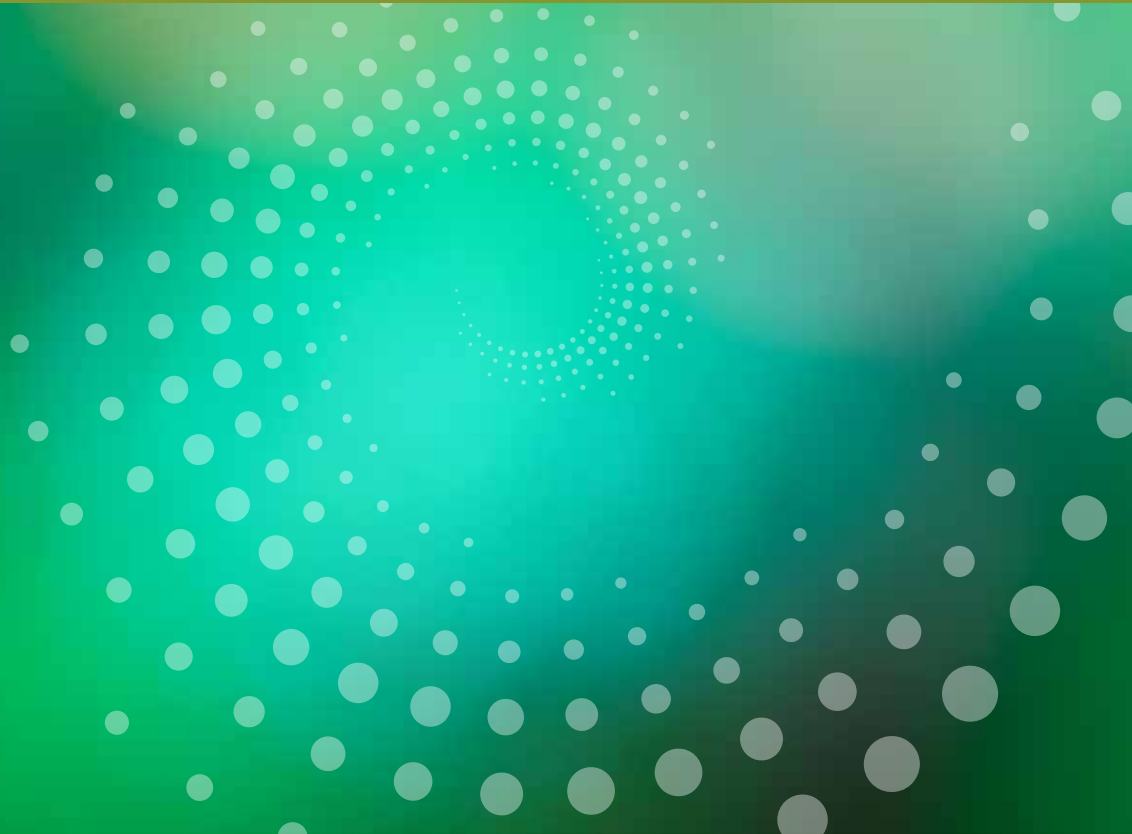


# The Centres for Environment- friendly Energy Research (FME)

June 2017



## About the Centres for Environment-friendly Energy Research

The Centres for Environment-friendly Energy Research (FME) scheme develops expertise and promotes innovation by supporting long-term research on environment-friendly energy and carbon capture and storage in collaborations between leading research groups and users. The centres are selected via a detailed process administered by the Research Council of Norway.

The centres are selected on the basis of following main assessment criteria: Scientific merit, potential for innovation and value creation, and relevance of the application to the thematic guidelines set out in the call for proposals.

[www.forskningradet.no/fme](http://www.forskningradet.no/fme)

## The Centres for Environment-friendly Energy Research (FME) – a key instrument

In 2016 the Research Council of Norway granted funding to eight new Centres for Environment-friendly Energy Research (FME). These centres will contribute to reductions in greenhouse gas emissions through long-term, world-class research in close cooperation with research groups, industry players and the public sector.

Established in May 2008, the FME scheme quickly emerged as one of the Council's most important instruments for research on environment-friendly energy. The first eight centres were launched in 2009 and will be ending their periods of operation in 2017, after eight years of FME status. The centres have helped to expand and strengthen research groups in a number of subject areas crucial to achieving energy and climate policy goals. Through their long-term cooperation in the centres, research groups and partners in the private and public sectors have created dynamic networks and developed a mutual understanding of what it takes for a centre to succeed.

The centres serve as key partners and hubs for international research cooperation. The FME scheme collaborates with other Research Council programmes and activities, primarily the Large-Scale Programme for Energy Research (ENERGIX) and the Norwegian RD&D CCS programme (CLIMIT), and promotes synergies between the various programmes.

Three FME centres for social science-related energy research were launched in 2011 and will end their activities in 2019. In its mid-term evaluation of the centres, the evaluation panel pointed out that social science centres of this type are rare internationally, and have a critical role to play in solving climate and energy-related challenges.

