



Nordic Hydrogen Valleys as Energy Hubs

NordicH₂ubs Nordic Hydrogen Hubs – Roadmaps towards 2030 and 2040

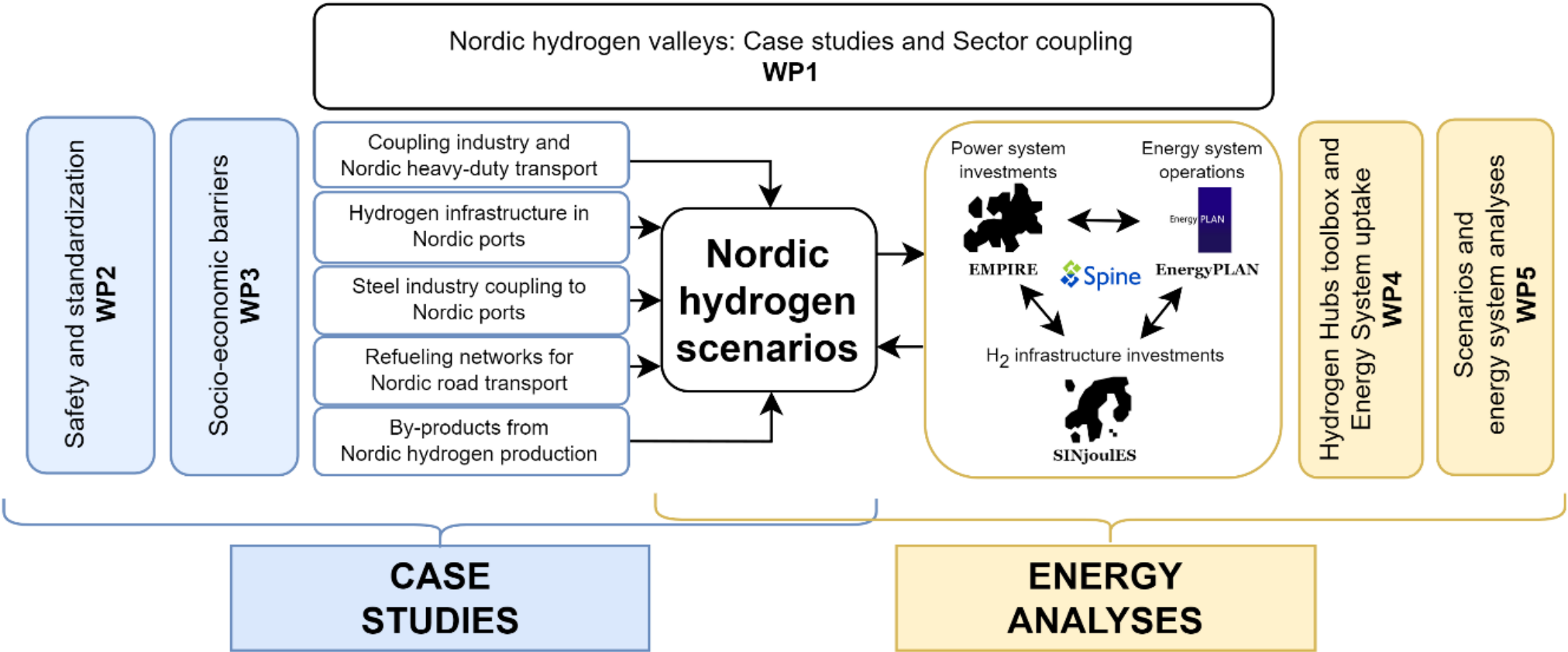
Status and lessons from the project so far

