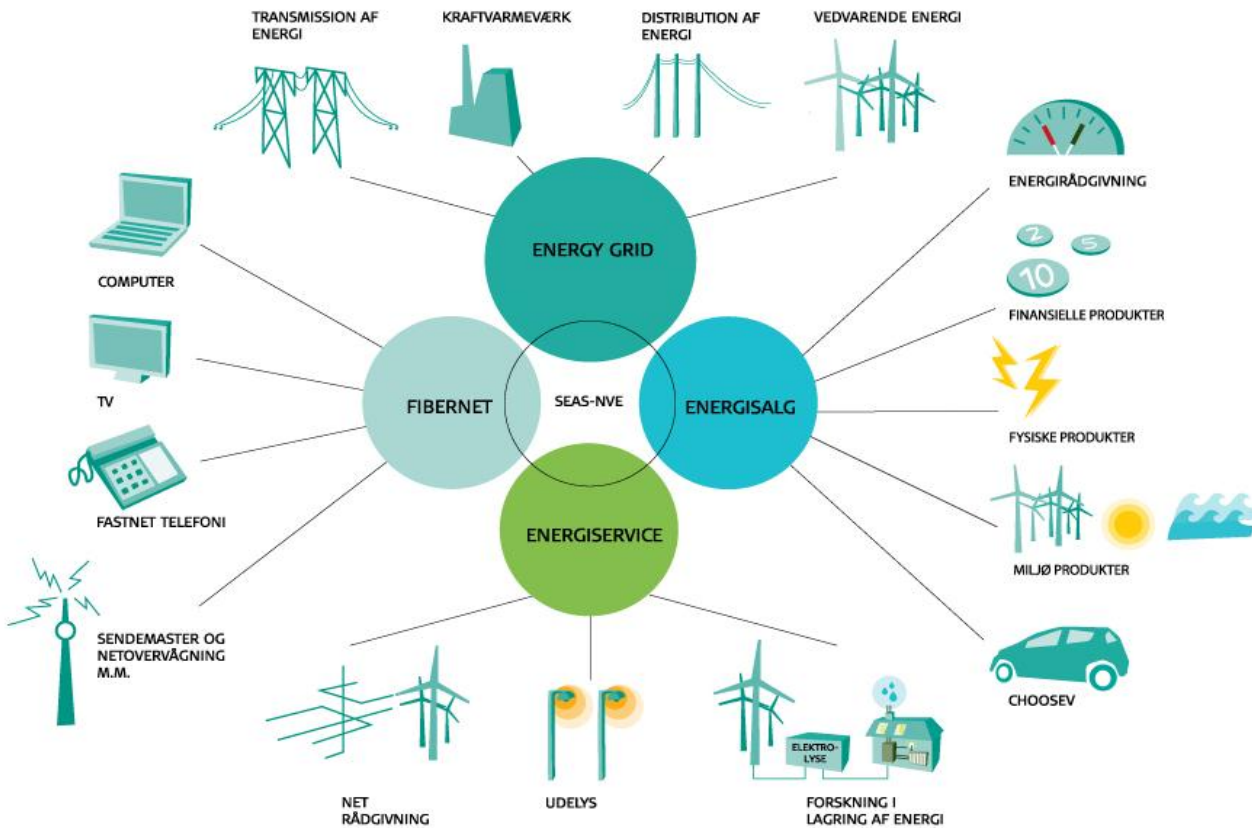
FC IN SMART GRIDS

FCH JU SH GENERAL ASSEMBLY 12-10-2012

