Nordic Energy Research

Energy R&D Contributions to Future Economic Growth and Social Welfare in the Baltic Sea Region

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Seminar on Nordic Research and Innovation Cooperation with Estonia

Tallinn, 3rd April 2006

Outline

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- The energy challenge
- Energy research – decreasing expenditures
- Nordic energy R&D cooperation
- Call for proposals 2007-2010

Future Welfare Depends on the 4 E's

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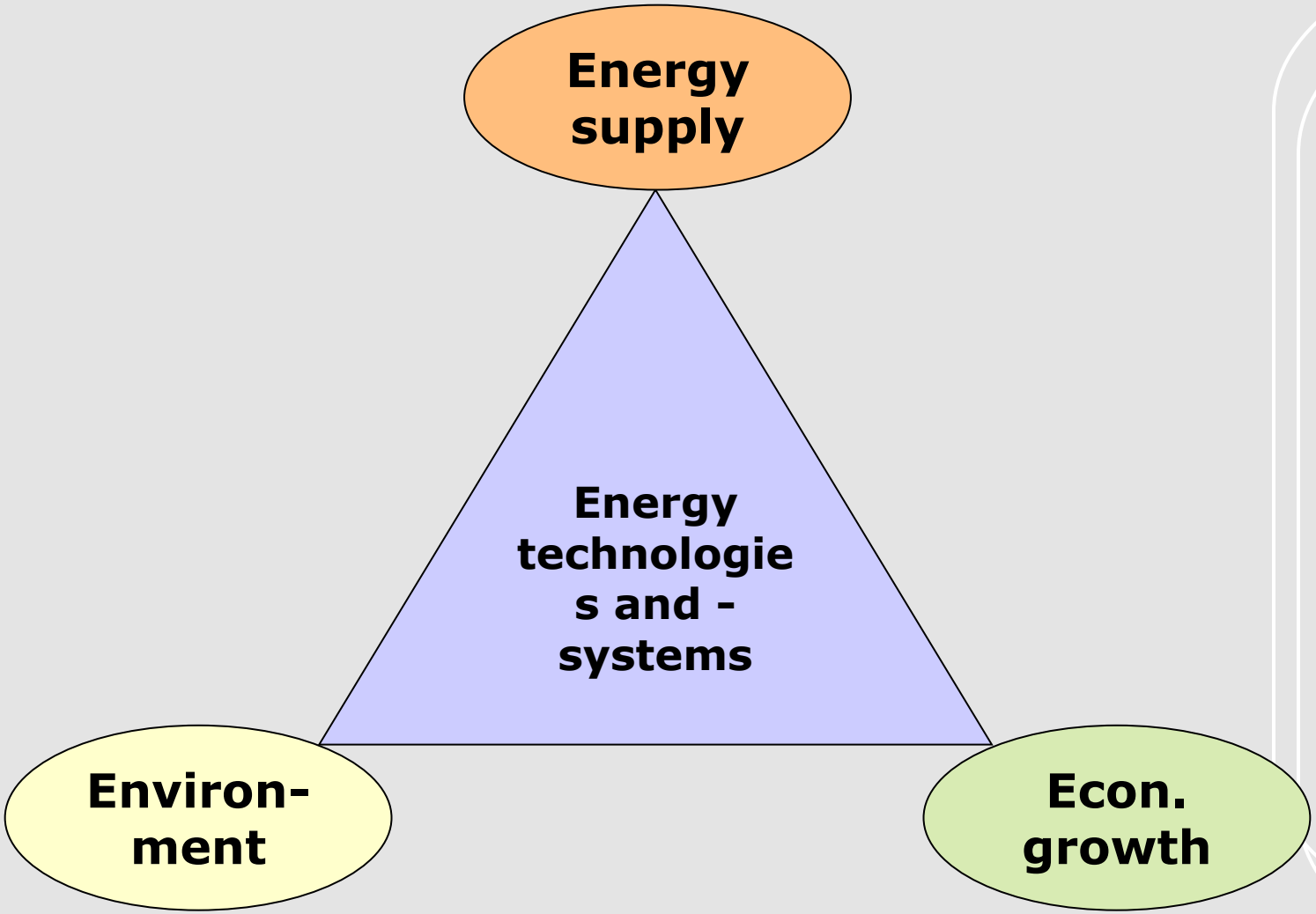

Energy Dependence on Nuclear Power and Imports from Russia

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Estonia:
About two-thirds of the total energy supply is from indigenous petroleum products – Obligation to stop production after agreement with EU.

