



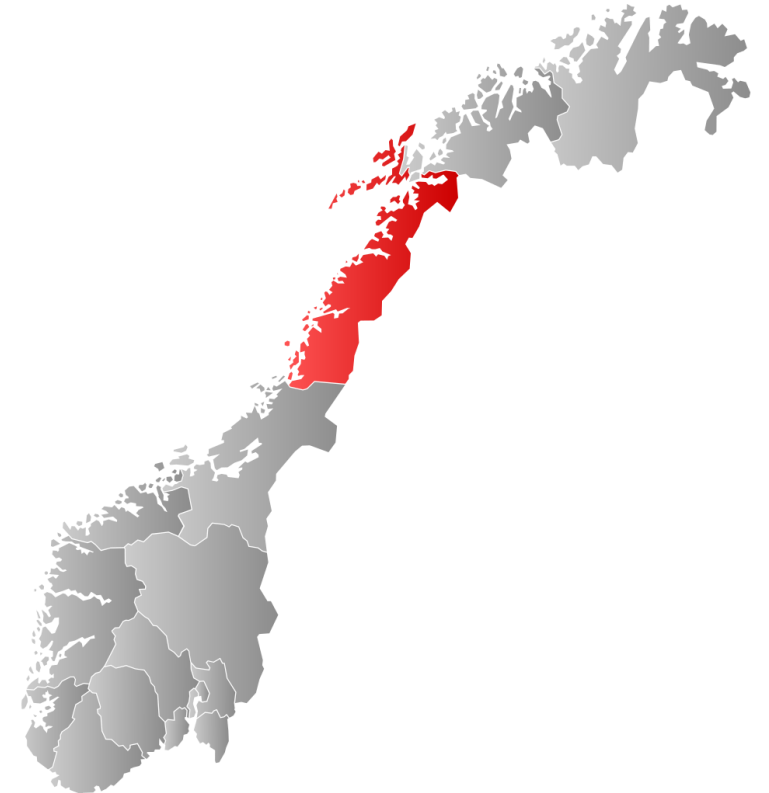
# Nordland H4C – What is it?

Nordland county is:

- 240,000 inhabitants (Belgium: 11,700,000)
- 38,155 km<sup>2</sup> (Belgium: 30,689 km<sup>2</sup>)
- Producing over 18 TWh electricity yearly, with 7 TWh surplus
- Exporting 4.5 billion €

Strong sectors: metal, plastics, fishery and aquaculture industries.

Growth sectors: hydrogen, supplier and data-centre.