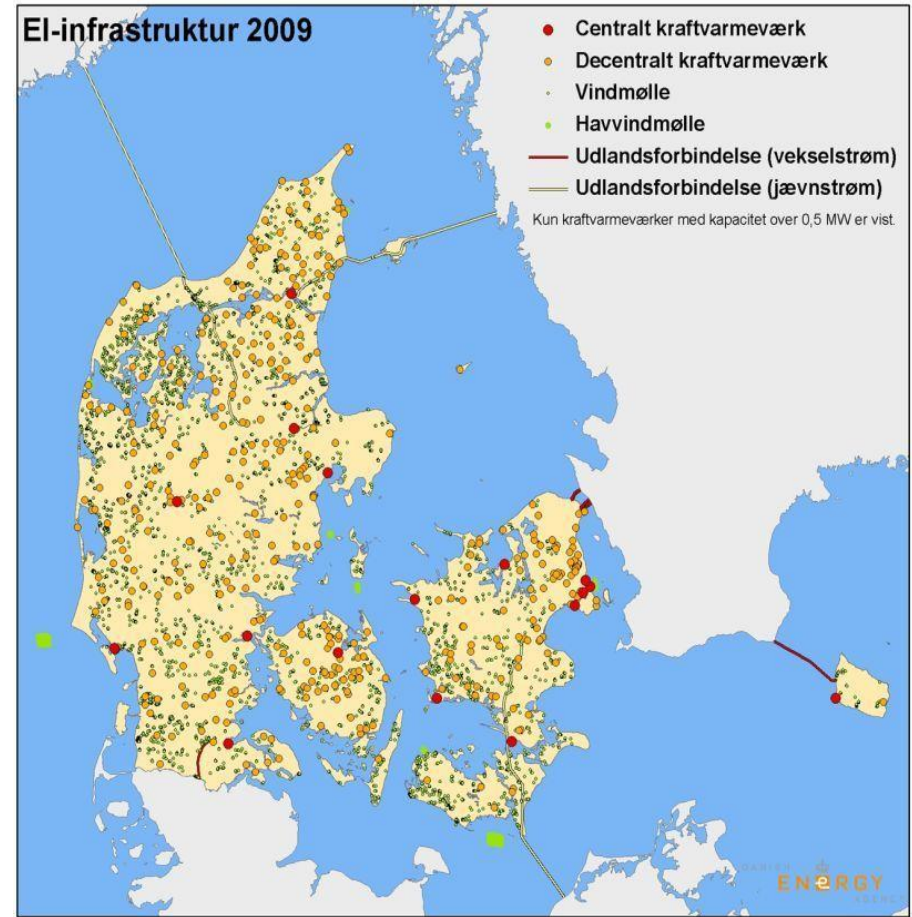
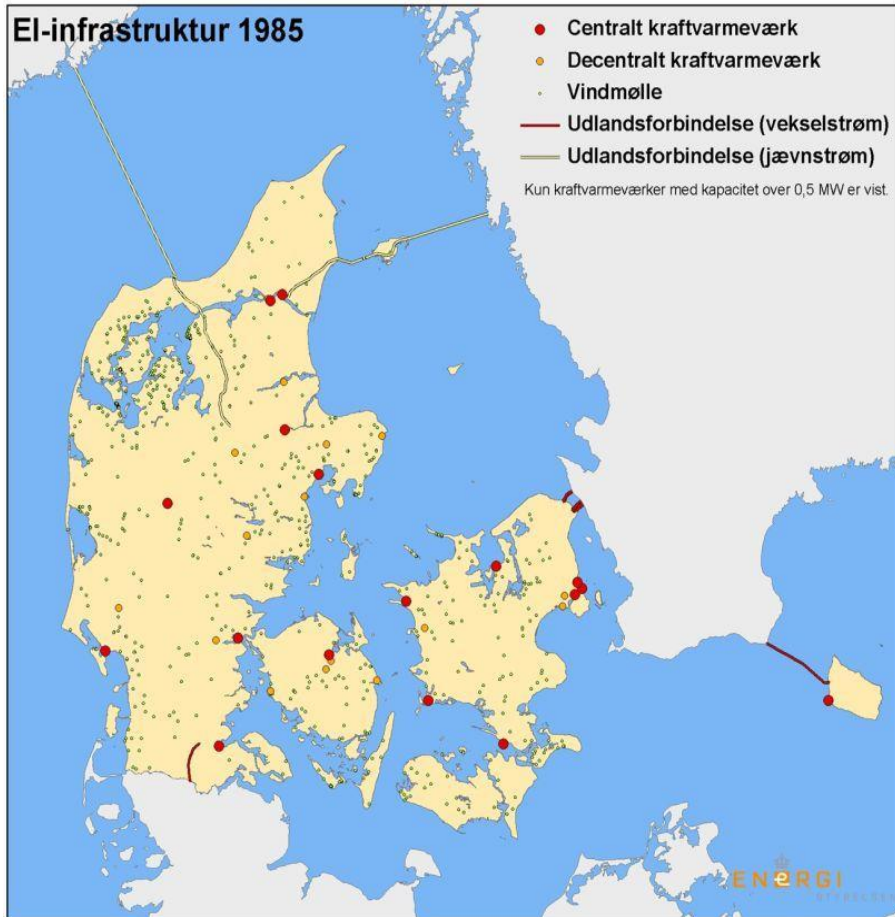
MANAGING INTERMITTENCY AND THE ROLE OF
SMART GRID