Latvia:
Imports more than half of the energy requirement from Russia (gas, oil) and Lithuania (nuclear power)

Lithuania:
The nuclear station Ignalina covers 80% of the power consumption. Exports power to Latvia and Estonia. Ignalina to be closed down.

Source: OECD IEA Energy Statistics and *Nordic Council*

Decreasing Public Energy R&D Expenditures

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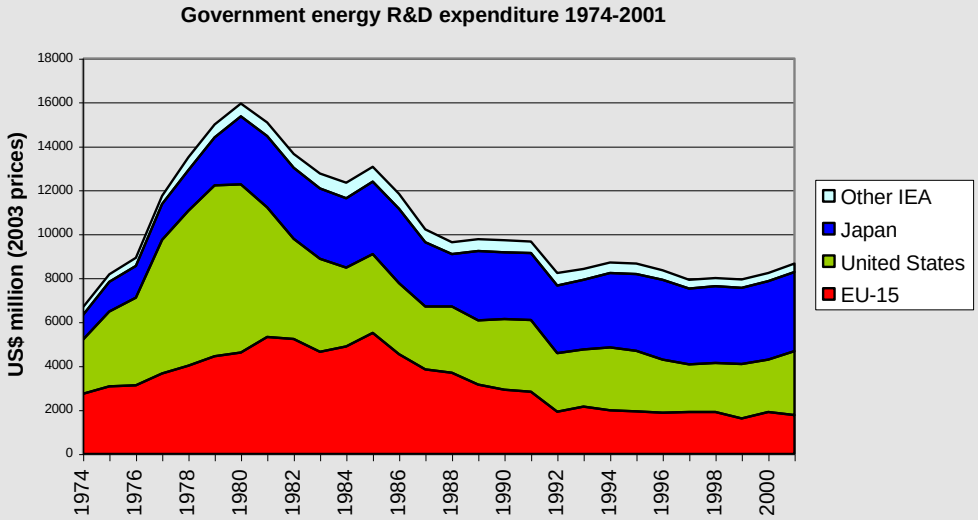
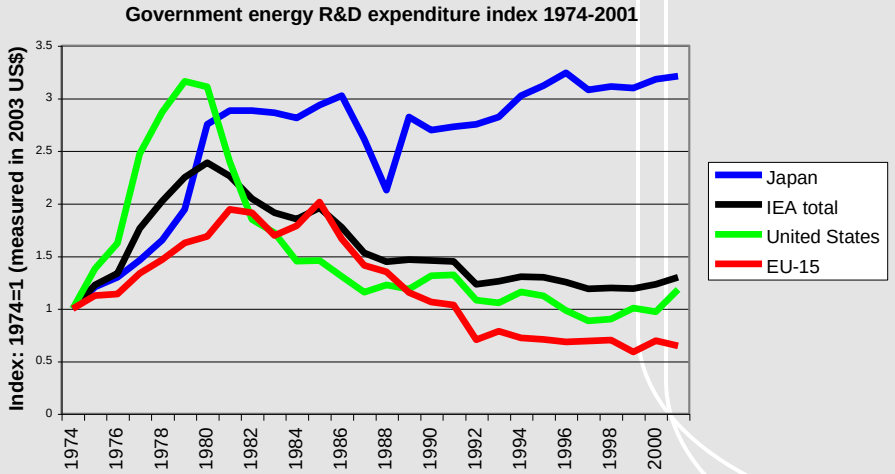


- Decreasing energy R&D expenditure worldwide, except in Japan.
- Decreasing EU energy R&D funds:
  - FP 1: 2.5 B€ (66%)
  - EU FP 6: 2.0 B€ (12%)
  - EU FP7: ??