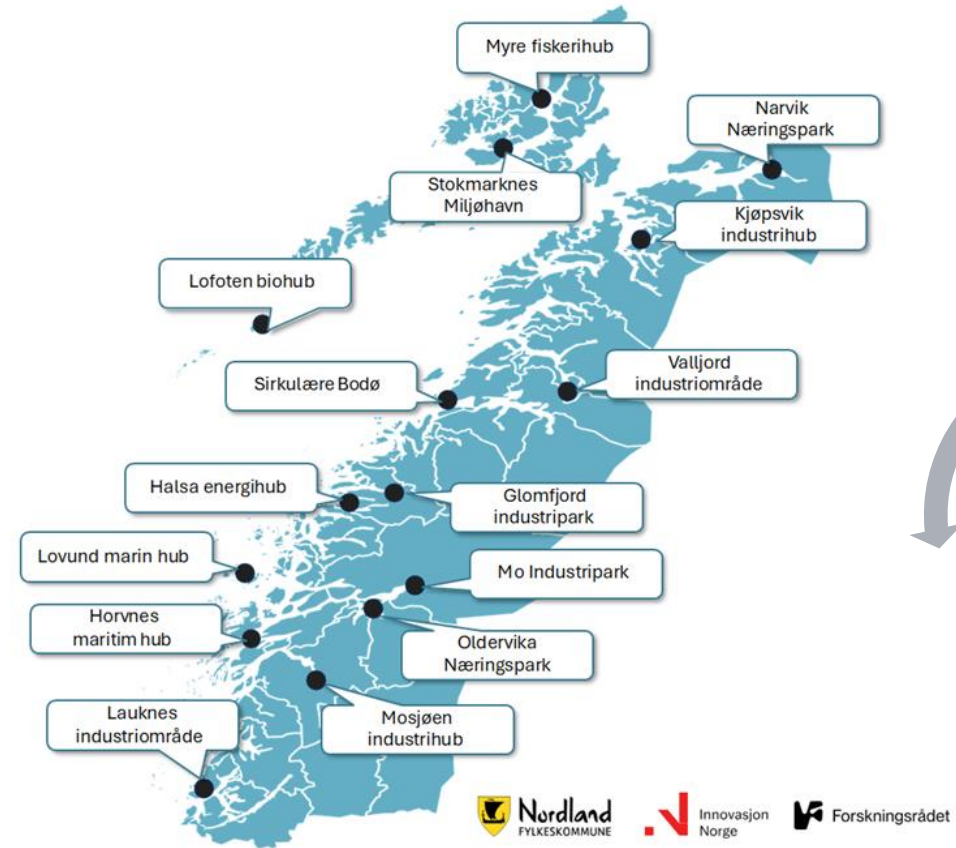
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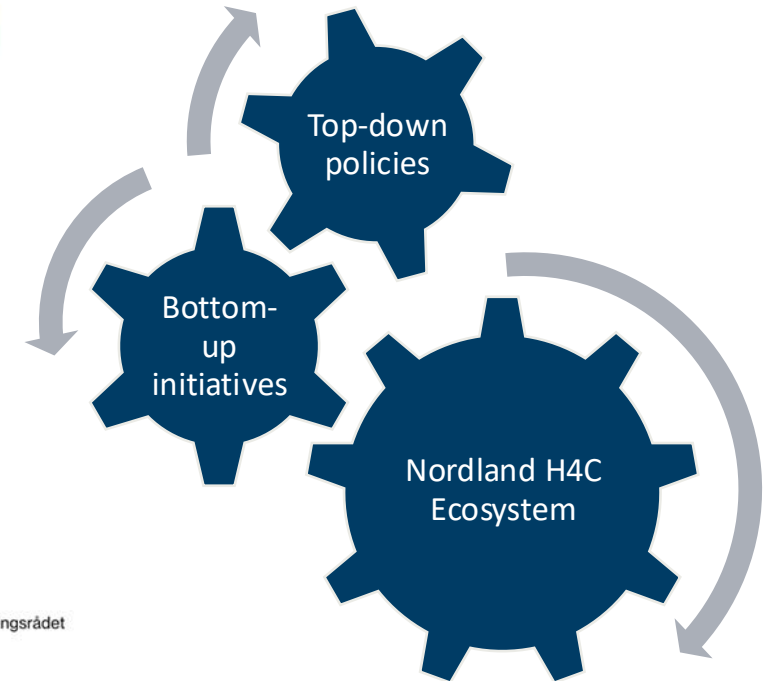
# Nordland H4C

## Current status and development

- 15 distinct hubs spread across the region with increased symbiosis potential
- Nordland County initiative, Circular Nordland, on power intensive and marine sectors
- Sector-coupling development



Source: Nordland Fylkeskommune



# Top-down policy

## Norwegian Circularity Mission & Circular Nordland

### Utformer nytt «mission» i sirkulær økonomi

Nå er det tredje norske samfunnsoppdraget — mission — «sirkulær økonomi» i støpeskjeen.



Klima- og miljøminister Andreas Bjelland Eriksen (Ap) forteller om utformingen av samfunnsoppdraget sirkulær økonomi. Foto: Tor Erik Schrøder / NTB

Source: Khrono

- National mission on circularity
- Ministry of Climate and Environment
- Led by the Norwegian Research Council
- Counties, Innovation Norway, SIVA

Localization



Source: Sirkulære Nordland

- Partnership with each county region
- Tailored policy approaches
  - Continuation of previous policies  
E.g. Smart Specialisation
- Support to develop, organise and symbiosis hubs

# What are the bottom-up forces?

Example:



Establish a strategic vision and goal



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Gather stakeholders, set the agenda

