

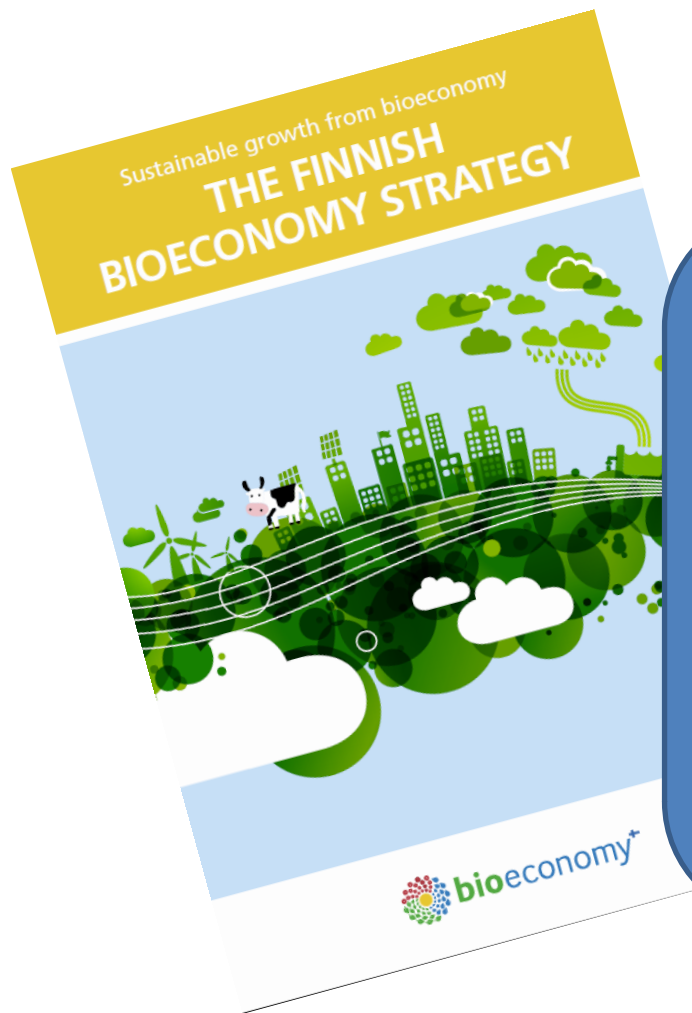
*Making the Bioeconomy Work for  
Rural Development:  
Some Nordic Experience*

**OECD Rural Policy Conference,  
Memphis May 2015**

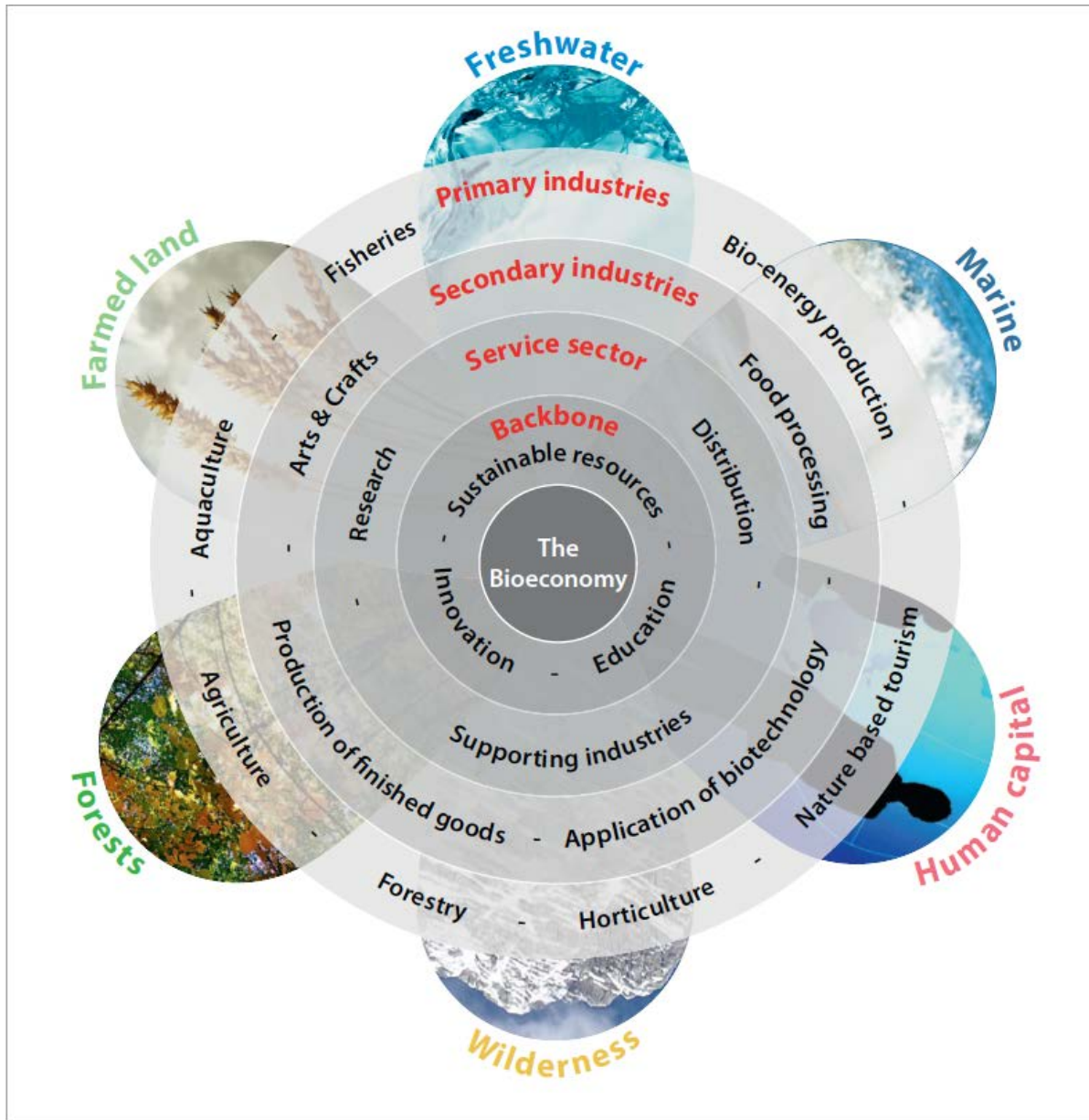
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# 'Bioeconomy'