Nordic Countries – No Exception

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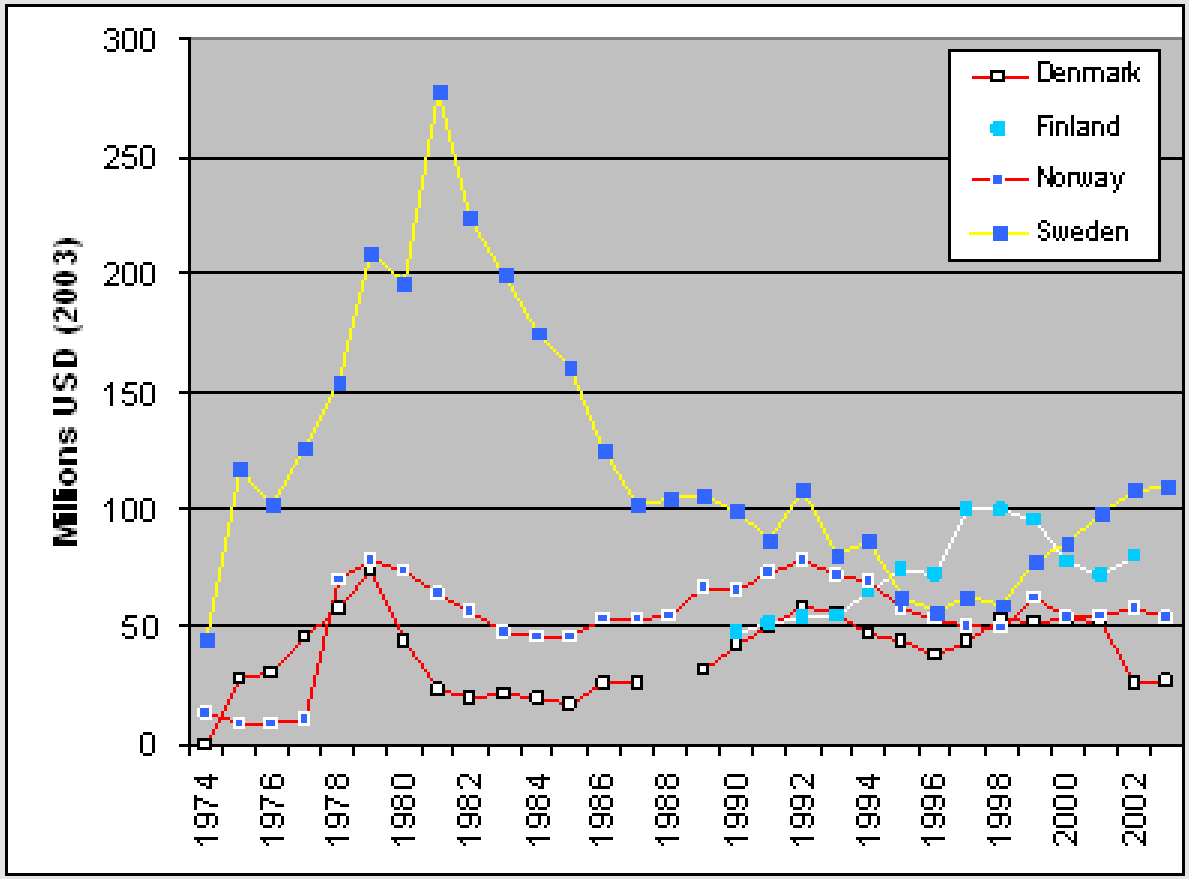

- Decreasing public energy R&D expenditures, also in the Nordic countries
- How to get more value from scarce resources?

Trans-national Energy R&D

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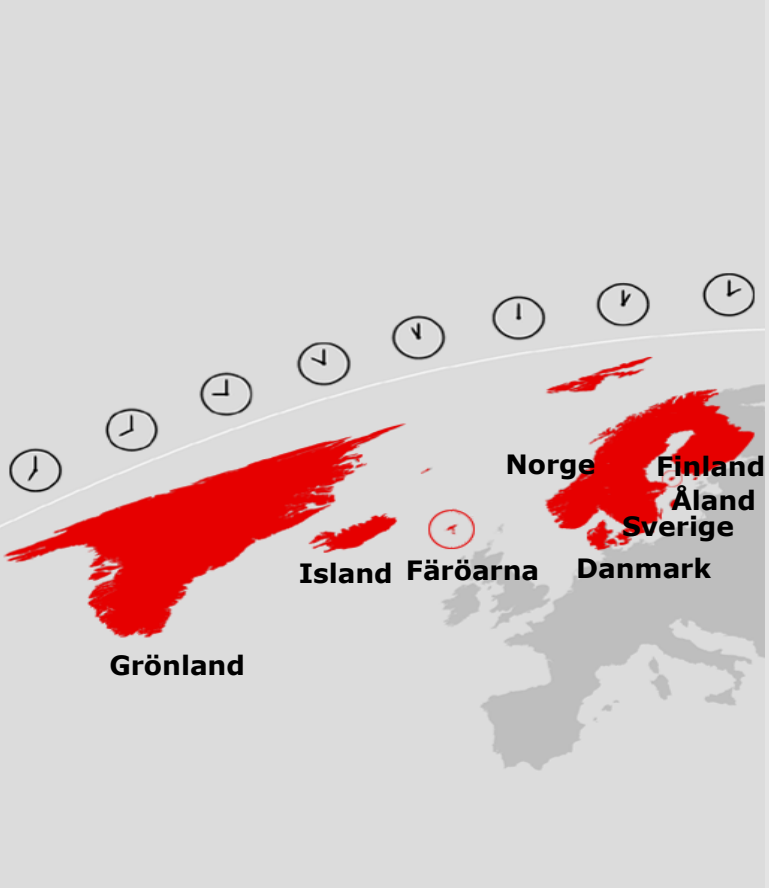