In 2016 the Research Council selected eight new FME centres. The new centres represent a renewal of the scheme's portfolio, and at the same time some of them build directly on activities of centres that were part of the first round of FME funding. The new centres will be working in the fields of hydropower, smart neighbourhoods, energy systems, biofuels, solar cell technology, environment-friendly transport, and energy efficiency in trade and industry as well as CO<sub>2</sub> management (CCS).

FME centres are selected primarily on the basis of their potential to generate innovation and value creation and on the scientific merit of the application and its relevance relative to thematic guidelines set out in the call for proposals. The centres bring together Norway's leading research institutions and key players in private enterprise, the public administration and various types of organisations. The centres do not comprise an institution in a single geographic location but rather represent a grouping of entities with unique competencies in relevant areas.

Each centre is granted funding for an initial period of five years. An evaluation will be carried out after approximately four years to determine whether each centre will be granted funding for an additional three years. The Research Council provides between NOK 15–25 million to each of the centres established in 2016.

# The Research Centre on Zero Emission Neighbourhoods in Smart Cities – ZEN Centre

## Project owner:

Norwegian University of Science and Technology

## Partners:

Research partner: SINTEF

## User partners:

**Public sector:** The municipalities of Oslo, Bergen, Trondheim, Bodø, Elverum and Steinkjer, Sør-Trøndelag county, Norwegian Directorate for Public Construction and Property Management, Norwegian Water Resources and Energy Directorate, Norwegian Building Authority

**Industrial sector:** ByBo, Elverum Tomteselskap, TOBB, Snøhetta, ÅF Engineering AS, Asplan Viak, Multiconsult, Sweco, Civitas, FutureBuilt, Hunton, Moelven, Norcem, Skanska, GK, Caverion, NTE – Energi, Numascale

**Member organisations:** Smart Grid Services Cluster, Energy Norway and Norsk Fjernvarme.

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The FME ZEN centre will work towards solutions for the future's buildings and neighbourhoods – solutions towards realising a zero-emission society. The centre will be a hub of cooperation for municipalities, trade and industry, public authorities and researchers – all working together closely on the planning, development and operation of districts with no greenhouse gas emissions. More efficient use of energy and the production and utilisation of renewable energy will benefit the local environment as well as help to achieve Norwegian climate targets.

To realise its vision of achieving “sustainable neighbourhoods with zero greenhouse gas emissions”, the FME ZEN centre will:

- develop tools for design and planning of zero-emission neighbourhoods;
- create new business models, roles and services that promote a transition to a zero-emission society;
- develop cost-effective, resource-efficient buildings with environment-

friendly materials, technologies and construction systems;

- develop technologies and tools for design and operation of energy-flexible neighbourhoods;
- develop tools to optimise local energy systems and their interaction with energy systems at large;
- establish seven zero-emission neighbourhoods that will serve as innovation arenas and test sites for technologies and solutions developed at the centre.

The seven test sites are located throughout Norway, some in completely new areas and others in established neighbourhoods to be upgraded and refurbished. The seven neighbourhoods are located in Oslo, Bergen, Trondheim, Bodø, Steinkjer, Elverum and Evenstad.

Centre activities are organised into six work packages in which multidisciplinary cooperation and cooperation across work packages will be key to finding effective solutions.

# Norwegian CCS Research Centre – NCCS – Industry driven innovation for fast track CCS deployment

**Project owner:**  
SINTEF Energy Research

**Partners:**  
*Research partners:* SINTEF Materials and Chemistry, SINTEF Petroleum Research, Norwegian Geotechnical Institute, British Geological Survey, Netherlands Organisation for Applied Scientific Research, Norwegian University of Science and Technology,

University of Oslo, University Centre in Svalbard, Ruhr-Universität Bochum, University of Zurich, Massachusetts Institute of Technology and Technical University of Munich.

**User partners:**  
Shell, Statoil, TOTAL, Gassco, Aker Solutions, Ansaldo Energia, CoorsTek Membrane Sciences, KROHNE, Norcem, Larvik Shipping, Norwegian Oil and

Gas Association, Waste-to-Energy (City of Oslo), and Quad Geometrics.

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Carbon capture and storage (CCS) is the process of capturing CO<sub>2</sub> emissions from industrial processes and power generation, transporting the CO<sub>2</sub> through pipelines and ships, and storing this CO<sub>2</sub> permanently in underground geological formations. CCS is a crucial component of the portfolio of technologies needed to reduce CO<sub>2</sub> emissions and thus help to achieve our ambitious, worldwide climate targets.

According to the International Energy Agency, CCS is the third most important

measure available for minimising global warming. The NCCS centre will enhance the scientific framework for CCS in Norway and internationally by dealing with research challenges discovered in demonstration projects worldwide.

The participating research groups, together with industry, will apply science-based, targeted R&D to overcome key barriers to implementation of a full-scale CCS chain, reduce the financial risk involved and make solutions more affordable.