NordicH2ubs



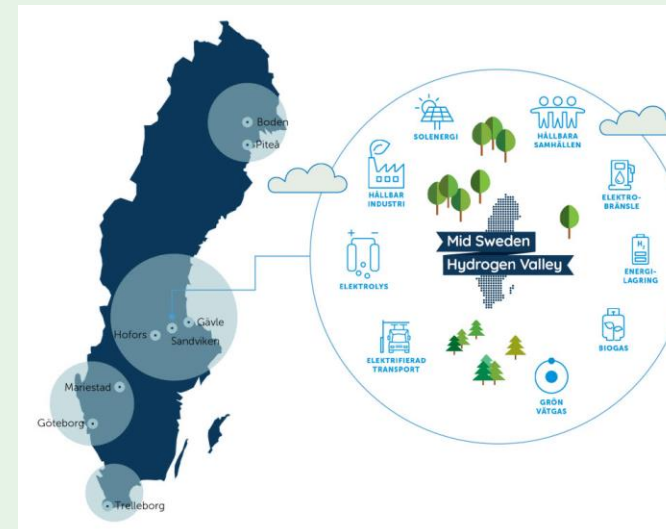
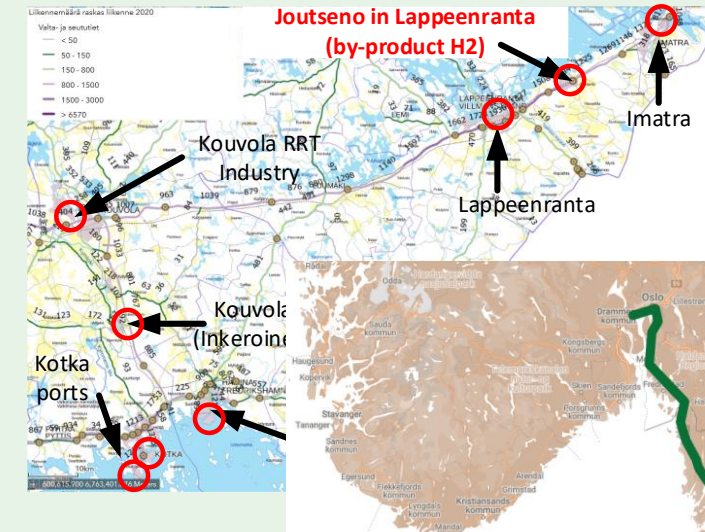
- Nordic Hydrogen Hubs - Roadmaps towards 2030 and 2040
- August 1st 2023 to August 31st 2026
- The project is working to:
 - Connect the Nordic countries
 - Cover multiple markets and sectors
 - Find synergies between both countries and sectors
- <https://nordich2ubs.com/>

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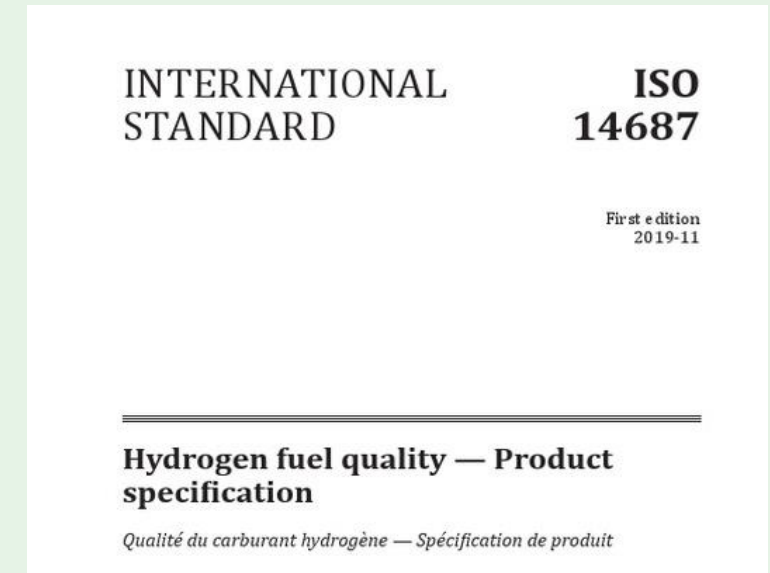
WP1: Case studies

1. Cross-sectoral H₂ value chains in Finland
2. Mid Sweden Hydrogen valley
3. H₂ in the maritime sector
4. H₂ in road transport
5. By-products:
 - Oxygen by-product
 - Heat by-product



W2: Safety and standardization

- Safety analysis of hydrogen refueling stations with large gaseous and liquid hydrogen storage is conducted by use of simulations of HTR.
- Mapping of the approval processes of vessels and storage solutions in maritime sector.
- The development of H₂ purification and quality assurance methods for hydrogen used in transportation applications in the Nordic countries will follow recommendations from ISO 14687:2019 standard.