- Nordic Energy Research Programme, 1985
- Nordic Energy Research (institution), 1999
- Bridge to the European Research Area (ERA):
  - HY-CO & INNER
  - European Technology Platform for H_2&FC

Incremental Changes

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1985 2003 2007

- **Education**
- **Knowledge building**
- **Mobility**

- **Capacity and competence**
- **Innovation**
- **Networking**

Combustion

Bioenergy

Districtheat

Oil geology

Oil technology

Integration of energy market

New sustainable energy sources

Energy efficiency

Hydrogen

Consequences of climate change

Strategic Organisation

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- Capacity and knowledge building
- Business development and innovation
- Support for policy processes
- International networking

Present programme (2003-2006) comprises:

1. ***15 larger R&D projects with app. 250 researchers in the Nordic countries and adjacent areas***
2. ***80 % of funds used on applied research and development***
3. ***More than 70 % of the projects have participants from countries outside the Nordic countries, mainly the Baltic countries and North-west Russia***

Projects 2003 – 2006

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Projects

Integration of the energy market

- **Nordic Energy Market Integration, Energy Efficiency and Climate change**
- **Comparison of Nordic Regulatory Models**

Renewable energy sources

- **Nordic Graduate School of Biofuel Science and Technology (Biofuel GS)**
- **Solar Electricity, from Materials to System Integration**
- **Competitive Solar Heating Systems for Residential Buildings**
- **Large-scale Integration of Wind Energy into the Nordic Grid**

Energy efficiency

- **Underground Cold Storage for Hybrid Cooling of Buildings**

The hydrogen society

- **Bio Hydrogen**
- **NORSTORE**
- **New Metal Hydrides for Hydrogen Storage**
- **Nordic and Baltic Applied Fuel Cell Technology Research Network**
- **Hydrogen Production - Electrolysis**
- **Hydrogen Energy Foresight in the Nordic Countries**

The effects of climate changes on the energy sector

- **Nordic CO2 Sequestration (NOCO2)**
- **Impacts of Climate Change on Renewable Energy Sources and their Role in the Energy system**

Call for Proposals 2007-2010

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- **75 Mil. NOK** (app. 10 M€) for Energy R&D
- Thematic areas:
  - Integration of the energy markets
  - Renewable forms of energy
  - Energy efficiency
  - The hydrogen society
  - Consequences of climate change on the energy sector
- Project types
  - Capacity and competence building projects
  - Innovation projects
  - Integrated projects

Guiding principles

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- Transparency
- Competition
- User involvement
- Incremental and time-effective application process
- Flexibility
- Customer-friendly and efficient administration
- Pro-active communication and dissemination of results

Guidelines - Criteria

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	Capacity and competence building	**Innovation**	**Integrated projects**
Quality perception	Scientific / internal	External quality / user-driven problem	Internal and external
Nordic relevance	Relevance to the Nordic energy sector and/or energy policy	Relevance to the Nordic energy sector and industry	Relevance to the Nordic energy sector and industry
Number	Min. 4 Nordic countries and/ or autonomous areas. Baltic countries and Northwest Russia appreciated	Min. 3 Nordic countries and/ or autonomous areas. Baltic countries and Northwest Russia appreciated	Min. 3 Nordic countries and/ or autonomous areas. Baltic countries and Northwest Russia appreciated
Actors	Project partners mainly from academia	Projects partners from research institutes, industry, energy sector, etc.	Projects partners from academia, research institutions, industry, energy sector, etc.
NER finances	Up to 85% of the total project eligible costs	Up to 50% of the total project eligible costs	Up to 75% of total project eligible costs
NER allocates to projects	Max 3 mill NOK per year	Max 3 mill NOK per year	Max 3 mill NOK per year
Project length	Max 4 years	Max 2 years	Max 4 years

Application Process

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- Call for Expressions of Interest posted March 2006
- Information day, 24 April 2006, Oslo
- Deadline for EoI, 19 May 2006
- Nordic review of EoI
- Response by 30 June 2006. After a positive feedback to the EoI, the applicant is invited to submit a full application
- Deadline for full application, 22 September 2006
- International review of applications
- Response by 30 November 2006
- Contract negotiation
- Project start, 2007-

Head Office

norden

Nordic Energy Research

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- **Mikael Forss**, Senior Advisor
- **Vivi Mathiesen**, Senior Advisor
- **Lise Jørstad**, Project Manager
- **Unni Bruaset**, Head of Administration

Thank you for your attention

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