The NCCS centre will:

- Develop new generations of CO<sub>2</sub> capture technologies for use in industrial processes and power generation.
- Develop solutions for more cost-effective and safe transport of CO<sub>2</sub>.
- Refine methods for safe CO<sub>2</sub> storage and new monitoring techniques.
- Review the many possibilities available for storing large quantities of CO<sub>2</sub> in the North Sea.
- Provide master's and doctoral education in CCS fields. These candidates will be ideally suited for positions in industry or research, and will contribute to the growth or creation of high-technology companies as well as enhance innovative capacity in CCS.

The centre organises its activities into two main areas:

- CCS for Norwegian industry
- Storage of European CO<sub>2</sub> emissions in the North Sea basin.

# Norwegian Research Centre for Hydropower Technology – HydroCen

**Project owner:** Norwegian University of Science and Technology

**Partners:**

*Research partners:* SINTEF Energy Research, Norwegian Institute for Nature Research, University College of Southeast Norway and Norwegian Geotechnical Institute.

*User partners:* ABB, Agder Energi, Andritz Hydro, BKK, Dr. Techn. Olav Olsen, E-CO, EDR & Medeso, Eidsiva, Energy Norway, GE Renewable Energy, Glitre Energi, Helgeland Kraft, Hydro, Lyse, Norwegian Environment Agency, Multiconsult, Norconsult, NTE, Norwegian Water Resources and Energy Directorate, Rainpower, SediCon, SFE, Sira-Kvina Kraftselskap, Skagerak Energi, SKL, Sognekraft, Statkraft, Sunnfjord Energi, Sweco, Tafjord Kraftproduksjon, TrønderEnergi, Tussa Energi, Voith Hydro and Østfold Energi.

*Associated research partners:* Chalmers University of Technology, Colorado School of Mines, ETH Zurich, Hydro Lab Nepal, Hydro-Québec's research institute, Bandung Institute of Technology, Kathmandu University, Luleå University of Technology, Stockholm Environment Institute, Graz University of Technology, Technical University of Berlin, Uni Research Environment, University of Bologna, Technical University of Madrid and Uppsala University.

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The HydroCen centre will enable the Norwegian hydropower sector to overcome complex challenges and exploit new opportunities to maintain and strengthen Norway's position as a leading hydropower nation in the future energy regime.

The HydroCen centre collaborates closely with the hydropower sector, and energy production companies, suppliers, consultants and government work actively with the researchers to ensure high relevance for industry and society and promote implementation of results and innovation outcomes.

The centre has four research areas:

*Hydropower structures*

Innovative solutions are needed to address dam safety and operational requirements from new markets and climate change. Research activities focus on hydropower structures: dams, intakes, waterways. Solutions developed at the centre will promote flexible operation, reduced energy loss and better sediment handling.

*Turbines and generators*

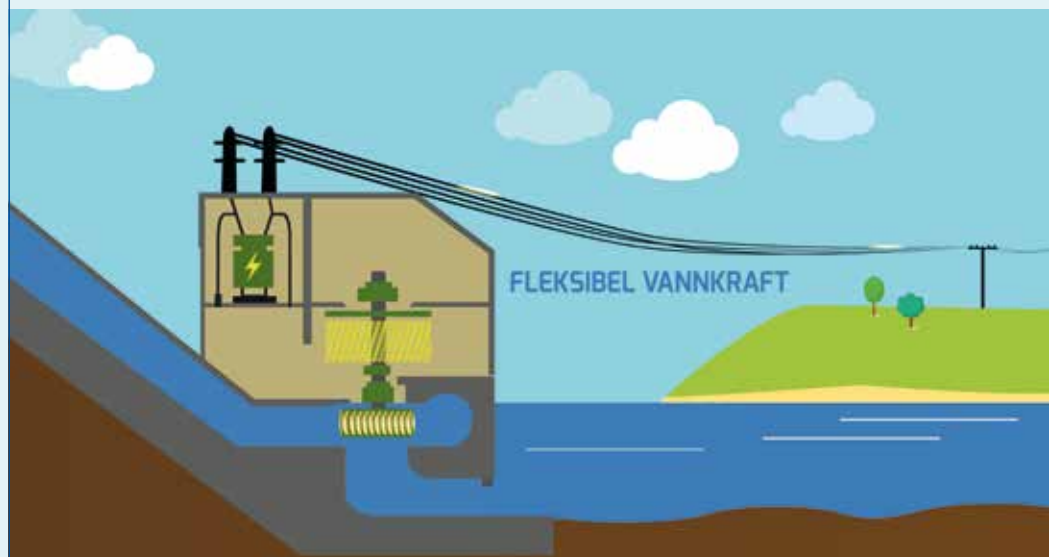
New technology within turbines and generators is needed to ensure increased response time, boost efficiency and increase flexible operation of hydropower plants. Research activities focus on variable-speed technology, fatigue, pump turbines and increased lifetime.

*Markets and services*

New methods and models are needed to maximise the value of hydropower in a future with changing markets and restrictions, rapid technology development and greater needs for upgrades and maintenance.

