

2010

Annual report

balance
energy
cooperation
possibilities
future



norden

Nordic Energy Research

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Chairman's word

Looking forward to the future



Nordic Energy Research is not the only organization working with energy related issues. But we are the only one under the auspices of the Nordic states operating on a trans-national level to strengthen the joint interests of the Nordic energy sector. In this way we function as a bridge between the countries, but also as a bridge between policy, research and business. We gather expertise across nations. Nordic Energy Research supports researchers to broaden their horizons and to collaborate with Nordic researchers from a Nordic perspective. For example, a PhD student might have the opportunity to work in another Nordic country and thus create contacts and get experience that can be valuable for years to come. This brings countries together. Also the energy authorities are brought together through their cooperation with us, e.g. being part of our board.

” The Nordic countries are each relatively small, but **together we have about 25 million inhabitants** and the region is the **12th largest economy in the world.**

Nordic Energy Research also serves as a bridge from our region out to the rest of the world. We apply our expertise in funding and coordination in different EU contexts, and we use our international contacts in order to strengthen relations with other countries such as Canada and China. The Nordic countries are each relatively small, but together we have about 25 million inhabitants and the region is the 12th largest economy in the world. The countries' joint critical mass becomes important in our relationship to the rest of Europe. Here we are a significant player to be reckoned with. All the Nordic countries have ambitious climate goals, and like the EU, would like to be a forerunner in the global transition to a sustainable society and be a low-carbon or carbon neutral society by 2050, which means zero emissions from the power sector. This is a challenge!

Today, there is a broad political consensus to achieve this goal. Even if we could wish for clearer political agreement the goal is a reality in Nordic politics. And we know that the milestones for 2020 are important but still small steps on the road. The challenges shall be resolved by 2050. But this can be formulated in slightly different ways for different Nordic countries. For example, Denmark recently published its energy strategy towards 2050.

In my opinion, the implementation of this political reality, with maintaining our economic competitiveness, is the biggest change for Nordic Energy Research with the transition to the new strategy. When developing the new strategy, we have also considered the role of Nordic Energy Research, what our stakeholders claim that Nordic Energy Research is good at and what Nordic Energy Research can do in addition to the individual countries. The Nordic countries have much in common but when you look at the energy sector it is relatively different from country to country. So even if we work together we will not do the exact same. The only exception is the transport sector where the problems are identical and can be solved in common and in interplay with the broader international development. Transport issues are, by definition, cross-border and should therefore be resolved jointly.

I am very pleased that we completed the new strategy in 2010 and as a result of that managed to coordinate a successful call for our new program period for 2011 – 2014: SustainableEnergySystems2050. Our strategy is to place focus on one overruling theme: Sustainable energy systems. Where energy system covers: Renewable energy, Market & Grids, and Low-Carbon Transport. In our funded projects, we encourage interaction between these areas.

These are exciting times, and the development in the energy sector is critical to major societal issues such as environment and economical growth. Therefore, investing in energy research is investing in the future. I am looking forward to do exactly that and to do it with many skilled colleagues at universities and in companies throughout the Nordic countries.

Nicolai Zarganis
Chairman



This is Nordic Energy Research

- > Is an institution under the auspices of the Nordic Council of Ministers. The institution was established in 1999 as a continuation of the Nordic Energy Research program, which was established in 1985.
- > Aims to strengthen and develop the Nordic region as a leading knowledge region for new sustainable energy solutions and efficient energy markets.
- > Creates Nordic added value by working for increased competitiveness of the Nordic energy research, business and industry.
- > Funds energy research in areas that create synergies for the Nordic countries.
- > Has extensive experience in coordinating, designing and implementing trans-national research, and participates in, and coordinates several, major EU projects and programs under the European Research Area Network umbrella (ERA-NET).
- > Provides energy expertise to the development of Nordic energy technology policies by financing policy studies, consultancy and by managing the secretariat for the working groups of the Nordic Council of Ministers for renewable energy, electricity markets and sparsely populated areas.

315

PhD:s have been funded by Nordic Energy Research



Director's word

Less can be more



2010 has been a year of change and celebration for Nordic Energy Research (NER). We increased our turn-over from the year before and the number of employees, and the 25-year anniversary marked both the end and the beginning of strategies.