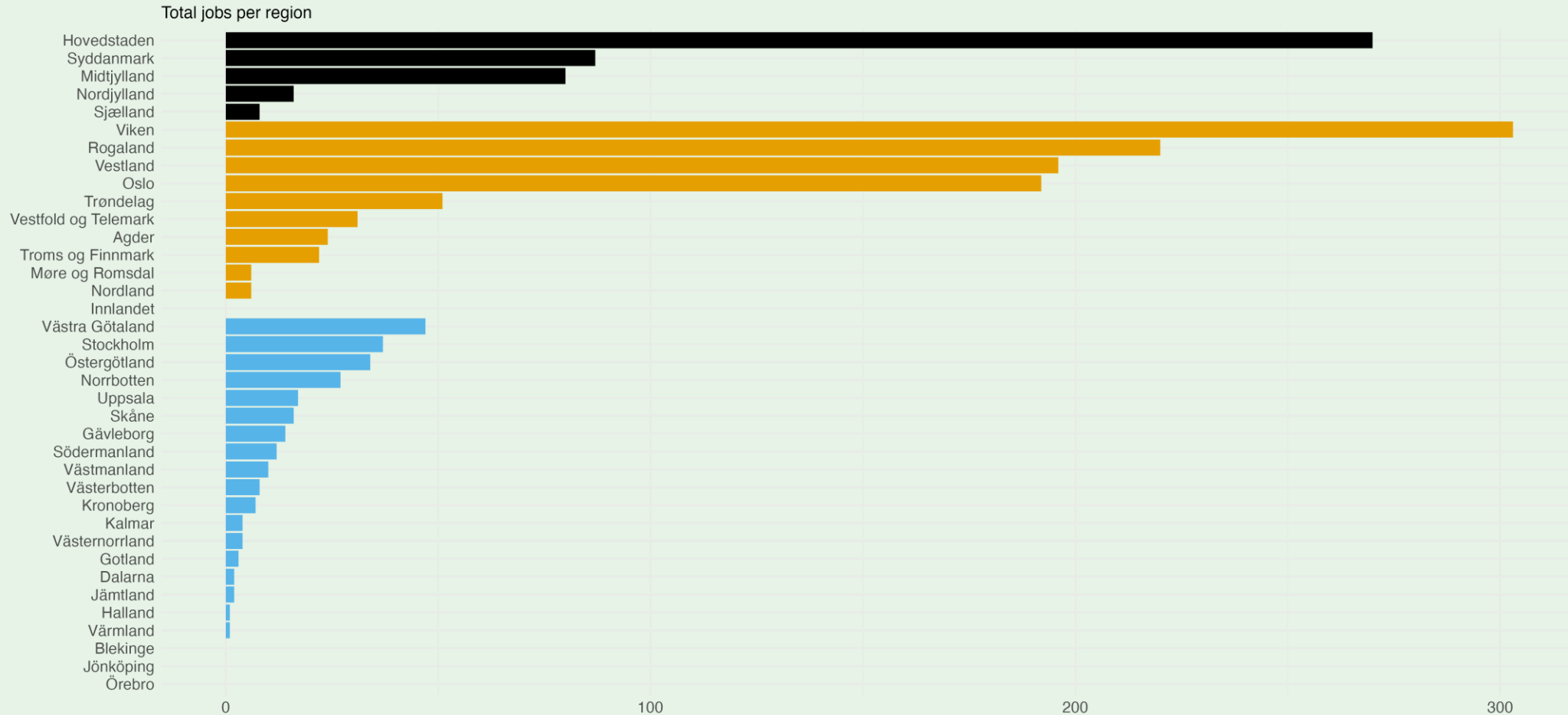


W3: Socio economic barriers

- Visualize actor-networks and associated technological trajectories
 - Publicly available data regarding, e.g., hydrogen projects, actors and public funding
- Analyze competence needs in emerging Nordic hydrogen value chains
 - Data mining of jobsites such as Platsbanken and Finn.no. Survey with actors to identify future competence needs and challenges.
- Identify barriers and solutions to fostering early market formation
 - Interviews and workshops with partners and other hydrogen actors in the Nordics
- Inform policy regarding measures to foster hydrogen valleys

