



Nordic
Hydrogen Valleys
as Energy Hubs



Nordic Energy
Research



Nordic
H₂ubs



NordicH2ubs: WP3

Socio-economic barriers

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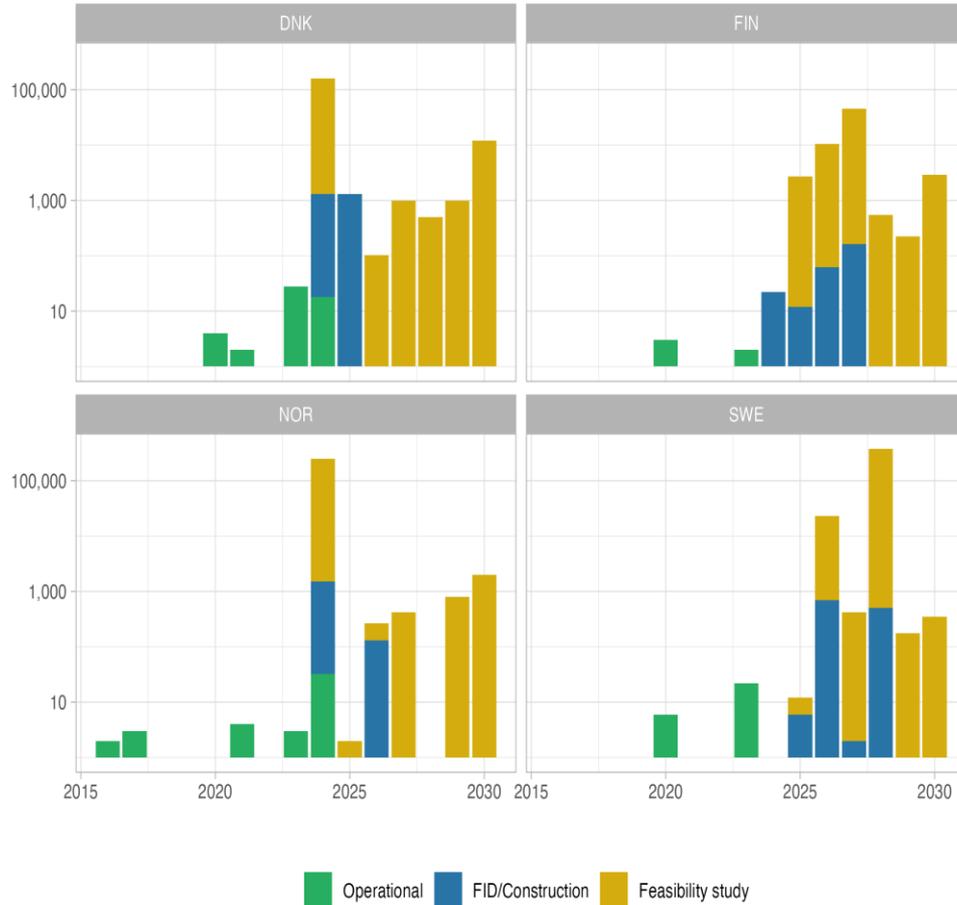
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Purpose

What characterizes the “Nordic” Hydrogen Economy?