Both the energy sector and Nordic policy makers were well represented at the Nordic Energy Research 25-year Anniversary Conference, held at the Danish Design Centre in Copenhagen in October. The attendees expressed that impressive results had been achieved but also that continued innovative energy research and technology development is essential to ensure a green growth economy in the Nordic countries.

For 25 years we have administrated a true common pot, contributions coming directly from the Nordic countries. As a result we have funded 315 PhD grants and created an extensive network in the energy research community in the Nordic region. The NER board unites representatives from national energy agencies that fund energy research and contributes to policy development together with research and innovation councils.

At the same time, NER is the smallest institution within NCM receiving only a small fraction of the basic funding from NCM compared to our sister organizations Nordic Innovation and NordForsk in Oslo. Though, in recent times, with energy becoming a global grand challenge, an increasing amount of projects dealing with this challenge have been channeled to NER from the NCM. But even if we still are small, we can deliver great results! The Swedish Minister for Enterprise and Energy Maud Olofsson described NER as "small, modern and efficient" at the conference Nordic Energy Perspectives in April 2010. The conference presented results from one of the project NER has cofounded concerning perspectives for energy cooperation in the Nordic region, answering the grand challenge of energy in a most cost effective way.

Most Nordic countries aim to be carbon neutral. These ambitious targets require development at the system level. Hence the new strategy plan for NER has a sharp focus on one single overruling theme: Sustainable energy systems. In preparing the new strategy, five workshops were held, involving stakeholders from the Nordic countries representing research, innovation, industry, authorities, and interest organizations. Research funding remains our main focus but we will also aim to increase the interplay between different research areas, industry and policy makers. The research call 'Sustainable Energy Systems 2050', which was launched at the anniversary conference, reflects these objectives." The call resulted in a massive response with applications amounting to over 1 billion NOK, hugely exceeding the available 100 million NOK.

The Top-level Research Initiative is our second largest research funding program. We administrate the two smallest sub-programs of the initiative (Bio Fuels and Integration of Large Scale Wind Power), but at the same time the competition for funding was hardest for these sub-programs, and together with the nano-sub-program, only projects being funded in these sub-programs have industry participation.

In many cases size does matter. But it is not always true that bigger is better. Less can be more. And small can be beautiful. This is Nordic Energy research 2010.

Anne Cathrine Gjerde
Director



In many cases size does matter. But it is not always true that bigger is better. **Less can be more. And small can be beautiful.**



1.000.000.000

NOK was applied for in the research call SustainableEnergySystems2050



Developing a new strategy for the period 2011-2014



“Bridging sustainable solutions”

Nordic Energy Research works according to four year strategy plans. We started working on the strategy for 2011-2014 already in 2009, and decided to involve several stakeholders in all the Nordic countries. We also contracted Faugert & Co, the Swedish branch of Technopolis, to assist in the process. The strategy document had to be approved by the board and in the end by the Nordic Energy Ministers.

The administration initially arranged an internal workshop to come up with ideas to the new strategy. Afterwards five different national workshops were arranged in the autumn of 2009 in Oslo, Helsinki, Copenhagen, Stockholm and Reykjavik. At the national workshops representatives from Nordic research projects, public administration, NGOs and industry were present. After a general presentation of Nordic Energy Research, including a SWOT analysis, the participants were divided into groups to identify relevant areas for Nordic cooperation within sustainable energy technologies, systems and markets, how to get optimal Nordic added value and synergies between national and Nordic activities and specific wishes from the energy industry. Each national workshop

was attended by 16-30 participants, and many interesting inputs were received. After the national workshops, there was a one day strategy workshop for the board.

The final strategy has visions, a mission and four concrete goals. The goals are:

1. **Strengthen research within sustainable energy solutions in areas of joint Nordic interest**
2. **Increase the competitiveness of Nordic sustainable energy solutions in a globalized market**
3. **Provide research based policy advice for a sustainable energy future**
4. **Develop communication activities that increase the interplay between research, industry and policy**

In the coming strategy period, Nordic Energy Research will focus on one overruling theme: Sustainable energy systems.

The roles and tasks of Nordic Energy Research have been summoned up in the name of the strategy “Bridging sustainable solutions”.