## A broad definition & scope



*“Bioeconomy refers to an economy that relies on renewable natural resources to produce food, energy, products and services. The bioeconomy will reduce our dependence on fossil natural resources, prevent biodiversity loss and create new economic growth and jobs in line with the principles of sustainable development.”*



**Icelandic definition of Bioeconomy: From Matis Ltd**

# Scale of the Bioeconomy

- EU
  - 2 trillion Euros and provides some 22 million jobs or about 9% of the EU labour force (CEC)
- Nordic countries
  - 184 billion + Euros (turnover) or 10% of the economy,
    - Iceland: 18%
    - Finland: > 16%
    - Norway: 6%
- How important for rural regions?
  - Örnsköldsvik region, Sweden
    - The bioeconomy is reckoned to provide some 25% of employment
  - But this is high...

# Nordics see considerable scope for future bioeconomy development, BUT

- Expected benefits may not reach rural regions.
  - competing demands for bio-resources
  - extraction costs of the raw materials may be too high
  - regulations may be too rigid
  - institutional arrangements may prevent the utilisation of ‘free’ raw materials (“waste”) or positive synergies
  - opposition to harmful/ ‘smelly’ emissions
  - prices of the end products may be too low because of competing products (chemical pharmaceuticals, oil etc)
  - external ownership and IPR rents may absorb a high proportion of any surplus

# Public policies play a critical role – Swedish case

Örnsköldsvik municipality and wider region: 29,000 inhab.

A map of Sweden showing its regional boundaries. A blue arrow points from the text 'Örnsköldsvik municipality and wider region: 29,000 inhab.' to a specific location in the northern part of the country.

National Bioeconomy Strategy.

VINNOVA  
(Public agency for innovation systems) via VINNVAXT programme for regional specialisms

- Biofuel Region platform for 4 northern counties.
- Local Municipal adoption of ethanol buses, and municipal DH.
- Development of local vision and 'brand'. Municipal and National support for the Biorefinery of the Future Cluster, with quad helix form.
- Estab of Regional Pilot Process plants in Umeo and Örnsköldsvik

# Finnish case

Forssa,  
18,000 inh.