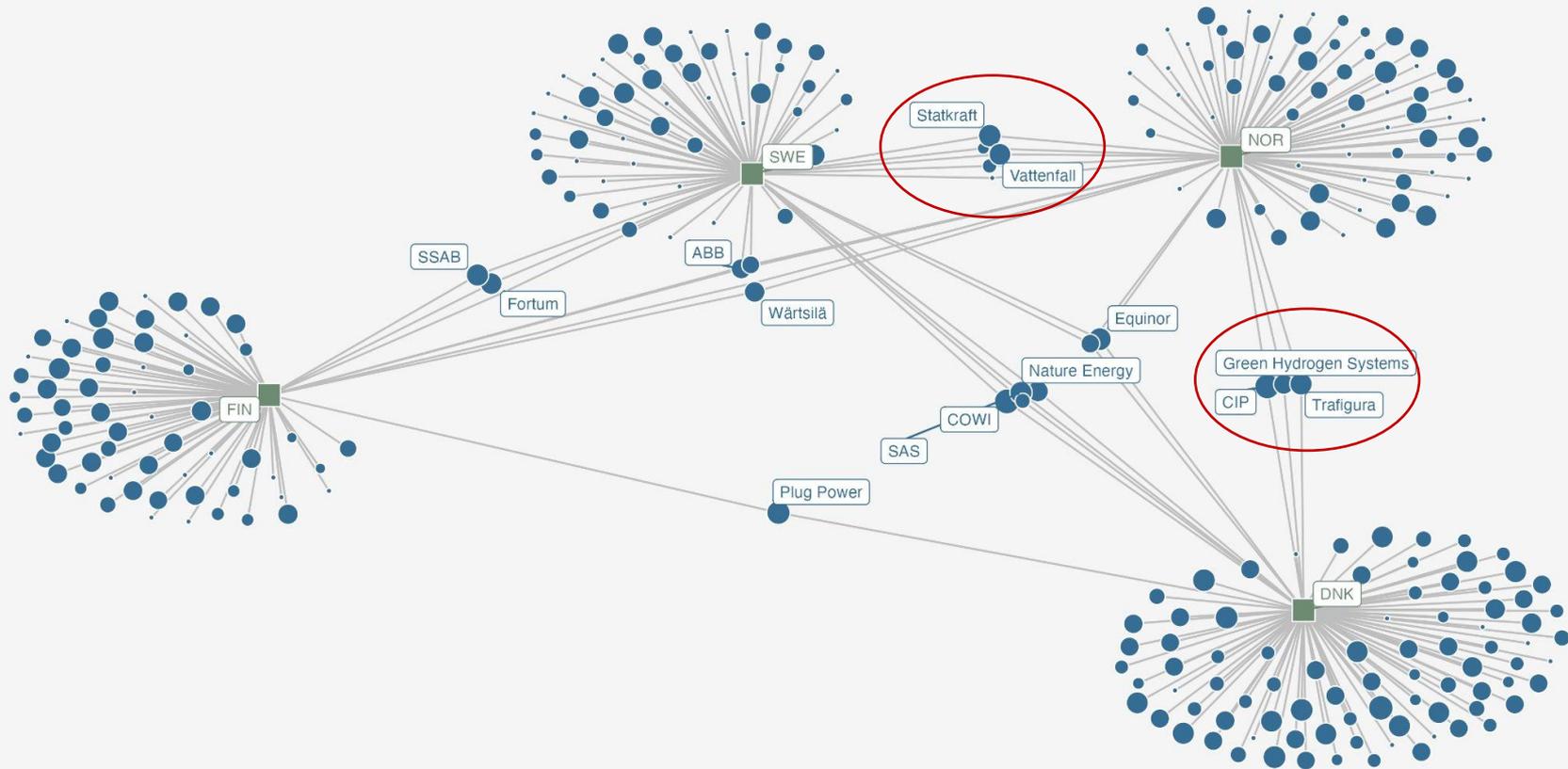
- **H2 - projects** in Denmark, Finland, Norway, and Sweden (2015-2024).
Four main categories: Feasibility, Construction, Operational, Paused/Cancelled
- **H2-recruitment patterns** in Denmark, Norway, and Sweden
(2023-08-20 tom 2024-09-30)