KRISTINA F. JUELSGAARD, M.SC.
HEAD OF DEVELOPMENT

SEAS-NVE: "Our mission is to innovate responsibly, in order to serve the interests of our customers within the areas of energy and fiber communication!"



THE EVOLUTION OF ENERGY INFRASTRUCTURE



The political agenda:

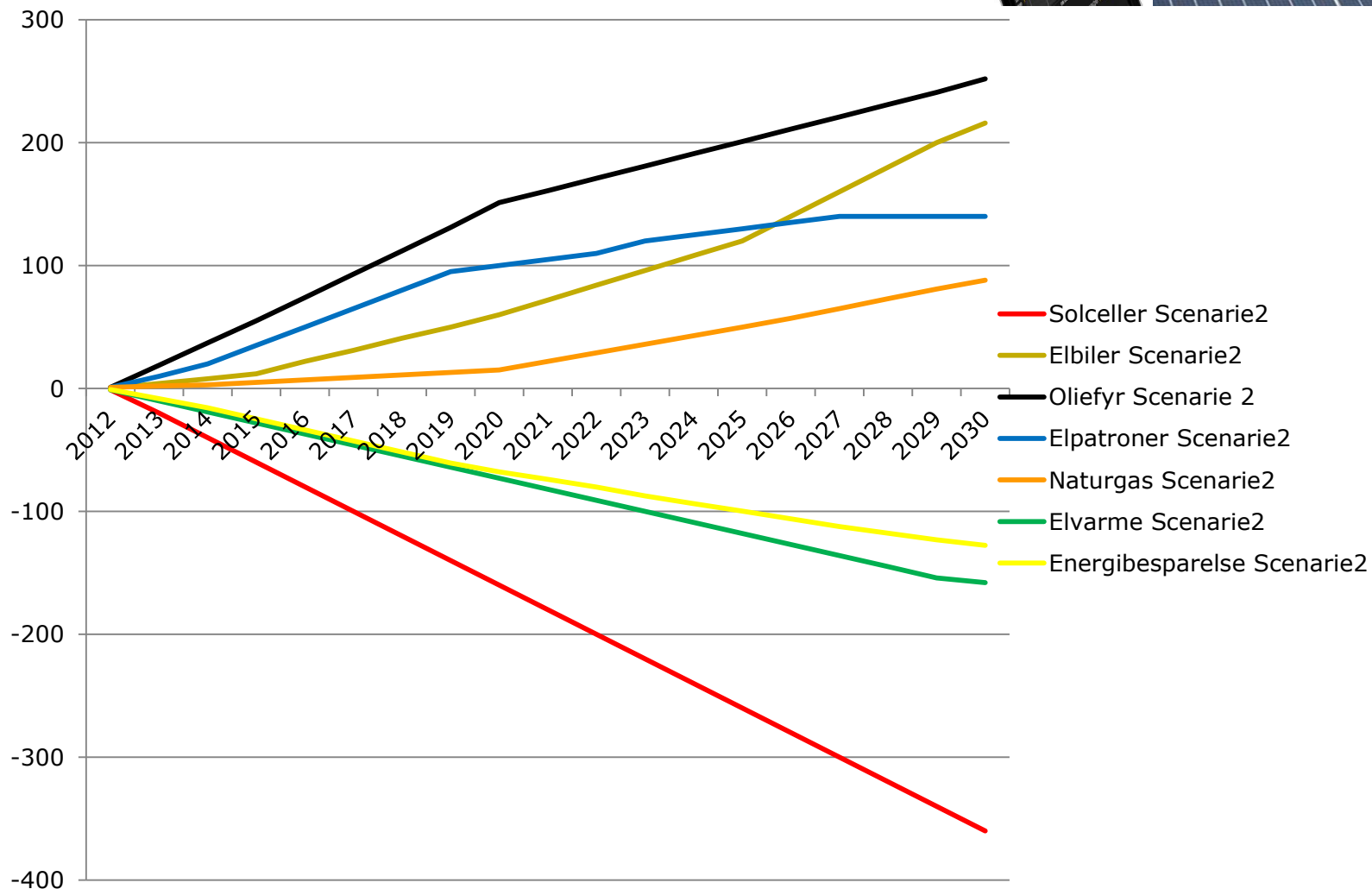
2020: 50% wind energy

2030: coal and oil phase out

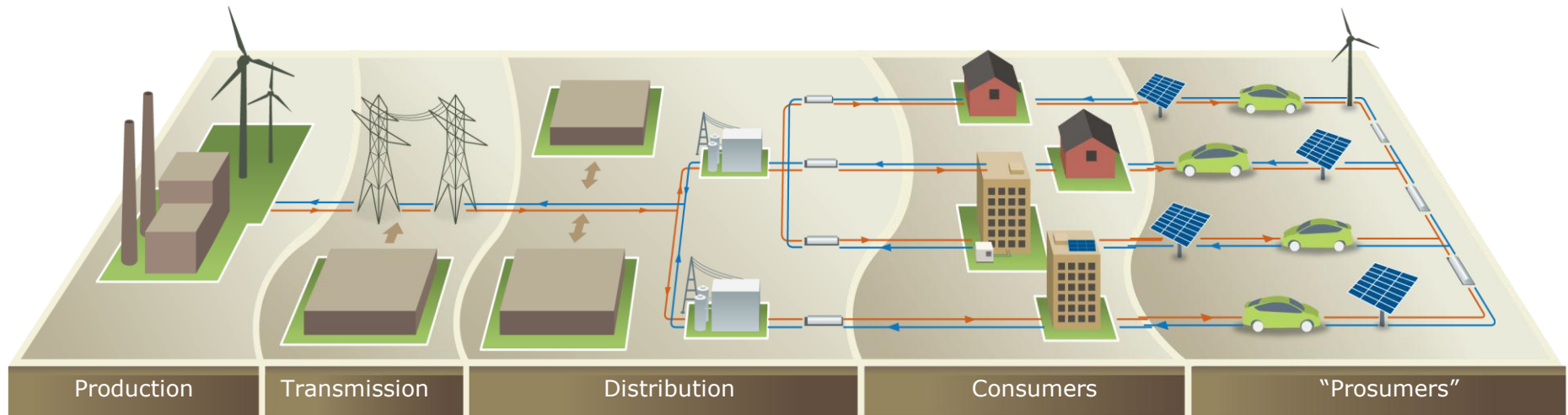
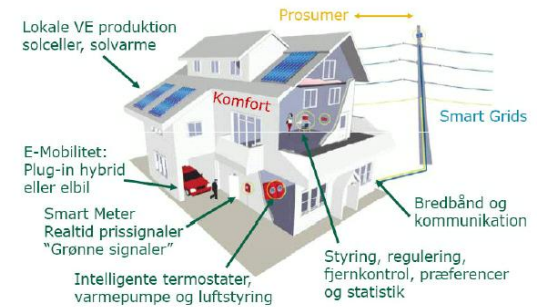
2035: 100% RES for heat and power

2050: 100% RES for transport and industry

SCENARIO FOR FUTURE POWER DISTRIBUTION



FLEXIBILITY BECOMES THE NEW COMMODITY



- Increased electrification → higher consumption, higher dependency on high quality electricity supply
- The consumer will also be the producer = prosumer
- Increased traffic in the grid, reduced volume transported traditionally.
- Grid becomes buffer/storage/back-up → imbalance challenges