*Environmental design*

New knowledge and methodology is needed to mitigate environmental impacts in accordance with regulatory frameworks and requirements. Research activities target environmental design solutions that promote sustainable deployment of hydropower operations.



## Norwegian Centre for Sustainable Bio-based Fuels and Energy – Bio4Fuels

**Project owner:** Norwegian University of Life Sciences

**Partners:**

*Research partners:* SINTEF, Norwegian University of Science and Technology, Norwegian Institute of Bioeconomy Research, University College of Southeast Norway, Institute for Energy Technology, RISE-PFI (Paper and Fibre Research Institute)

**User partners:**

*Industrial sector:* Alginor, Avinor, Biokraft, BTG Biomass Technology Group, Biozin, Borregaard, Cambi, Eco-1

Bioenergi, Ecopro, Haldor Topsøe, Herøya Industripark, Hyperthermics Energy, Johnson Matthey, Lund Combustion Engineering (Loge), Solenis, Norwegian Agrarian Association, Norwegian Association of Forest Owners, Norwegian Bioenergy Association, Norske Skog Saugbrugs, Perstorp BioProducts, Pervatech, Preem, Ragn Sells, Silva Green Fuel, St1, Steeper Energy, Umoe, Volvo Group Trucks Technology and ZEG Power.

*Public sector:* Enova, Østfold county, Akershus county, Follorådet council, Hedmark county, Innovation Norway, Norwegian Water Resources and

Energy Directorate, Oppland county, City of Oslo Waste-to-Energy Agency, Norwegian Public Roads Administration, Sør-Trøndelag county and Telemark county.

*Others:* Zero Emission Resource Organisation (ZERO).

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The Bio4Fuels centre will be a knowledge platform on the production of biofuels and high value wood-based chemicals and products. The main objective of the centre's activities is to develop technologies that can lead to breakthroughs in the production of second-generation biofuels. Secondary objectives include developing technology to raise production efficiency by up to 20 per cent and cut production costs by up to 30 per cent. The centre has a goal of bringing at least four new process technologies towards the pilot phase.

Biofuels may represent a vital contribution to reduction of global CO<sub>2</sub> emissions in the transport sector. The Bio4Fuels centre's activities will address the following issues:

- The global shortage of biofuels.
- The greater challenge of producing biofuels from wood resources than from e.g. vegetable oil plants or food waste.
- The need to improve the profitability and climate benefits of wood-based biofuels.

wood processing remains a cornerstone of land-based industry. Much of current forest harvest is for production of building materials, but this makes use of only half the contents of each log. To ensure profitability and sound utilisation of these resources, the remainder of this raw material must also be used. While the wood processing industry has previously consumed much of these residues, biorefineries and the production of biofuels can mean higher profitability for the forestry industry and at the same time help to reduce the use of fossil fuels.

The Bio4Fuels centre works to find the best value-chains in terms of climate benefits and profitability, while improving and developing promising new process technologies. The centre will cooperate closely with the industrial sector on commercialising new production technologies, and it attaches great importance to involving all the centre's partners for the best and most reliable results when analysing value chains.

Norway and the Nordic countries have considerable forestry resources, and



## Centre for intelligent electricity distribution – CINELDI – to empower the future Smart Grid

### **Project owner:**

SINTEF Energy Research

### **Partners:**

*Research partners:* Norwegian University of Science and Technology and SINTEF Digital.

### **User partners:**

*Grid companies:* Hafslund Nett, Skagerak Nett, Lyse Elnett, BKK Nett, Eidsiva Nett, Helgeland Kraft, Agder Energi Nett, Istad Nett, Norgesnett, NTE Nett, Nordlandsnett and SFE Nett.

*System operator:* Statnett SF.

*Technology providers:* ABB, Powel, Rejlers Embriq, Aidon, Eltek, Smart Innovation Norway and Smart Grid Services Cluster.

*Member organisations:* Energy Norway, KraftCERT and the Norwegian Smartgrid Centre.

*Public sector:* Norwegian Water Resources and Energy Directorate, Norwegian Directorate for Civil Protection and Emergency Planning, and the Norwegian Communications Authority.

The centre has 13 international research partners in Europe, the US and Japan.

### **Contact information:**

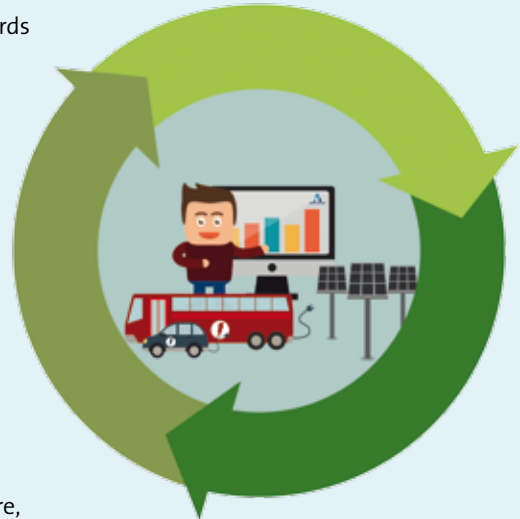
Gerd Kjølle (Centre Director)  
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Tel.: +47 906 72 035  
Website: [www.cineldi.no](http://www.cineldi.no)

The CINELDI centre will work towards digitalising and modernising the electricity distribution grid for higher efficiency, flexibility and robustness. The objective is to tailor the grid for use by smart grid customers, electric vehicles, solar power facilities and other renewable electric power.