H2 Projects

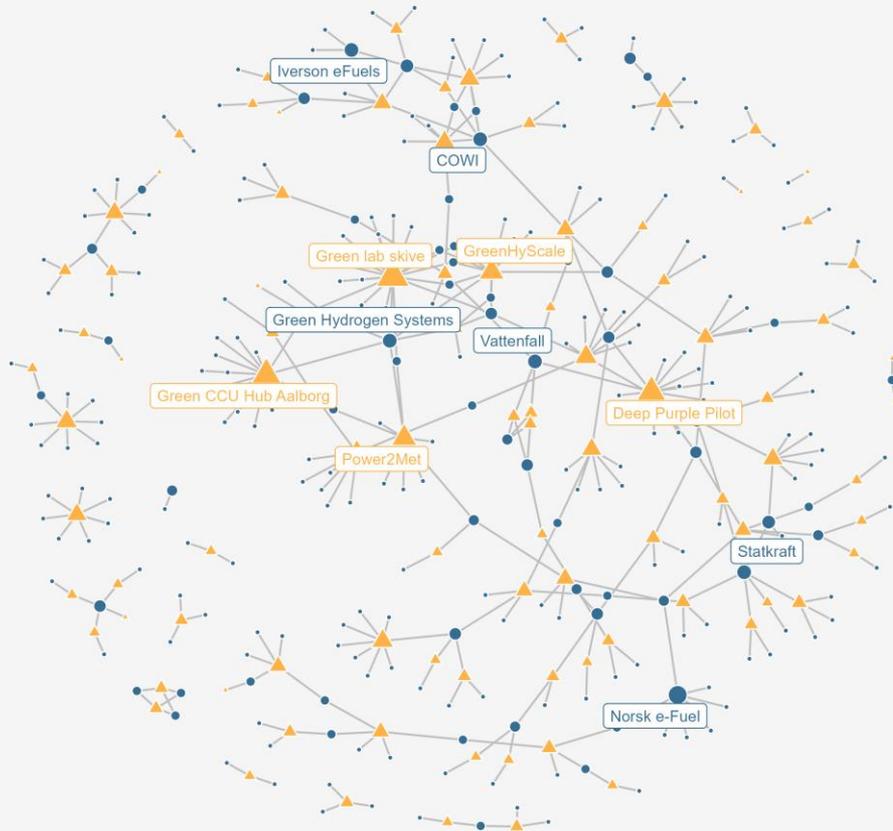
STATUS	MW	SHARE [%]	TWH
Operational	104	0.35	1
Paused/Cancelled	2914	9.72	23
FID/Construction	2998	10.00	24
Feasibility study	23958	79.93	192

Actors Cutting Across the Nordic countries



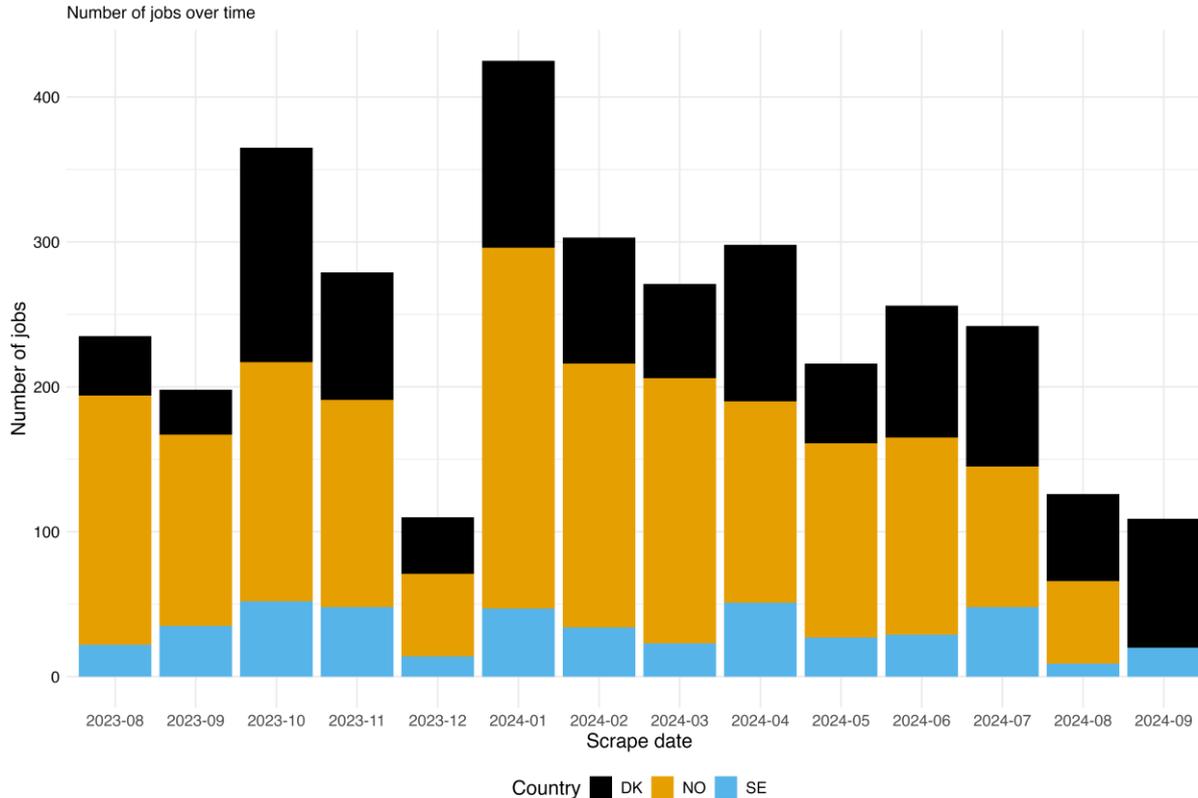
Most central actors cutting across multiple countries. Each actor is active in projects with a combined capacity of more than 100MW