"BUSINESS AS USUAL" IS NOT AN OPTION

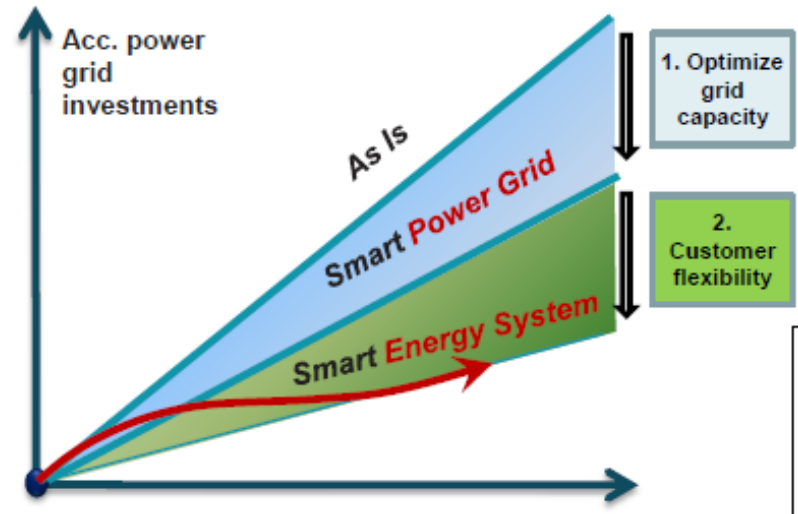


For the electricity grid:

- It will be more expensive to maintain the electricity grid, as the cables will be overloaded

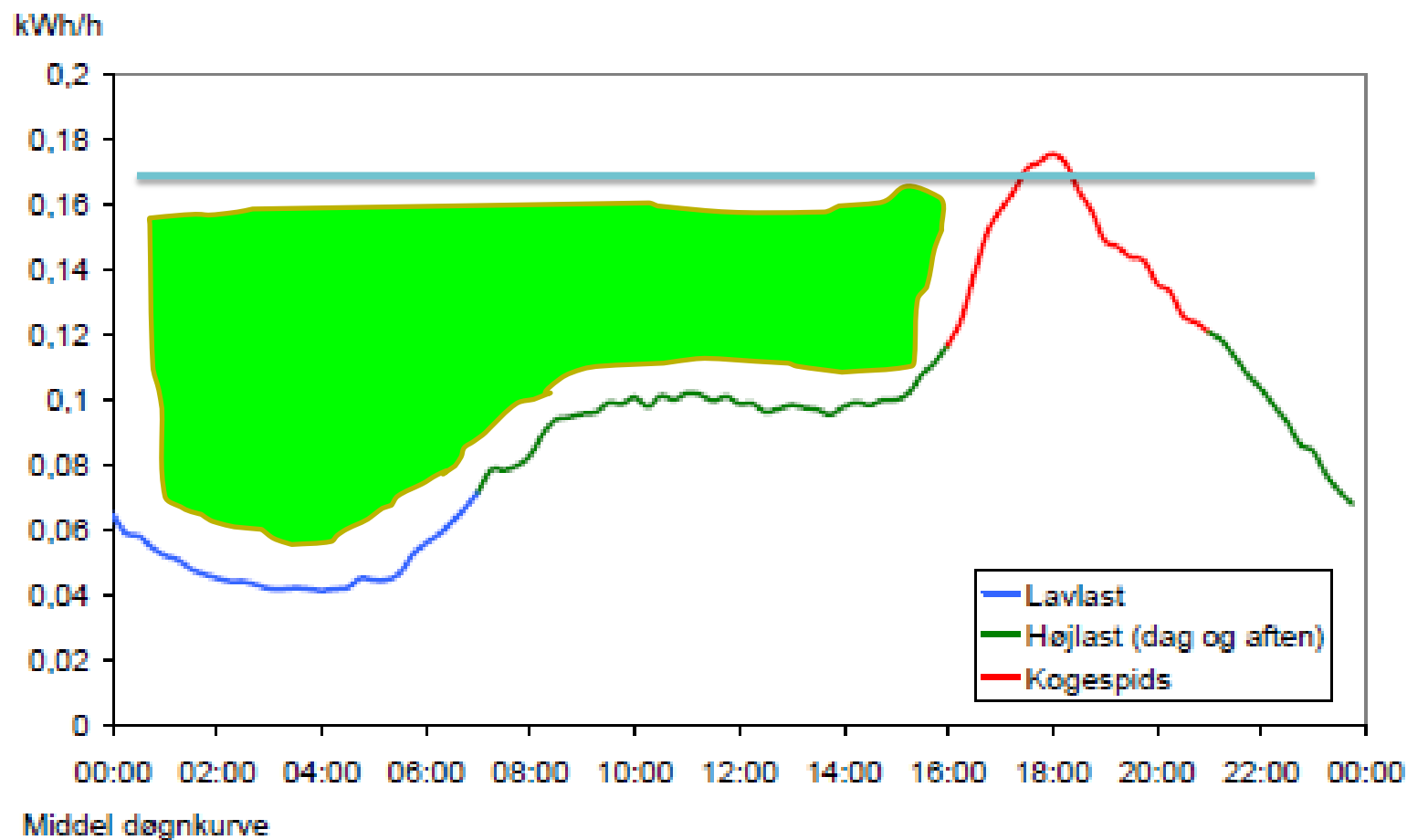
For the customer:

- Greater risk of power cuts and other disturbances in the grid



In order to meet these fascinating challenges, the grid system needs to be upgraded and/or the control of the production should be made more "intelligent".

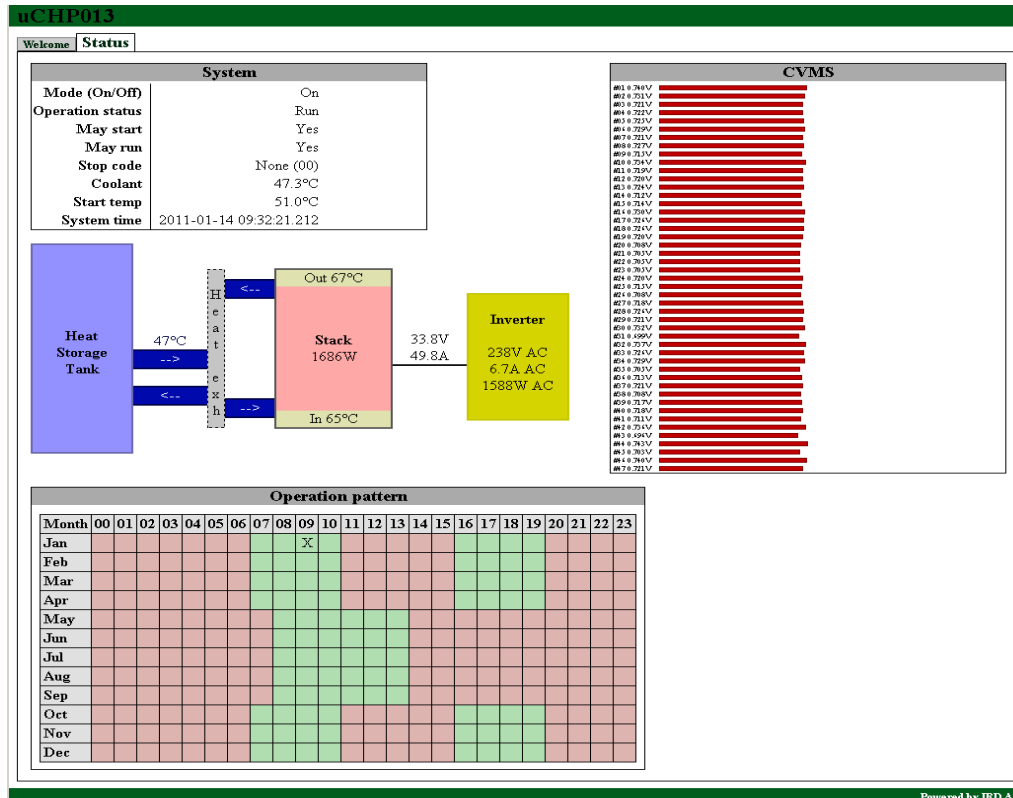