Nordic Energy Research's R&D

Portfolio 2007-2010

Nordic Energy Research (NER) funds research programs, typically in four-year cycles. The year 2010 marked the end of such a period, in which thematic focus was put on Climate and Energy, Energy Efficiency, Renewable Energy, Hydrogen Technology, and Energy Markets. Ten projects entered their fourth and final year in 2010.



Thematic area

Climate and energy

The impact of climate change on the Nordic energy sector is an important research issue, both currently and in the future.

Research funded by NER has provided decision makers in the sector with analysis on global warming's effect on renewable energy production capacity in the Nordics and predicted how the production conditions will develop over the next 20-30 years. Furthermore, it assesses the risks and opportunities associated with increased use of renewable energy in the Nordic energy systems.

Project

Climate and energy systems – Risks, potential and adaptation

Total budget: 18.2 MNOK
Funding from NER: 10.0 MNOK
Participants: NEA (IS), Swedish Meteorological and Hydrological Inst. (SE), NVE (NO), VTT (FI), SINTEF (NO), Landsvirkjun (IS), Elforsk (DK), Finnish Energy Industries (FI), Dong Energy (DK), Statkraft (NO).

Thematic area

Energy efficiency

A large share of the world's electricity is still produced from fossil fuels. Therefore, it is essential to explore how primary energy efficiency can be improved through expansion of the market for district heating and cooling.

Primary energy efficiency has addressed energy efficiency in all stages of the energy chain, from source to consumption. It provides new and practical methods to calculate use of primary energy and new indicators for evaluating energy efficiency and carbon emissions from different energy sources and -processes.

Project

Primary energy efficiency

Total budget: 13.4 MNOK
Funding from NER: 8.0 MNOK
Participants: SINTEF (NO), Univ. of Iceland (IS), VEKS (DK), Lund Univ. (SE), Helsinki Univ. of Technology (FI), Tallinn Technical Univ. (EE)

Thematic area

Renewable energy

NER's renewable energy projects have provided scientific and technical knowledge on the conversion of biomaterial to energy, identified ways to reduce biofuel production costs, strengthened Nordic cooperation in solar cell research and improved access to information and resources relating to sustainable energy solutions for isolated communities. Models to measure and predict the influence of wind power on the performance, operation and control of the Nordic transmission- and distribution systems have also been developed.

Projects

Nordic graduate school II of biofuel science and technology

Total budget: 16.0 MNOK
Funding from NER: 8.0 MNOK
Participants: Åbo Akademi (FI), Chalmers Univ. of Technology, NTNU (NO), DTU (DK)

New, innovative pre-treatment of Nordic wood for cost-effective fuel-ethanol production

Total budget: 12.7 MNOK
Funding from NER: 8.0 MNOK
Participants: PFI (NO), Prokaria EHF (IS), STFI- Packforsk AB (SE), SINTEF (NO), LTH (SE), VTT (FI)

Nordic centre of excellence in PV

Total budget: 12.8 MNOK
Funding from NER: 8.0 MNOK
Participants: IFE (NO), Univ. of Uppsala (SE), Helsinki Univ. of Technology (FI), Danish Technology Inst. (DK), NTNU (NO), Physico-Technical Inst. St. Petersburg (RU), Tallinn Univ. of Technology (EE)

Model development for power system & wind in the Nordic grid

Total budget: 11.1 MNOK
Funding from NER: 5.0 MNOK
Participants: Chalmers (SE), DTU-Risø (DK), SINTEF (NO), VTT (FI), Tallinn Univ. of Technology (EE)

Nordic network for sustainable development in isolated locations

Total budget: 7.1 MNOK
Funding from NER: 4.0 MNOK
Participants: DTU-Risø (DK), IFE (NO), DTU Arctic Technology Centre (DK), Greenland Innovation Centre (DK), Danish Polar Centre (DK), GRID-Arendal (NO), NCM "TBO" Task Force, IRD Fuel Cells (DK), StatoilHydro New Energy (NO), Pure project (UK), REEEP South East & Asia Pacific Secretariat (AUS)

Thematic area

Hydrogen technology

Renewable energy carriers such as hydrogen can reduce the environmental impact of transportation and lowers dependence of fossil fuels.