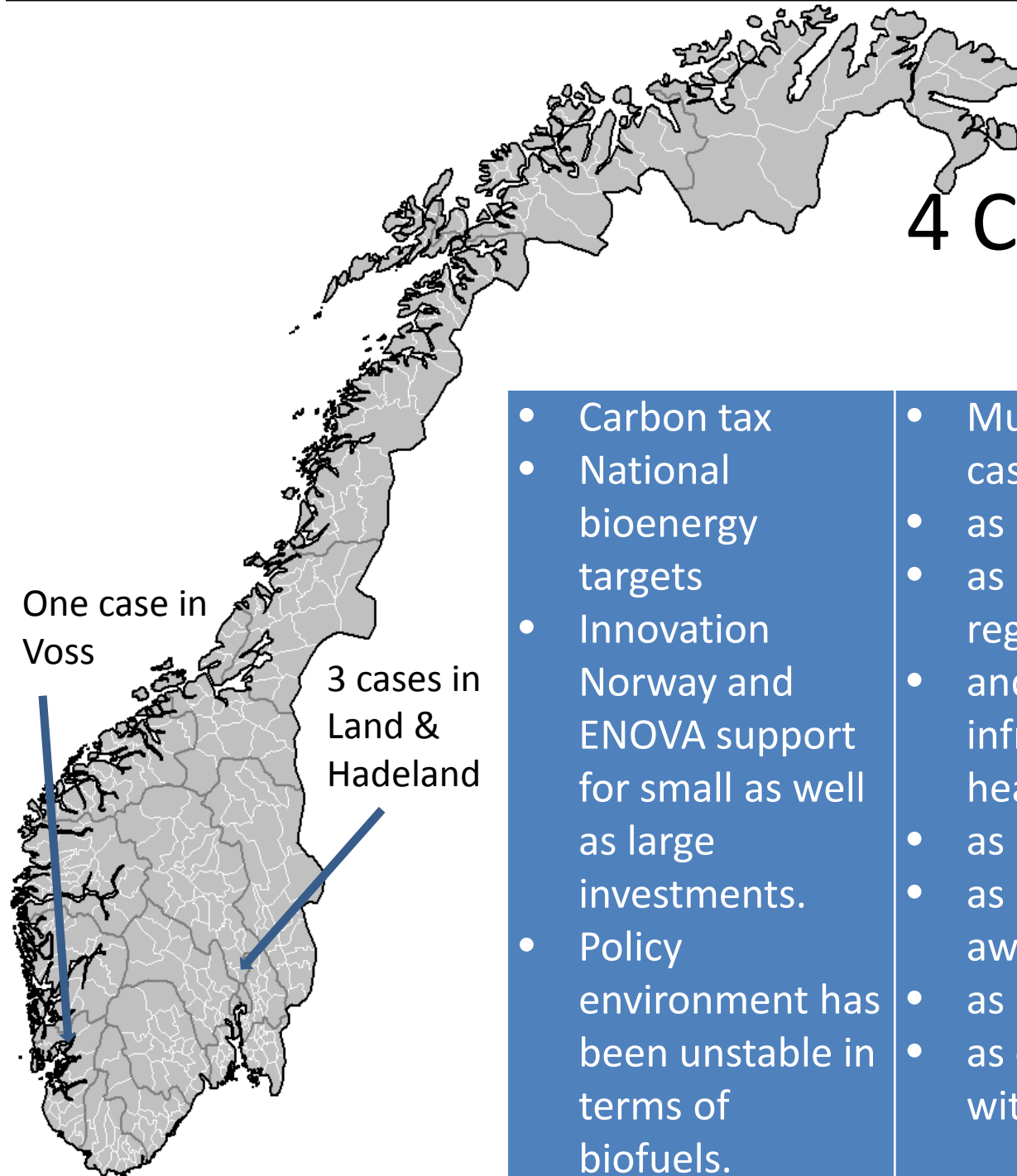
National Bioeconomy Strategy 2014.

Key national funding support bodies, SITRA and Tekes

- Started in 1990s with new Municipal Dump and Waste management company LHJ.
- Local company first biogas from waste and food processing by-products.
- Envi eco-industrial park; Forssa Envitech club (2006).
- Forssa Cluster cooperation.
- Brightgreen Forssa concept, as a Brand.
- Bioeconomy and sustainable use of Natural Resources one of 5 strategic foci in Home Regions Strategy 2013-14.



# 4 Cases in Norway



- Carbon tax
  - National bioenergy targets
  - Innovation Norway and ENOVA support for small as well as large investments.
  - Policy environment has been unstable in terms of biofuels.
- Municipalities active in all four cases as customers,
  - as investors,
  - as local regulators (eg of building regulations)
  - and in some cases as infrastructure providers (district heating pipe network);
  - as member of GRIPs;
  - as 'brander' and raiser of awareness;
  - as legitimiser;
  - as coordinator and link agency with sources of expertise etc.



Focus on Green and Sustainable Development since the 1990s.

Vestas (Wind Turbines) a world leader.

- Lolland Community Testing Facility (CTF) developed 2007.
- Development of Innovative Partnerships including Community (Quadruple Helix).
- Co-creation with cluster development, Industrial Synergy, Innovation Platforms, meetings & networking.
- Regional Advisory Group developing ideas for Bioeconomy.
- Membership of National innovation networks.
- Green Centre, Lolland estab. 1988, started Algae Innovation Centre with Aalborg and Roskilde Universities.

# Danish case: Lolland



# Conclusions

- The bioeconomy is important in the Nordic countries
- Considerable future potential is seen in forest, marine & 'waste' bioeconomy
  - Transition to 'low carbon economy'
  - Rural and regional development
- Synergies and symbiosis very important for the economics and locational clustering
- No 'heavy' policies for the bioeconomy in the Nordics
- Local policies and engagement in local and regional innovation platforms around the bioeconomy are very important
- Innovation platforms with quadruple or quintuple helix configuration are important.

# The 'Quintuple Helix' IP is Common in the Nordics