Most Central Actors and Projects across the Nordic countries



Observations

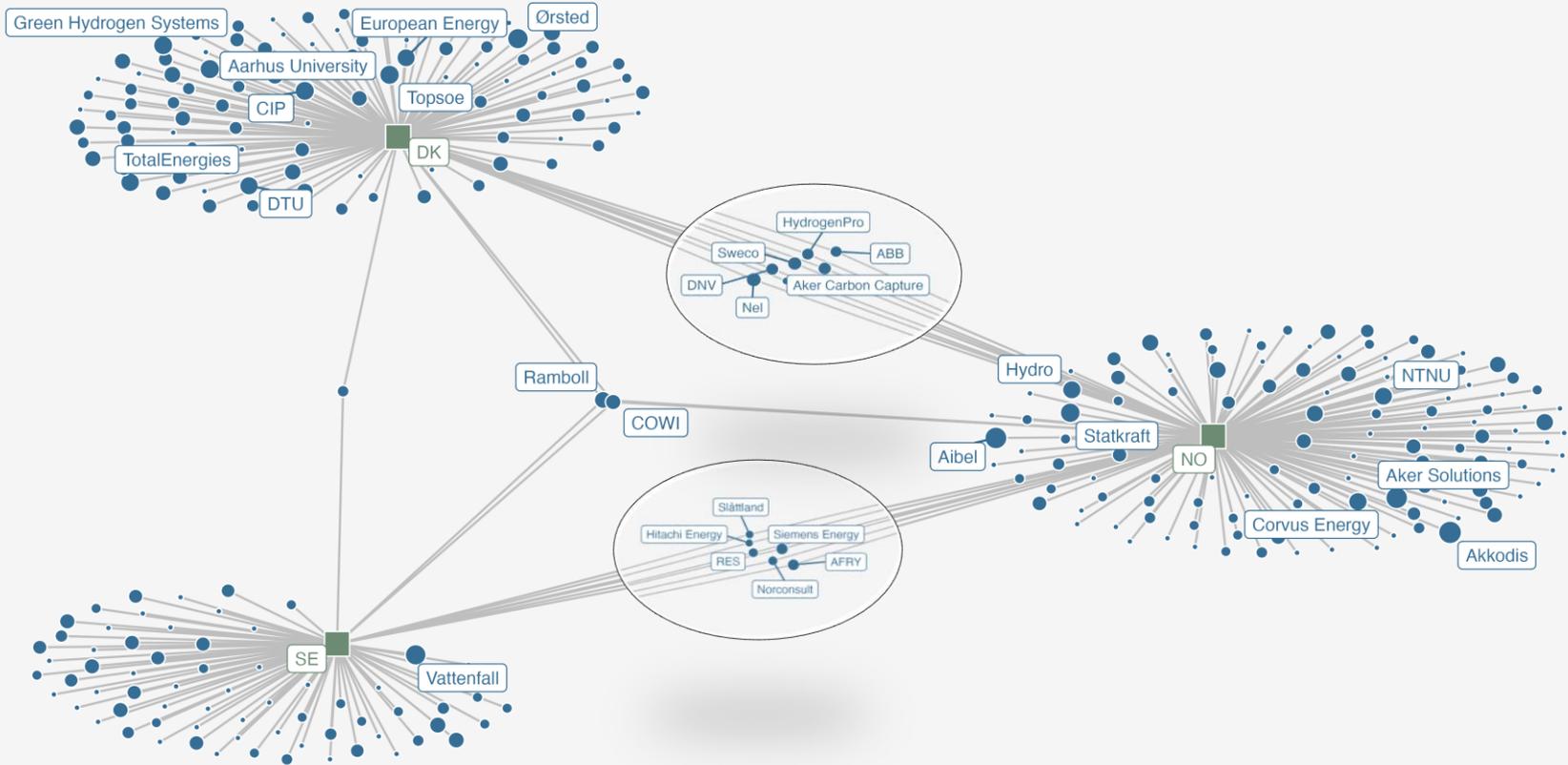
- There are 25 unconnected network of actors and projects
- However, the largest network connects 70% of all actors.
- Most central actors and projects are Danish and Norwegian.