NER funded projects have conducted basic research on converting solar energy to hydrogen by applying different biological processes and on identifying hydrogen-rich materials, suitable for hydrogen storage. The projects have increased the quality of education in hydrogen technologies and established collaboration between Nordic researchers and industrial environments in the field.

Projects

Bio hydrogen

Total budget: 8.1 MNOK
Funding from NER: 6.0 MNOK
Participants: Uppsala Univ. (SE), Univ. of Bergen (NO), Univ. of Turku (FI), University of Copenhagen (DK), Univ. of Akureyri (IS), Tampere Univ. of Technology (FI), Univ. of Jyväskylä (FI), Stockholm Environment Inst. (SE), Tallinn Centre (EE), Roskilde Univ. (DK), Riga Technological Univ. (LV)

Nordic centre of excellence on H2 storage

Total budget: 10.8 MNOK
Funding from NER: 8.0 MNOK
Participants: Univ. of Iceland (IS), IFE (NO), Univ. of Oslo (NO), Stockholm Univ. (SE), Uppsala Univ. (SE), DTU (DK), Risø DTU (DK), Helsinki Univ. of Technology (FI), Lithuanian Energy Inst. (LT), St. Petersburg State Univ. (RU)

Thematic area

Energy markets

The Nordic energy markets are closely intertwined. It is therefore important to understand the complete impact of policy measures within the area.

Nordic energy, environmental constraints and integration has funded PhD positions, organised seminars and established Nordic research networks to better understand the mechanisms of the Nordic energy market. The project has strived to produce knowledge that addresses current energy issues in the Nordic countries and is directly applicable in decision-making processes related to energy production and consumption.

Project

Nordic energy, environmental constraints and integration

Total budget: 9.4 MNOK
Funding from NER: 8.0 MNOK
Participants: SSB (NO), Stockholm School of Economics (SE), Copenhagen Univ. (DK), Univ. of Iceland (IS), Helsinki School of Economics (FI), Univ. of Bergen (NO), Univ. of Oslo (NO), Gothenburg Univ. (SE), Risø DTU (DK)



Energy & Transport

25
million DKK, total budget

Changing the transport sector is decisive in order to reduce emissions of greenhouse gasses, and requires a long-term effort. The Energy & Transport programme serves as a Nordic platform for this effort.

Energy & Transport is one of the Nordic Council of Ministers' globalization programmes. Nordic Energy Research manages the project, in collaboration with Nordic Innovation.

It was established to achieve the Nordic prime ministers' vision of making the Nordic region the Green valley of Europe – a global testing ground for sustainable transport solutions.

Project portfolio

The programme coordinates projects that will strengthen the Nordic region's position on development, testing and use of sustainable transport solutions.

The programme consists of two parts; projects focusing on Electric transportation and projects focusing on Sustainable freight transportation. Seven projects have already been funded through the former call, while the portfolio of the latter will be decided late 2011.

Electric transport projects

- > **INTELECT**
Incentives and actual cost calculations for electric transport in the Nordic countries
- > **NEA**
Nordic Electric Avenue
- > **RekkEvidde**
Assessing range and performance of electric vehicles in Nordic driving conditions
- > **Test EVs**
Test procedures for used EVs
- > **EVRMAP**
How to establish a map database and routing service for EV usage optimization
- > **SAFE**
Scandinavian analysis of urban freight logistics using EVs
- > **EleST**
Electric ship traffic

www.energyandtransport.net

Top-level research initiative

Nordic Energy Research plays an important role in the Top-level research initiative (TRI), working closely with its sister organisations, Nordic Innovation and NordForsk. TRI is the largest ever joint Nordic research and innovation initiative and expands Nordic Energy Research's funding role considerably. Two of the programme's six sub-programmes are managed by Nordic Energy Research. The program is Nordic Energy Research's second largest R&D portfolio.

Sustainable biofuels

Following a call for proposals with a budget of 30 MNOK, four projects were granted funding early 2010 and were initiated at the middle of the year. A kick-off seminar for the programme was organised in September.