THE POTENTIAL OF PEAK SHAVING



DANISH MICRO-CHP DEMONSTRATION

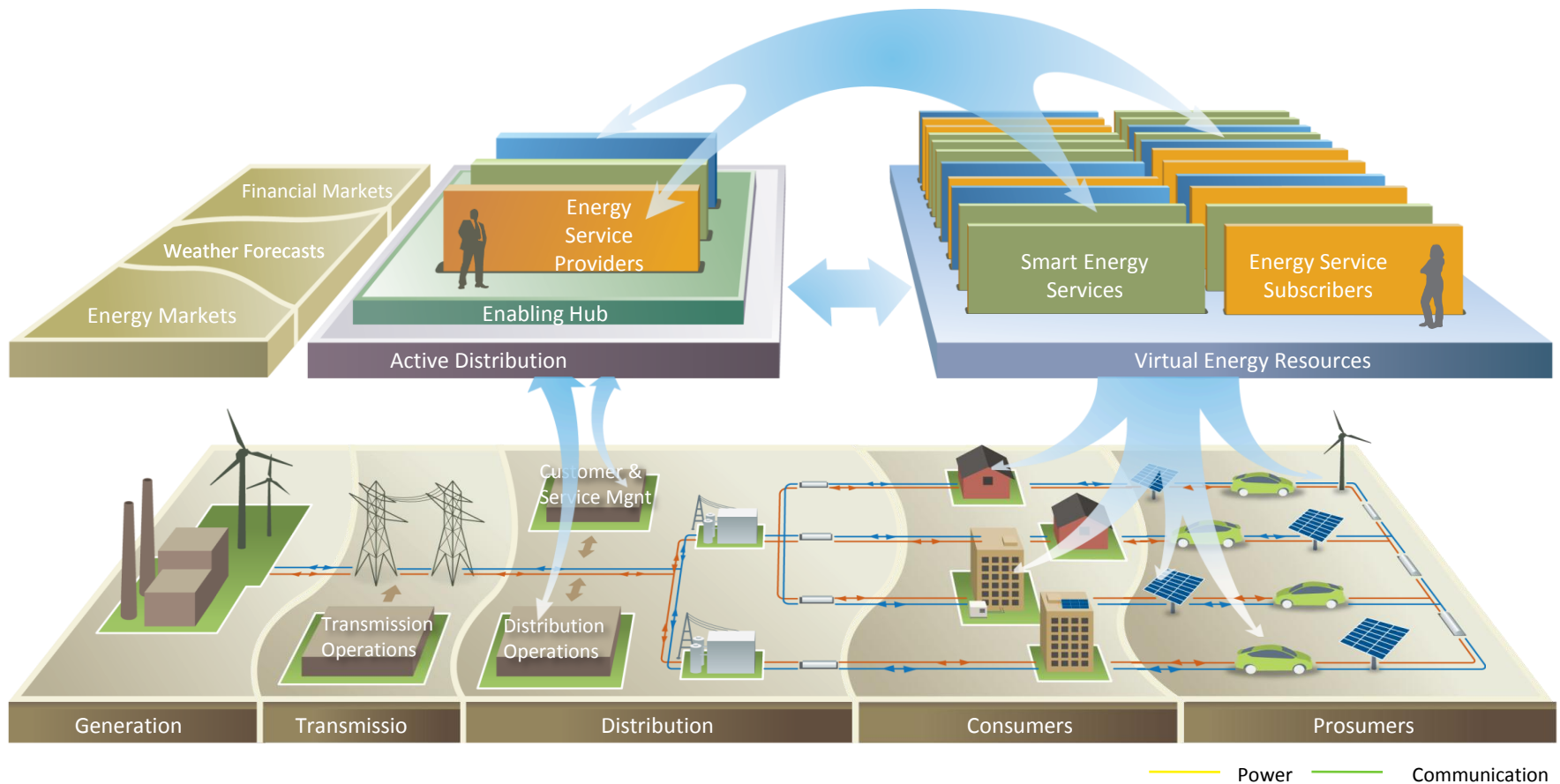


Phase 3



SMART CITY KALUNDBORG

DEMONSTRATION OF A SMART GRID CONCEPT IN A SMART CITY ENVIRONMENT





THANK YOU

Questions...