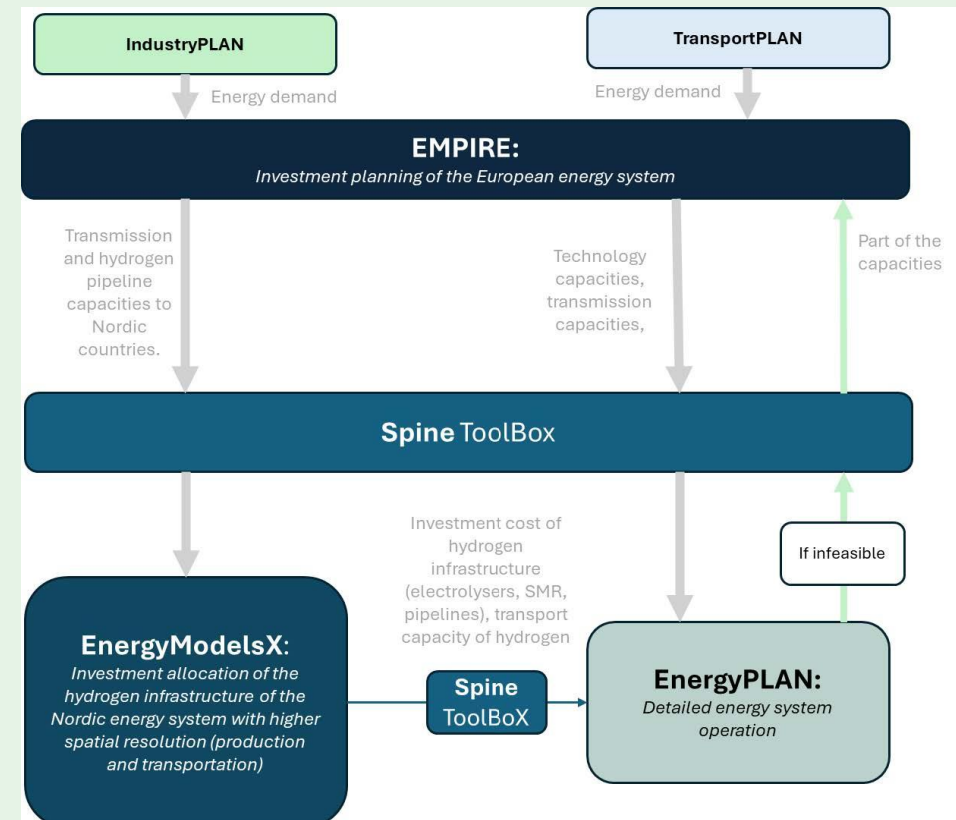
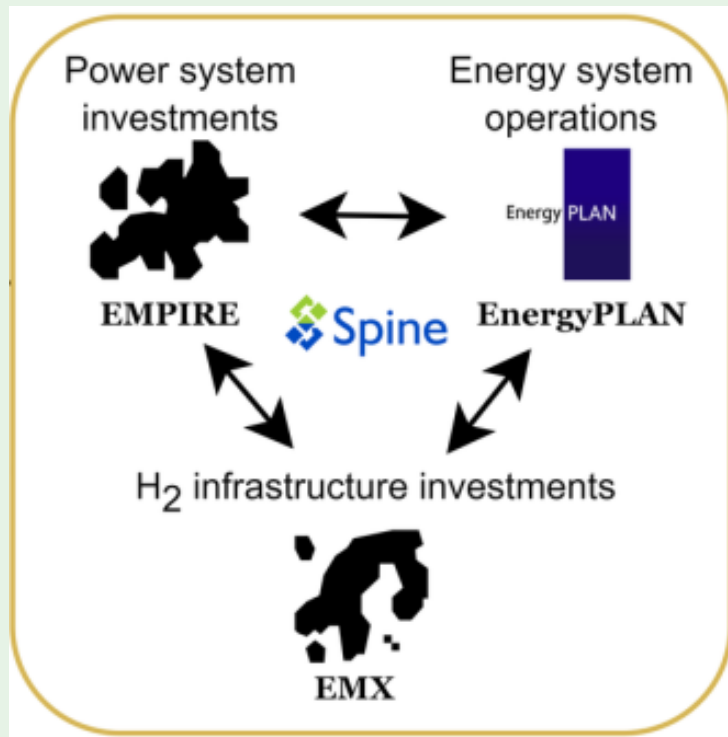