- > **SusBioFuels**
Sustainable biofuel: Innovations in bioethanol production technologies
Project leader: SINTEF, Norway
- > **HGBiofuels**
High gravity hydrolysis and fermentation of lignocellulosic material for production of bio-fuels
Project leader: Chalmers Technical University
- > **NORD-SYNGAS**
Biomass gasification fundamentals to support the development of BTL in forest industry
Project leader: VTT, Finland
- > **BioEng**
Production of second-generation bio-fuel and its influence on engine combustion and emissions
Project leader: NTNU, Norway

www.toppforskningsinitiativet.org

Integration of large-scale wind power

A call of proposals of 30 MNOK was launched in 2009. Three projects were granted funding in spring 2010.

- > **Icewind**
Improved forecast of wind, waves and icing
Project leader: Risø DTU, Denmark
- > **OSRNordic**
Optimal spinning reserve of power systems considering forecasting error of load and wind power generation under market environment
Project leader: Aalborg University, Denmark
- > **OffshoreDC**
DC grids for integration of large scale wind power
Project leader: Risø DTU, Denmark

Management of Nordic cooperation groups

Working group for Renewable energy

The group promotes use of renewable energy in the Nordic region. It supports national efforts, coordinates projects across borders and contributes to the integration of renewable energy into the Nordic energy systems.

Activities in 2010 have largely evolved around the implementation of EU's RES directive.

RESULTS

- **Analysis report on Guarantees of origin - Nordic harmonisation**
- **Analysis report on The Nordics as a testing ground for renewable energy, exploring the region's use and development of renewables.**

The projects contribute to a mutual understanding of the collaboration mechanisms put forward in the RES directive. They will provide input for the European Commission's status report on renewable energy and the use of the different collaboration instruments from the directive.

NordVind focuses on collaboration within planning, administration and establishment of onshore and offshore wind energy production, published Offshore wind market outlook in Northern Europe in 2010.

www.energyandtransport.net

Working group for Sparsely populated areas

The group's objective is to support efforts of supplying sustainable energy to isolated and sparsely populated Nordic areas. Priority is given to activities and innovation within energy storage for infrastructure, communication, transport and energy supply.

RESULTS

- **A study of the conditions for pumped storage in the west-Nordic regions. The purpose is to further the development of pumped storage and increase use of technology in Nordic areas in need of energy storage for renewable energy.**
- **A symposium on the issue of pump storage was organised in Tórshavn in September.**
- **Commission of a study of the actual energy consumption and energy resources in Greenland, Iceland and the Faeroe Islands, as well as in sparsely populated areas in Norway, Finland and Sweden.**

Electricity market group

The Electricity market group works towards ensuring a well-functioning, competitive and transparent Nordic electricity market. The group consists of representatives from energy authorities in each of the Nordic countries. This ensures a close relationship with policy makers and other actors in the electricity market, such as regulators and network owners.

RESULTS

- **In 2010, the Nordic energy ministers granted funding to the Nordic regulators' action plan for a common Nordic end-user market, focussing on increased competition and more customer-friendly processes.**

2015

is the targeted time for implementation of a
common Nordic end user electricity market

European Research Area Networks

Nordic Energy Research participates in European Research Area Networks (ERA-Nets). Among other benefits, Nordic Energy Research can apply its experience in coordinating trans-national research calls. Nordic Energy Research acts as a coordinator between national funding agencies participating in programs such as SmartGrids ERA-Net and The Northern European Innovative Energy Research Programme (N-INNER).

Project portfolio within The SmartGrids ERA-Net 1st call

2010-2012 (funded by the participating countries)

> The Impact of Prosumers in Smart Grid based Energy Market

Aarhus School of Business (DK), SEAS-NVE (DK), NOE Net AS (DK), GridManager AS (DK), Inkubator Halden AS (NO), Univ. of St. Gallen (CH), Bacher Energy Ltd. (CH)

> Efficient identification of opportunities for distributed generation based on smart grid technology

Balslav (DK), Sweco Norge AS (NO), Institute for Physical Energetics (LV), Bacher Energy Ltd. (CH)

> Power Quality and Safety Requirements for People and Electrical Equipment in Smart Grid Customer Domain

Graz University of Technology (AU), Tallin Univ. of Technology (EE), Riga Technical University (LV)

> Optimizing green energy and grid load by geographical steering of energy consumption

Austrian Institute of Technology (AU), Vienna University of Technology (AU), Fundacion Labein (Basque region), Semantics System, S.L (Basque region), IBBT (BE), VITO (BE), Università della Svizzera Italiana (CH)

