

WP2: Framework conditions

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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
- 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: 10 Flex4RES

- <u>CHP</u>: Baltics: Lack of exposure to electricity markets
- <u>P2H</u>: Electricity taxes and tariffs increase cost of electricity consumption
 - Poor competitiveness of P2H against other heat-sources, e.g. biomass boilers



• 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





Thank you for your interest



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Regulatory barriers and drivers



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

<u>Political level:</u> EU, national, local

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

Incentive: Direct or indirect, strong or weak incentives