W3: Socio economic barriers



W4: Hydrogen hubs toolbox and energy system uptake

- Model adjustments and extensions.
- Linkage methodology, input-output data and the Spine Tool box.

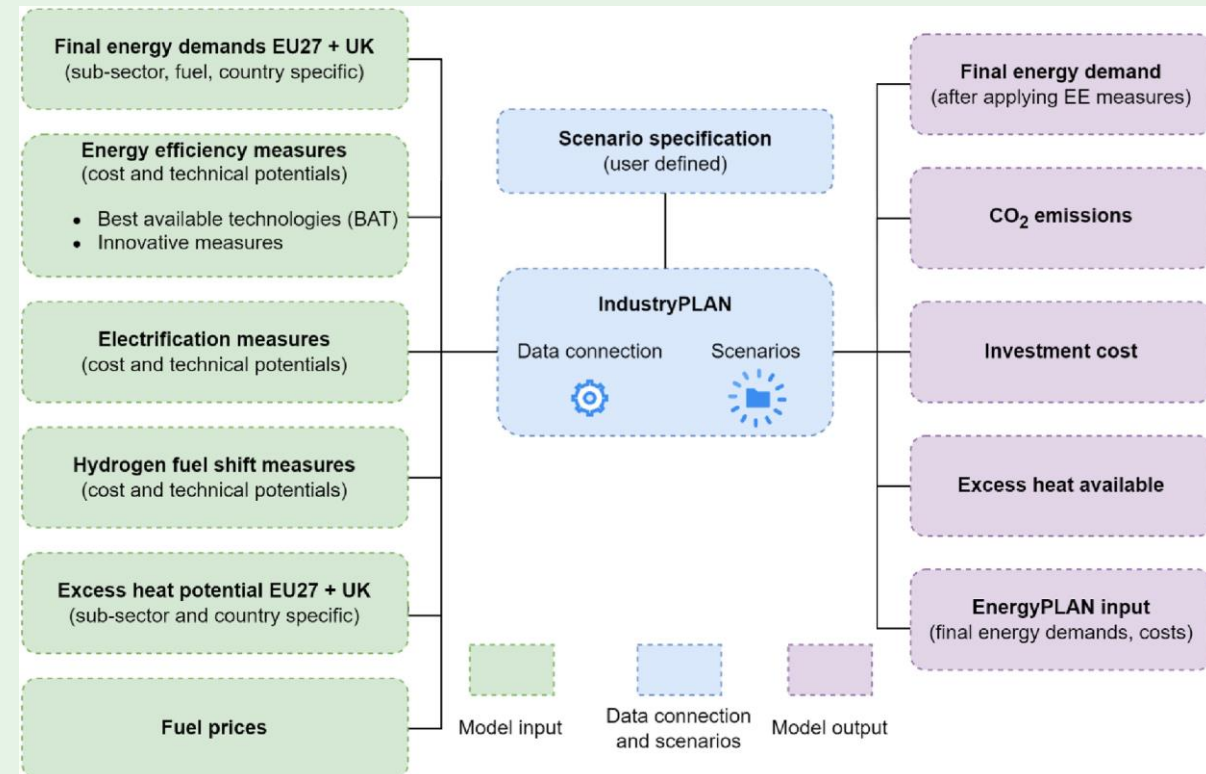


W5: Scenarios and energy system analysis

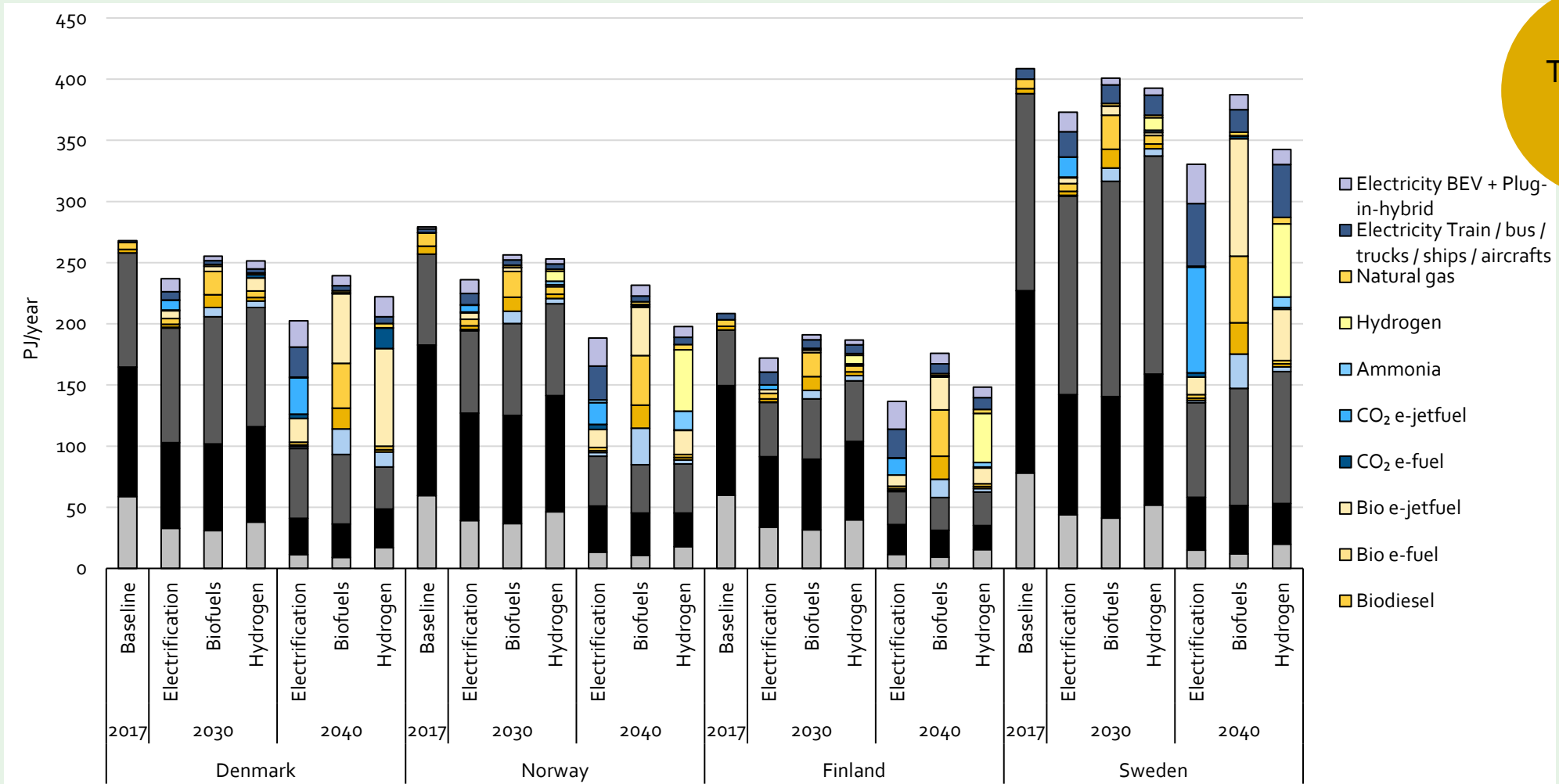
Investigation of cost-optimized investments related to hydrogen infrastructure and the balance between various hydrogen production.

Simulations on operations and short-term cross-sectorial interactions and synergies between different energy sectors are being investigated.