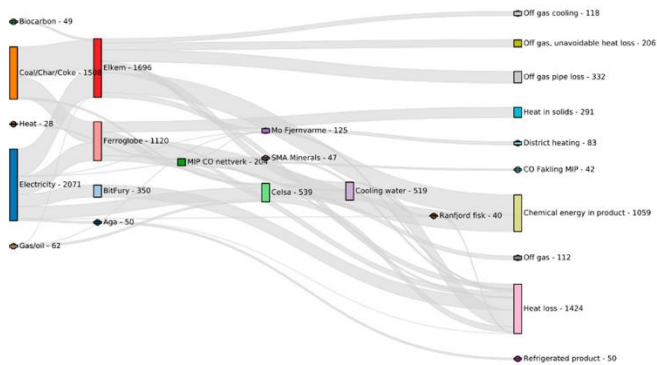
Define progress-goals and KPI:s

Establish (pilot)-projects and R&D-initiatives



Image: Kunnskapsparken Helgeland

Energy Diagram

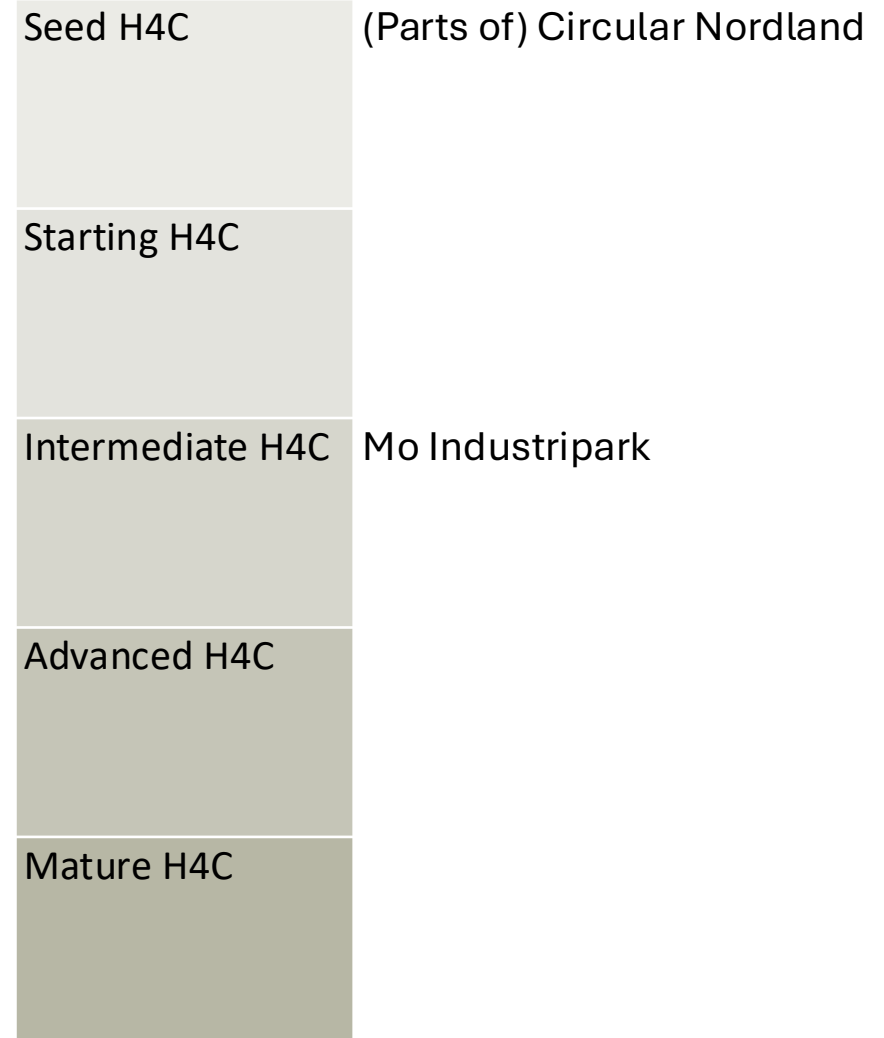


# Development and maturing of hubs

Simple, not integrated

- Organization and management
  - Research and innovation
- Political and industry commitment

Complex, integrated





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# Success-factors

## Learning process

- Absorptive capacity, Knowledge assimilation
- Success stories
- Spillover between hubs and projects

## Continuity

- Project continuity - Improvement, exploration and increase integration
- Policy continuity - Utilising H4C as a solution to new developments (energy crisis, resilience, security)

## Geographical

- Smart logistics - Nordland is large and mountainous



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and also municipalities, government,  
industry actors and R&D...

... the entire innovation eco-system.



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# Thank you for listening!



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