WP2: Framework conditions

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Flex4RES

WP2: Framework conditions

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WP2 Objectives

Why are the potentials not used?

a) Identify regulatory and technological barriers/drivers within different sectors
   1) Heating
   2) Electricity (and transmission)
   3) Transportation
   4) Gas

b) Develop coherent regulatory frameworks and market designs that facilitate energy market couplings that are optimal for the Nordic conditions in an EU context.
Key findings - so far

• Differences in tax and tariff structures
  • Electricity taxed on the consumption side
    • no taxes on fuels for in order to increase competition
  • Other sectors taxed on the fuel use
    + tax exemption for biomass use
  • Different levels in the different countries

• The Nordic power market is well functioning despite a few technical challenges.
  • Designed to balance variations in demand (load profiles) and hydro power - energy flexibility
  • More VRE require - power flexibility
District heating – key findings:

Flexible resources – esp. with heat storage
• CHP - act to high power prices
• P2H - act to low power prices

No direct policies for flexibility in the DH system
• Mainly provided by market incentives

Investment and re-investment in CHP and P2H impeded by lack of incentives
• Operational income (not enough price variation), investment subsidies and operation subsidies
District heating – key barriers:

- **CHP**: Baltics: Lack of exposure to electricity markets

- **P2H**: Electricity taxes and tariffs increase cost of electricity consumption
  - Poor competitiveness of P2H against other heat-sources, e.g. biomass boilers

- **General resources**: Operational practice of heat production following heat demand
  - Load-following by heat production units rather than utilisation of heat storage is a barrier for flexible operation
Key results from the electricity survey

Drivers for flexibility…
✓ Equal & open access to the power markets
✓ Supportive policy including low risk for TSO and DSO investment in domestic and transnational grid capacity
✓ Supportive policy for demand-side activation. E.g. smart grids

Price signal is lacking to activate flexibility potentials
▪ Low price level cause no incentives to invest in flexible capacity
▪ Not sufficient incentives for the consumption side to act flexible + high tariffs
▪ Lack of market based RES support scheme
Next steps

✓ District heating
(√) Electricity

• Transport sector
• Gas
Links to the other wp's

WP1: Flexibility need and potentials
Task 1.1 Review and Method development
Task 1.2 Flexibility potential cost curves, Technology catalogue
Task 1.3 Flexibility need, uncertainty and impact on reserve need

WP2: Framework conditions
Task 2.1 Review of existing framework conditions
Task 2.2 The Nordic energy system designs
Task 2.3 Market integration, frameworks, and market designs
Task 2.4 Coherent market scenario set-ups
Task 2.5 Pathways to a flexible Nordic energy system

WP3: Energy system analysis of integrating energy systems
Task 3.1 Model update / adaption
Task 3.2 Market coupling analyses
Task 3.3 Analytical results: comparison and interpretation

WP 4: Policy recommendations
Task 4.1 Economic impact of VRE and flexibility
Task 4.2 Creating a sustainable and stable Nordic energy System

WP 5: Dissemination and capacity building
Task 5.1 Website, LinkedIn, and Newsletter
Task 5.2 Advisory board meetings
Task 5.3 Workshops/Seminars

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Technical solutions and flexibility potentials & needs
WP1

WP2

WP3

WP4

WP5

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Market mechanisms and coupling
Policy recommendations
Cost and benefits
Regulatory & technical pathways

Policies and framework conditions
Systems analysis and model runs
Thank you for your interest

Questions?

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Regulatory barriers and drivers

Framework category: Political/jurisdictional, financial, market control, behavioural/organizational.

Political level: EU, national, local

Effect on flexibility: Driver or barrier for investment and operation.

Incentive: Direct or indirect, strong or weak incentives