Today's distribution grid is ageing and was not designed for integration of vast amounts of intermittent energy generated by solar and wind sources. The smart distribution grid of the future, Smartgrid, will help to realise the flexibility resources inherent in electricity consumption, production and storage. The use of innovative sensors and smart components makes it possible to monitor and operate the electricity grid in new ways to improve usage of the existing grid and reduce the need for investment.

The CINELDI centre will develop a knowledge base for grid owners and the public authorities to improve efficiency, reduce operational and investment costs and promote future-oriented development and regulation of the power grid. The centre will also develop a roadmap for introducing smart electricity distribution grids in Norway.

The centre will promote the development of new market opportunities for technology providers in the form of new products, services and solutions, and also seeks to



strengthen the competitiveness of suppliers in the international arena.

The CINELDI centre gives priority to training researchers and Master's degree students in Smartgrid applications, and the transfer of expertise to industrial actors.

The CINELDI centre will focus its activities on the following:

- development of the smart electricity distribution grid of the future;
- smart grid operations;
- interaction between distribution system operators and transmission system operators;
- microgrids;
- integration of flexible resources (distributed electricity production, consumption, energy storage);
- developing scenarios and transition strategies for future smart distribution grids in Norway.



# Centre for an Energy Efficient and Competitive Industry for the Future – HighEFF

**Project owner:**  
SINTEF Energy Research

**Partners:**  
*Research partners:* Norwegian University of Science and Technology, SINTEF Materials and Chemistry, Tel-Tek, NTNU Social Research, Nord University, SINTEF Ocean, KTH Royal Institute of Technology, Carnegie Mellon University, the University of Manchester, Shanghai Jiao Tong University, AIT Austrian Institute of Technology and Doshisha University.

**User partners:**  
*Industrial sector:* Statoil Petroleum, Hydro Aluminium, Rema 1000 Norway, Eramet Norway, Alcoa Norway, Elkem, Mo Industrial Park, Gassco, Orkla, Marine Harvest, Glencore Nikkelverk, Alfa Laval, TINE, Bulk Infrastructure, Glencore Manganese Norway, GE Power Norway, Vedde, Wacker Chemicals Norway, Finnjord, Borregaard and Aker BP.

*Supplier industry:* Danfoss, EPCON Evaporation Technology, Officine Mario

Dorin, Parat Halvorsen, Mayekawa, Kuldeteknisk, Hybrid Energy, Cadio, Cronus Technology and OTECHOS.

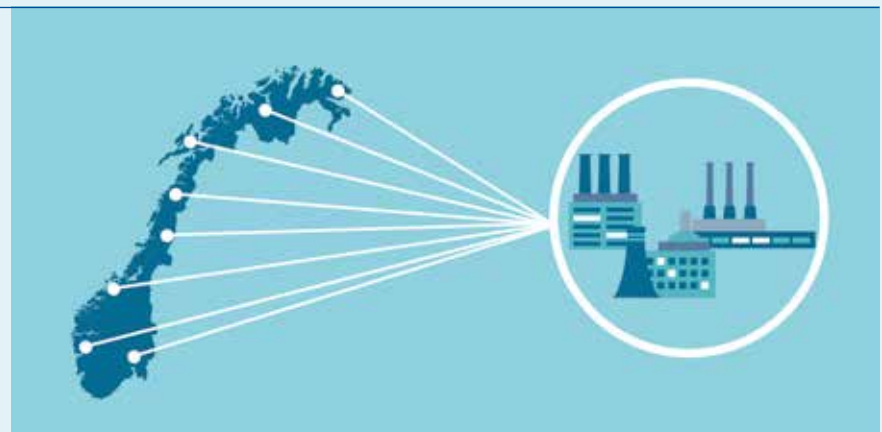
*Public sector:* Enova and Innovation Norway.

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According to the International Energy Agency, energy efficiency is a key area for achieving climate targets. Improving energy efficiency in the industrial sector is crucial, as each actor can contribute to significant reductions in energy consumption and greenhouse gas emissions.

The HighEFF centre will work to ensure that Norway has the world's greenest industries. The centre will help industry to achieve more energy efficient production, reduced costs and greater competitiveness. Increased knowledge about existing and new technologies will create a framework for innovations in the supplier industry.

The centre's primary objective is to develop technologies that can realize the targets of 20-30 % reduced energy consumption and 10 % reduced greenhouse gas emissions. The HighEFF centre will focus its activities on energy efficiency at multiple levels, from



components to processes and from individual companies and groups of companies to the regional level. The aim is to improve energy efficiency of industrial processes while at the same time developing solutions for optimal utilisation of waste heat from these processes.