H2-recruitment patterns

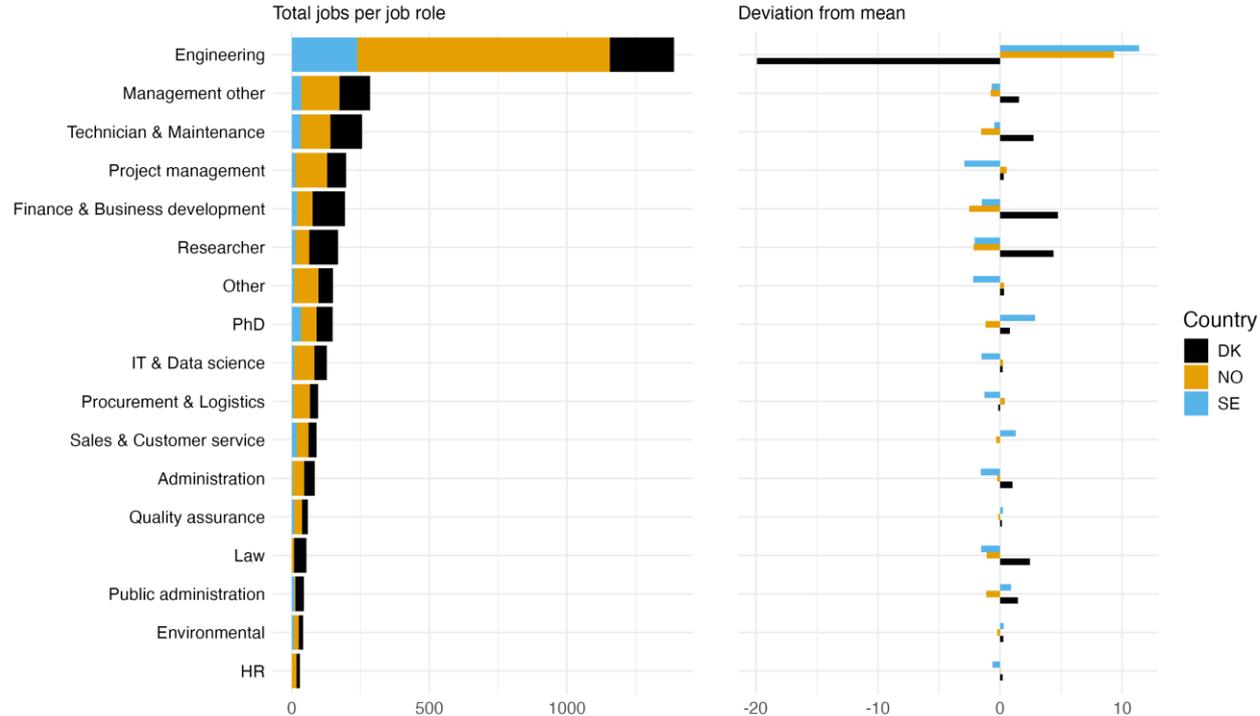
- Scraping of recruitment websites
- Categorisation of organisations and job roles
- Descriptive analysis
- Clustering analysis