Transport demand development and industry energy demands are estimated, based on the gathered data



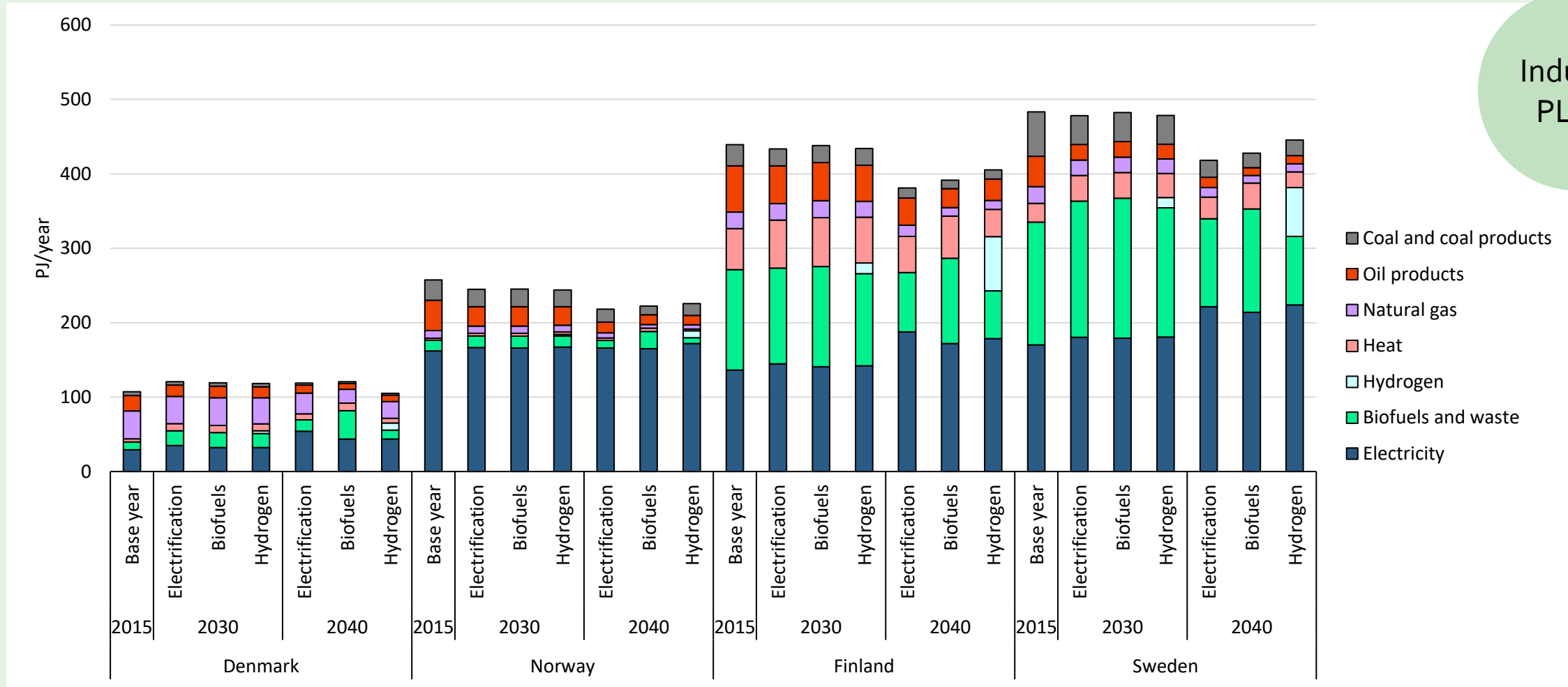
W5: Preliminary results – Final Energy Demand



Transport PLAN

W5: Preliminary results – Final Energy Demand

Industry PLAN



Lessons learned so far

- Several differences between the Nordic countries, but also great premises for cooperation and learning from one another
- The European and Nordic Hydrogen market is changing relatively fast, and thus some tasks in the project have been adapted to make sure the outcome is relevant
- Both an advantage and a challenge to have so many aspects of the hydrogen value chains gathered in one project

Thank you for your attention