Project portfolio within The Northern European Innovative Energy Research Programme, N-INNER

2008-2010 (funded by the participating countries)

> Synthesis and Durability of CNT based MEA s for PEMFC (Nanoduramea)

Pertti Kauranen, VTT (FI), HUT (FI), SINTEF (NO), NTNU (NO), SDU (DK), KTH (SE)

> Optimizing Lipid Production by Planktonic Algae - LIPIDO

Timo Tamminen, SYKE (FI), Ludwig Maximilian Univ. (DE), Icelandic Energy Research Inst. (IS), NTNU (NO), Univ. of Oslo (NO)

> Solar Hydrogen

Dinko Chakarov, Chalmers Univ. of Technology (SE), Univ. of Oslo (NO), DTU (DK), Univ. of Iceland (IS)

> Evaluation Platform for Polymer Solar Cells – Morphoso

Michael Niggemann, Fraunhofer ISE (DE), Åbo Akademi Univ. (FI), Linköping Univ. (SE)

> Novel High-Temperature Proton and Mixed Proton Electron Conductors for Fuel Cells and H₂-Separation Membranes

Reidar Haugsrud, Univ. of Oslo (NO) SINTEF (NO), Risø DTU (DK), Chalmers Univ. of Technology (SE), Research Centre Jülich GmbH (DE)

Energy Technology Policy

In addition to policy advice produced through the Nordic Working Groups, Nordic Energy Research has commissioned and managed a number of other energy technology policy projects.

In 2010 Nordic Energy Research released the Nordic Energy Technology Scoreboard. The report provides a collection of indicators to illustrate progress in energy technology development in the region. Wind, photovoltaic solar, biofuels, geothermal and carbon capture and storage were the strategic technology areas included in the analysis.

In addition to providing an overview of technology development progress, the scoreboard presents a methodology for benchmarking progress between countries and offers 10 key recommendations for improving scoreboards in the future.

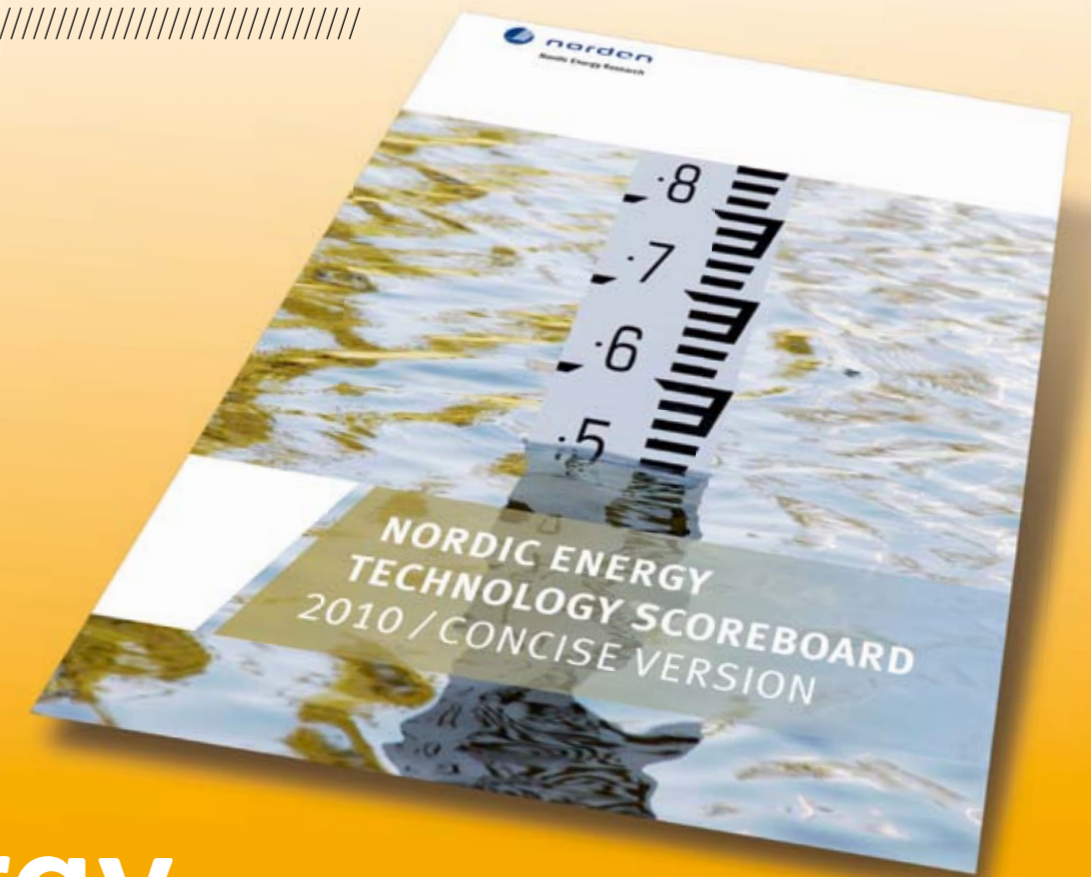
The analysis builds on the energy innovation system studies commissioned by Nordic Energy Research in the NORIA programme in 2007-2008. The indicators were developed by NIFU STEP, with the European Commission, the IEA and several leading Nordic