Actors cutting across the Nordic countries or recruiting at large within countries

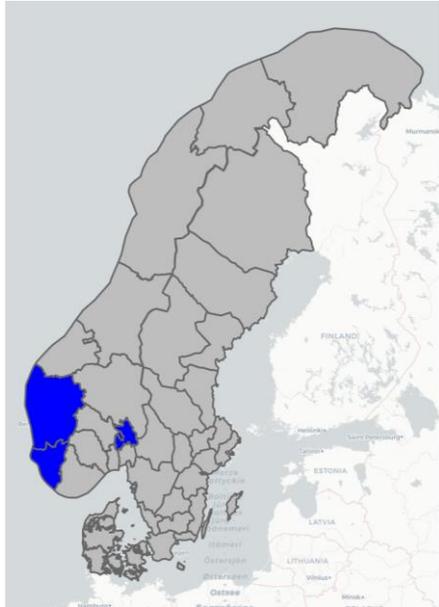


Most central actors cutting across multiple countries accounting for 1% or more of all jobs found, as well as actors recruiting within single countries accounting for 1% or more of all jobs found.

Competences sought

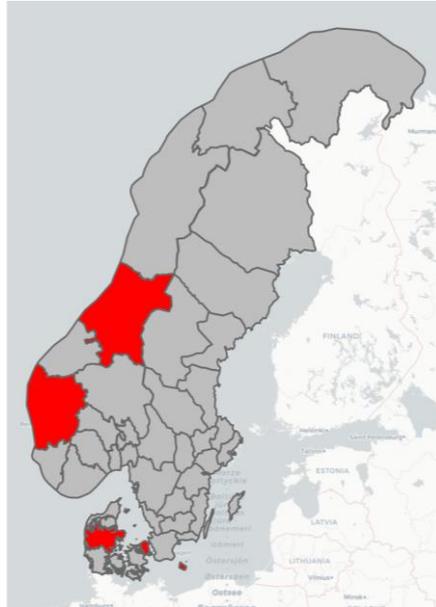


Clustering analysis



Cluster 1 - Norwegian Energy Engineering

- Majority of jobs – primarily engineers



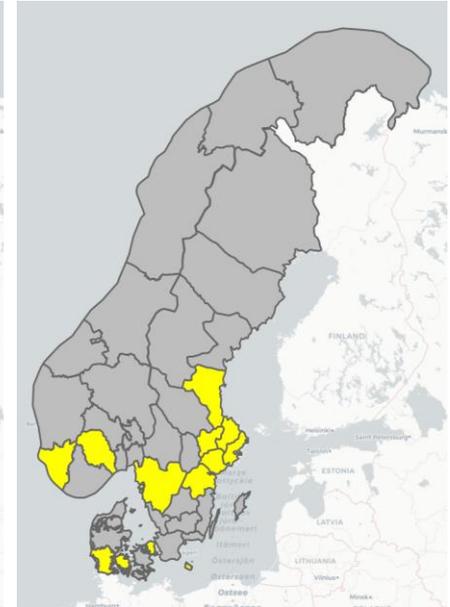
Cluster 2 - Universities & Research institutes

- Major recruiter of researchers



Cluster 3 - Management & Finance in Oslo & Hovedstaden

- Major recruiter of managers and financial competences



Cluster 4 - Scandinavian General Energy Industry

- Jobs within energy related sectors

Characteristics of a Nordic H2-economy

- Many projects planned – Few in operation
- Leading actors are:
 - present across countries – Regarding projects
 - primarily present within single countries – Regarding recruitment
- Engineering jobs are most sought after
- Denmark seeks a wider spread of competences
- Regional and sectorial differences in job recruitment
 - Four distinct clusters/groups
 - Norwegian energy technology sector in the lead
 - Sweden's presence is less distinct - only present on a general industry level



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