The HighEFF centre is founded upon four cornerstones:

- develop energy-efficient production processes;

- utilise waste heat from industry;
- energy cooperation in industrial clusters;
- education and training/development of experts.

The centre has a large number of user partners across a broad range of the Norwegian business sector. The centre will conduct research in the oil/gas and energy sector, the metal and materials industry, the food and chemical industry and industrial clusters.

## Research Centre for Sustainable Solar Cell Technology – SuSolTech

### Project owner:

Institute for Energy Technology

### Partners:

*Research partners:* Norwegian University of Science and Technology, SINTEF, University of Agder, University of Oslo and Norwegian University of Life Sciences.

### User partners:

Norwegian Agrarian Association, Code, Dynatec, Elkem Solar, FUSen, Glass- og Fasadeforeningen, NorSun, Norwegian Crystals, Omsorgsbygg, PVA TePla, the Quartz Corp, Steuler Solar and Statoil.

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Website: [www.susoltech.no](http://www.susoltech.no)

The Research Centre for Sustainable Solar Cell Technology unites key solar cell research groups in Norway with leading companies from the national and international solar cell industry. The industry is entirely dominated by silicon-based solar cells. A transition to a more sustainable energy system will require access to a steadily growing supply of cheap, environmentally safe silicon materials that can be used to produce increasingly efficient solar cells, panels and energy systems.

The anticipated growth of the solar cell industry represents a major commercial potential for Norwegian companies. Norway is already an important supplier of silicon materials to the global industry. The SuSolTech centre will contribute to growth and advancement of the solar cell industry by developing more cost-effective and environmentally friendly production processes that yield silicon materials of higher quality.

The centre will also demonstrate how high quality silicon materials can be used to make highly efficient solar cells. In order to assess the overall benefits in terms of cost and environmental footprint, electricity production from selected solar power plants based on relevant technologies will be monitored. The centre research and activities will also support companies working with the installation and operation of solar power plants in Norway and abroad.

The centre has user partners not currently considered part of the solar cell industry, including industry associations, architect offices and energy companies. These partners will draw on the centre's extensive expertise to develop new business opportunities as part of their activities.

The centre will be the national hub of expertise and innovation within the growing solar energy industry.



## Mobility Zero Emission Energy Systems – MoZEEES

### Project owner:

Institute for Energy Technology

### Partners:

*Research partners:* SINTEF, Norwegian University of Science and Technology, University of Oslo, University College of Southeast Norway, Norwegian Defence Research Establishment and Institute of Transport Economics.

### User partners:

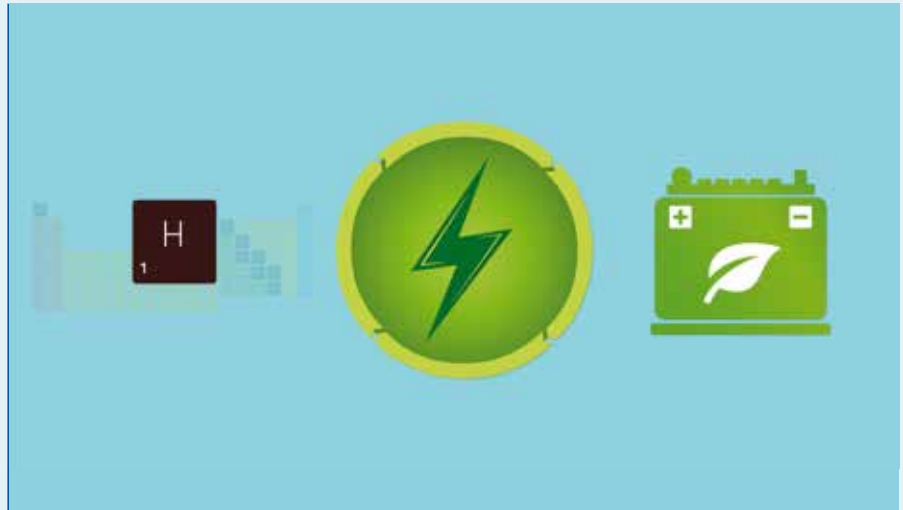
*Public sector:* Norwegian Public Roads Administration, Norwegian National Rail Administration, Norwegian Coastal Administration, Enova, Akershus county, Sør-Trøndelag county and Port of Oslo.

*Industrial sector:* ABB, AGA, ASKO, Baldur Coatings, BASF, Bellona Foundation, CerPoTech, CoorsTek Membrane Sciences, DNV GL, Dynatec Engineering, Elkem, Graphene Batteries, Grenland Energy, Hexagon Raufoss, Johnson Matthey, Kunnskapsbyen Lillestrøm, Lloyd's Register Consulting, Maritime Association Sogn & Fjordane, Nel Hydrogen, Plan B Energy Storage (PBES), SAFT, Selfa Arctic, Teer Coatings/ Miba, Unibuss, ZEG Power and ZEM.