institutions contributing through an expert group.

The Nordic Energy Technology Scoreboard has been presented to various key stakeholders, including the IEA's Expert Group on Energy Technology Prioritisation and Evaluation – in which Nordic Energy Research regularly participates. It has been positively received as an important step to more comprehensive international benchmarking of energy technology development.

The report can be downloaded from the Nordic Energy Research website.

www.nordicenergy.net



Communication and profiling activities

Nordic Energy Research communicates through a variety of channels. In 2010 we participated as exhibitor at key events in the region, such as World Climate Solutions, the North European Renewable Energy Convention (NEREC) and the Nordic Council's Session.

ORKA

Four editions of our newsletter ORKA were published in 2010. Over the course of the year we saw a 50% increase in the number of subscribers. The newsletter now reaches nearly 1500 members of the Nordic research community.

www.nordicenergy.net

The website is an important communication channel for Nordic Energy Research. The number of visitors has been increasing steadily in recent years. 2010 was no exception, with 10% more visitors than the year before. Most of the visitors come from Nordic countries, but also from USA and UK.

The Nordic-Chinese Energy and Climate Day

Nordic Energy Research was project leader for the Nordic-Chinese Energy and Climate Day at the Shanghai World Expo in June 2010. Speakers included Ministers, researchers and business leaders, who met to exchange ideas about Nordic-Chinese cooperation in energy technology development. The event had sessions in all five Nordic Pavilions inside the Expo, and drew attention from several Chinese TV channels, radio stations and newspapers.

The CanNord 2011 conference

In March 2010 Nordic Energy Research together with Nordic Innovation went on a Nordic group visit to Canada to meet relevant research- and innovation institutions to strengthen cooperation with Canada. An important outcome of the trip was the CanNord 2011 conference, a cooperation project with Embassies and Trade Commissions of Sweden, Norway and Denmark in Toronto.

Selected presentations by director Anne Cathrine Gjørde in 2010

- > **Status of production and framework conditions in the Nordic countries**
Nordic Biogas Conference, Oslo, 10-12 March
- > **Knowing what's coming**
Conference on Future Climate and Renewable Energy: Impacts, Risks, Adaptation, Oslo, 31 May
- > **Nordic-Chinese Energy R&D Cooperation**
Nordic-Chinese Energy & Climate Day, World Expo, Shanghai, 25 June
- > **Sustainable Commercialisation**
NEREC, Oslo, 28-29 September

David Miller, World Climate Solutions 2010 (top), Karen Ellemand, Shanghai EXPO (bottom left) and Jiang Kejun, Shanghai EXPO (bottom right).



The World looks to Nordic Energy Solutions

www.nordicenergysolutions.org

The Nordic region is known to have fostered many energy solutions of global interest and in order to promote the energy sector and to show successful examples, the web site Nordic Energy Solutions was launched in February 2009. The web site addresses an international audience, particularly decision makers, and publishes articles on renewable energy, energy efficiency, and energy solutions for sparsely populated areas. The project is a Globalization Initiative, owned by the Nordic Council of Ministers, and managed by Nordic Energy Research.

In 2010...

- > **Over 100 new articles were published.**
- > **Marketing the website led to 40% more visitors*.**
- > **On average, the web site had 4300 monthly visitors.**

* Due to lack of data in the beginning of 2009, the measured period refers to the last six month of 2009 and 2010.



Joint forces in Bio Energy around the Baltic Sea

www.bioenergypromotion.org

The project Bioenergy Promotion promotes the development of a sustainable production, and commercialization, of biomass in the Baltic Sea Region. The Swedish Energy Agency coordinates the project, which is a collaboration between 33 participating partners from ten countries around the Baltic Sea. Nordic Energy Research is task leader for workpackage 2 and workpackage 5, and also a member of the steering committee.

Nordic Energy Research has been responsible for the development of the project's web site, which is an important tool for cross sectoral cooperation and transnational networking. Nordic Energy Research has also been responsible for the production of a report monitoring the developments in bioenergy technologies in the Baltic Sea Region. The report can be found on the project's website.



25 Years of successful Research Collaboration

- > Both the energy sector and Nordic policy makers were well represented at the Nordic Energy Research 25-year Anniversary Conference, held at the Danish Design Centre in Copenhagen on October 25-26.
- > The attendees agreed that impressive results had been achieved but also that continued innovative energy research and technology development is essential to ensure a green growth economy in the Nordic countries.
- > Two launches took place: the call for the next 4-year program period, and the release of Nordic Energy Research's official commemorative book.



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Annual accounts

| REVENUES | 2010 | 2009 |
|--------------------------------|-------------------|-------------------|
| Ordinary budget funds from NCM | 5.870.000 | 5.846.000 |
| National grants * | 40.582.220 | 25.660.430 |
| Other revenues | 5.424.874 | 3.012.918 |
| Financial revenues | 823.585 | 1.094.249 |
| Project grants from NCM | 6.290.500 | 3.992.616 |
| TOTAL REVENUES | 58.991.179 | 39.606.213 |

| EXPENSES | 2010 | 2009 |
|-----------------------|-------------------|-------------------|
| Secretariat | 17.275.414 | 15.604.227 |
| Project expenses | 39.709.602 | 22.805.208 |
| Other expenses | | 3.135 |
| TOTAL EXPENSES | 56.985.016 | 38.412.570 |

| | | |
|-------------------|------------------|------------------|
| NET PROFIT | 2.006.163 | 1.193.643 |
|-------------------|------------------|------------------|

| ASSETS | 2010 | 2009 |
|-----------------------|-------------------|-------------------|
| Trade debtors | 1.356.145 | 1.307.764 |
| Grants | 6.041.742 | 3.944.068 |
| Costs paid in advance | 220.050 | 3.725.893 |
| Cash at bank | 40.783.046 | 25.006.193 |
| TOTAL ASSETS | 48.400.983 | 33.983.918 |

| LIABILITIES | 2010 | 2009 |
|--------------------------|-------------------|-------------------|
| Trade creditors | 7.581.002 | 13.049.496 |
| Project advance payment | 29.777.402 | 13.223.927 |
| Accounts payable | 6.572.752 | 3.526.446 |
| Transfers | 4.469.827 | 4.184.049 |
| TOTAL LIABILITIES | 48.400.983 | 33.983.918 |

| *National grants 2010 (NOK) | Nordic activity | Activities in adjacent areas | Total |
|-----------------------------|-------------------|------------------------------|-------------------|
| Denmark | 5.983.200 | 598.320 | 6.581.520 |
| Finland | 4.819.800 | 481.980 | 5.301.780 |
| Iceland | 332.400 | 33.240 | 365.640 |
| Norway | 7.783.700 | 778.370 | 8.562.070 |
| Sweden | 8.780.900 | 878.090 | 9.658.990 |
| Total | 27.700.000 | 2.770.000 | 30.470.000 |

* National grants 2010 appears as NOK 40 582 220 which includes national grants for 2010 of NOK 30 470 000 and additional assets remaining in the balance from 2009

The annual accounts are audited by the Office of the Auditor General in Norway

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All five Nordic countries have forward-looking political agendas to achieve sustainability in energy.

These agendas imply substantial changes in all aspects of Nordic energy and transport systems over the next years, and create considerable potential for economic growth through the development and implementation of the necessary solutions.

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