*International partners:* Uppsala University (Sweden), Fraunhofer Institute for Solar Energy Systems (Germany), RWTH Aachen University (Germany), VTT Technical Research Centre of Finland, University of Genoa (Italy) and University of California, Davis (USA).

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Website: [www.mozees.no](http://www.mozees.no)



The MoZEEES centre's 40 partners will cooperate on finding zero-emission solutions for road, rail and sea transport. The centre will help to enhance and expand the scientific, technical and techno-economic knowledge base for battery and hydrogen technologies for the transport sector. In particular, the MoZEEES centre will contribute to the design and development of secure, reliable and cost-effective zero-emission solutions for heavy transport. Value chains and systems for which Norway can take a future leading role will be the focus. Efforts at the centre will provide a foundation for developing new value chains in niche markets such as new materials for lithium-ion batteries, and for opening up new markets for hydrogen and fuel cells for the maritime sector.

The R&D group assembled at the MoZEEES centre comprises seven research institutions, seven public agencies and 26 user partners from the business sector. The companies range from small specialists in materials to large technology and industrial concerns. Each partner brings unique skills and complementing strengths and perspectives; together these partners can work out the best zero-emission solutions for the heavy transport sector.

The MoZEEES centre will also focus on educational activities and will fund at least 13 doctoral and five post-doctoral fellowships. Centre activities will incorporate extensive international cooperation.

## Centres for Social Science-related Energy Research

Three centres for social science-related energy research were launched in 2011 and will end their activities in 2019.

- **Centre for Sustainable Energy Studies – CenSES**

The CenSES centre is conducting research to improve the fact base for public and private-sector decision-makers in the interface between climate, energy and industrial policies. The primary objective is to enhance understanding of the economic, political, social and cultural aspects of developing and implementing new, renewable energy and environmental technology.

[www.ntnu.no/censes](http://www.ntnu.no/censes)

- **Strategic Challenges in International Climate and Energy Policy – CICEP**

CICEP has two primary objectives: to help to devise political instruments and international agreements that can effectively promote restructuring to a more climate-friendly energy system, and to generate new knowledge about the impacts of likely international policy trajectories for key energy markets, Norwegian trade and industry, and the Norwegian authorities.

[www.cicep.no](http://www.cicep.no)

- **Oslo Centre for Research on Environmentally friendly Energy – CREE**

The CREE centre collects and generates knowledge about the impacts of framework conditions on energy markets and technological development, including innovation and the diffusion of technology for renewable energy, energy efficiency and carbon capture and storage (CCS). The centre also provides a basis for creating better framework conditions and policy instruments to achieve national and international energy and climate goals.

[www.cree.uio.no](http://www.cree.uio.no)

## The Centres for Environment-friendly Energy Research (FME) 2009–2017

BIGCCS Centre – International  
CCS Research Centre  
[www.bigccs.no](http://www.bigccs.no)

Centre for Environmental Design  
of Renewable Energy – CEDREN  
[www.cedren.no](http://www.cedren.no)

Bioenergy Innovation Centre – CenBio  
[www.cenbio.no](http://www.cenbio.no)

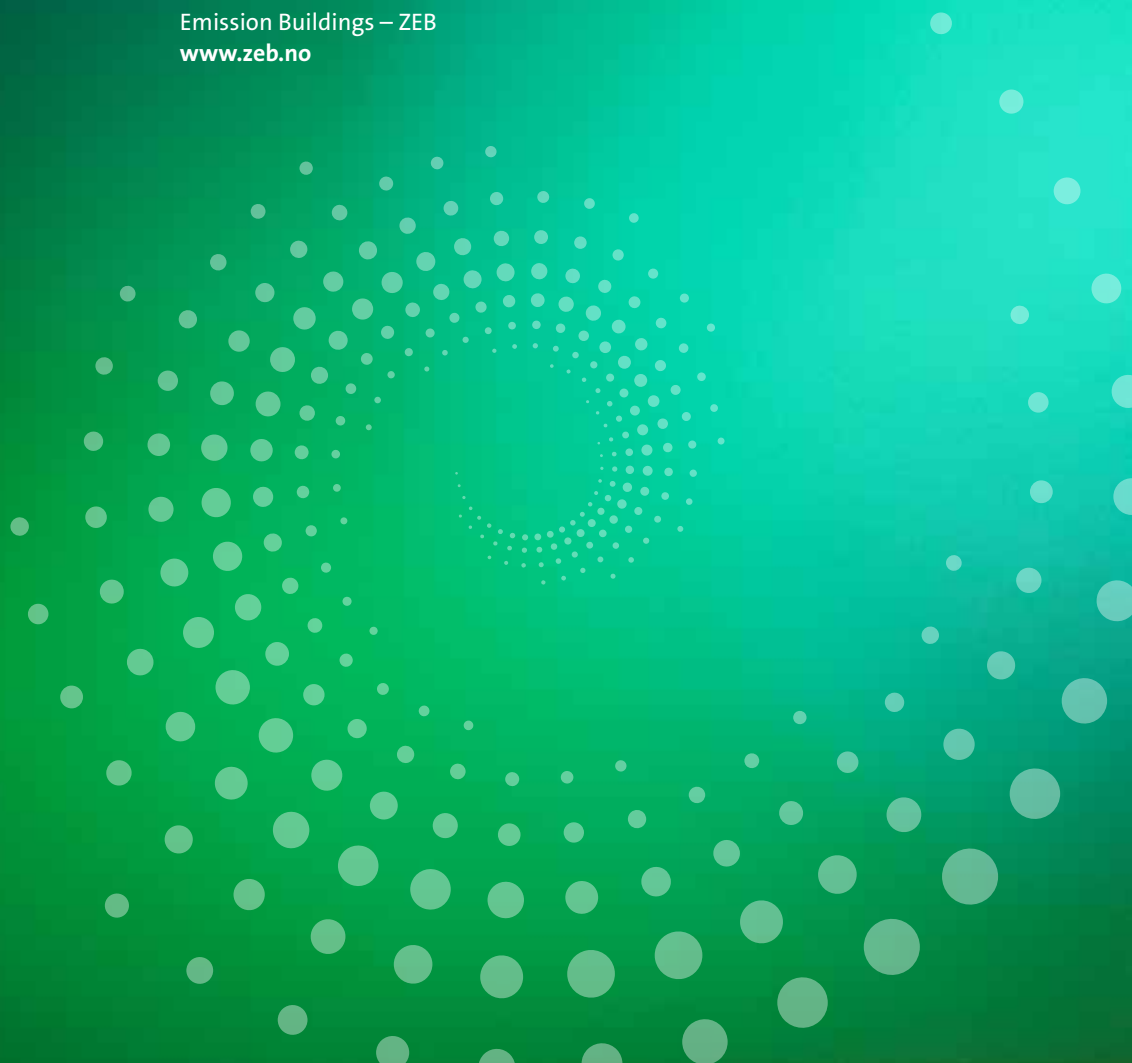
Norwegian Centre for Offshore  
Wind Energy – NORCOWE  
[www.norcowe.no](http://www.norcowe.no)

Norwegian Research Centre for Offshore  
Wind Technology – NOWITECH  
[www.nowitech.no](http://www.nowitech.no)

The Norwegian Research Centre  
for Solar Cell Technology  
[www.solarunited.no](http://www.solarunited.no)

SUbsurface CO<sub>2</sub> storage  
– Critical Elements and Superior  
Strategy – SUCCESS  
[www.fme-success.no](http://www.fme-success.no)

The Research Centre on Zero  
Emission Buildings – ZEB  
[www.zeb.no](http://www.zeb.no)





## Large-scale Programme for Energy Research – ENERGIX

The ENERGIX programme provides funding for research on renewable energy, efficient use of energy, energy systems and energy policy. The programme is a key instrument in the implementation of Norway's national Energi21 RD&D strategy as well as for achieving other energy policy objectives. The ENERGIX programme is designed to generate new knowledge to support the long-term, sustainable restructuring of the energy system, which will require more renewable energy, more energy-efficient solutions, closer energy integration with Europe, and improved flexibility.

### Important secondary objectives for the programme are:

- To achieve sustainable utilisation and consumption of renewable energy resources;
- To reduce Norwegian and global greenhouse gas emissions;
- To ensure Norway's security of supply;
- To strengthen innovation in Norwegian trade and industry;
- To further develop Norwegian research communities.

The ENERGIX programme encompasses the stationary energy system and environment-friendly energy for transport.

Activities under the programme are concentrated in the following thematic priority areas:

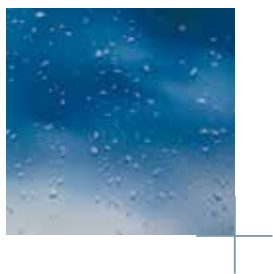
- Energy policy, society and economics;
- Renewable energy production;
- The energy system;
- Energy use and conversion;
- New concepts in the energy sphere.

The programme will also promote the broadest possible range of research activities to open the door to new thinking and the funding of projects involving innovative concepts.

[www.forskningsradet.no/energix](http://www.forskningsradet.no/energix)

## The Norwegian RD&D CCS programme – CLIMIT

The CLIMIT programme is the Norwegian research programme for accelerating the commercialisation of CCS. The programme provides funding to support research, development and demonstration activities related to CCS.



### The primary objectives of the CLIMIT programme are:

- contribute to reducing costs and realising CCS internationally in the near future;
- CCS at Norwegian companies;
- realisation of the storage capacity in the North Sea;
- develop knowledge and competency needed to close technology gaps and improve safety;
- cutting-edge technologies and service concepts with potential for application internationally.

The CLIMIT programme is administered jointly by the Research Council and Gassnova. The Research Council is responsible for funding R&D activities, and Gassnova is responsible for funding development, pilot and CCS demonstration activities. Gassnova has the overall administrative responsibility for the programme.

[www.forskningsradet.no/climit](http://www.forskningsradet.no/climit)







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