



**Oslo Centre for Research on Environmentally friendly Energy**

# Annual Report 2016



## **Executive Summary**

CREE - Oslo Centre for Research on Environmentally friendly Energy - was established in 2011 as a Social Sciences based energy research centre funded by the Research Council of Norway (FME Samfunn) with an annual grant of NOK 8 million over an eight-years period (2011-19). Because of the delay in deciding whether CREE would receive the last three years of funding, the centre received NOK 4 million from the Research Council of Norway in 2016.

### *Research and impact*

To a large extent, energy and climate policy is focused on how to develop and utilize new technology and more environmentally friendly energy sources. This does not occur by itself, but instead is dependent on institutional and economic frameworks. In this regard, CREE fills the gap compared to the knowledge coming from the other FME centres, as it is based on a broad aspect of economic research including theoretical and empirical analyses, numerical modelling and laboratory experiments. Economic analyses in combination with knowledge other fields are highly relevant for policy makers, regulators and important agents in the energy market.

One example of our research over the last years is to identify efficient measures to reduce CO<sub>2</sub> emissions in a fossil-fuel based economy. The conventional way of implementing policies to reduce CO<sub>2</sub> emissions is through the demand side, that is, introducing measures or instruments to reduce the consumption of fossil fuels. Supply side measures, that is, cutting domestic production of fossil fuels as a climate policy measure is less frequently discussed, let alone pursued. The purpose has been to deduce the cost-effective combination of the two types of policies, given a target for a country's (or coalition's) contribution to global CO<sub>2</sub> abatement. It is explored how the optimal domestic climate policies depend on the emissions from extraction, the costs of downscaling domestic fossil fuel demand and supply, and the market behaviour in the fossil fuel markets. The numerical analysis looks at Norway, which has an ambitious target for domestic demand side measures for 2020, but has so far not considered using supply side measures. The report finds that it is cost-effective for Norway to let most of the contribution to global emission reductions be achieved through supply side measures, see CREE report 4/2016.

[http://www.cree.uio.no/publications/CREE\\_working\\_papers/pdf\\_2016/hagem\\_storosten\\_carbon\\_leakage\\_and\\_green\\_paradox\\_wp04\\_2016.pdf](http://www.cree.uio.no/publications/CREE_working_papers/pdf_2016/hagem_storosten_carbon_leakage_and_green_paradox_wp04_2016.pdf)).

### *Cooperation and partners*

The main focus is on economic research as the research partnership is formed by the Frisch Centre, the Department of Economics (ØI) at the University of Oslo (UoO), the Research department at Statistics Norway (SSB), and the Tilburg Sustainability Center, in the Netherlands. Cooperation with the Centre for Development and Environment (UoO), Faculty of Law (UoO), and Institute for Energy Technology broadens the research perspective. The user perspective is ensured by several partners from industry and government; Gassnova, the Norwegian Environment Agency, the Norwegian Ministry for Petroleum and Energy, the Norwegian Water Resources and Energy Directorate, Statkraft Energy AS, Statnett SF and Statoil ASA.

### *Research goal*

The main aim of the centre is to collect and develop knowledge on the effects of regulatory conditions in the energy market and how these affect technological improvements such as innovation in and diffusion of technology for renewable energy, energy efficiency and carbon capture and storage. The centre provides a basis for better regulatory strategies and for policy instruments designed to reach energy and climate goals established nationally and internationally. CREE will also strive to develop methodological frameworks appropriate for achieving these goals.

### *Organization of the research*

Our portfolio is divided into five working packages that cover international climate and energy policy, innovation and diffusion, markets and regulation, evaluation of policy measures, and development of numerical models. The research packages cover what we consider to be the most important aspects in the economics of energy and climate.

### *Activities and outreach*

2016 has been the fourth year of CREE activities. The activities have concentrated on the research done in the different working packages, in addition to the annual research workshop, CREE seminars and several user activities including the annual user conference, the annual

dialogue seminar and seminar presentations for users. The annual user conference had as its theme "The Paris Agreement: Towards a global green shift ", and there were about 90 participants. The research workshop is mainly for our research partners, international network and sub-contractors, but user partners are also welcome to participate. The workshop is smaller in scale with between 30 and 40 participants. On the other hand, the dialogue seminar is an arrangement where users present what they consider to be the interesting topics in the field and researchers respond to these topics. The different activities organised by CREE cover a large aspect of discussions of topics and analyses on both theoretical and applied character. The meeting places are important for networking and the outreach of our research.

The CREE scientists have held more than 75 conference and seminar presentations in 2016, and they have been mentioned numerous times in the media.

At the end of 2016, we obtained two projects in the ENERGIX programme and two projects in the KLIMAFORSK programme. Hence, from January 2017 we have six large projects with funding from the Research Council of Norway.

#### *Publications*

In 2016 we published 23 papers in international peer reviewed journals, 1 book, 5 book chapters, 15 working papers and 18 popular science articles.

#### *Educational activities*

In 2016, we continued to reap the fruits of our efforts to fund and encourage PhDs in energy and climate economics; two CREE researchers defended their doctoral thesis, and one CREE researcher finished his four-years period as a post.

#### *Structural changes following the midt-term evaluation*

In late fall 2016, the Norwegian Research Council decided to finance the last three years of the eight-years centre period, subject to some requirements. The CREE administration, joint with key CREE researchers, started immediately to reorganize the centre in order to meet these requirements. This effort, which takes place in close cooperation with the CREE users, is expected to be finalized at the end of the first quarter in 2017. Effective July 1 2016, Rolf Golombek replaced Snorre Kverndokk as the CREE Director.

### *Final remarks*

CREE has during its five years of operation contributed to the understanding of energy markets, impacts of regulations on energy use, emissions and innovations, and effective and fair design of climate policies. Our research is important as it is published in very good and good international journals, CREE researchers receive international prizes<sup>1</sup>, it has attracted media attention, and it is appreciated by users as our researchers are constantly demanded as advisors for policy makers, as presenters at seminars and discussion partners. To take one example, CREE has collaborated with the Ministry of Finance to develop an equilibrium model for the Norwegian economy (SNOW-No) that can be used for calculations in the next White Paper on Long-term Perspectives for the Norwegian Economy (Perspektivmeldingen). In accordance with the wishes of the Ministry of Finance, the model has been extended, for example by including of all greenhouse gases in the Kyoto Protocol. In addition, the model has been adapted so that the model user can control some parameters that are particularly relevant/interesting for the Ministry of Finance.

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<sup>1</sup> In January 2017, the Sören Wibe prize was awarded jointly to Michael Hoel, Bjart Holtsmark, and Katinka Holtsmark for a joint paper published in Journal of Forest Economics.



## 1 CREE

There is increasing evidence that the global climate is changing, and that this change is mainly due to human activities. As has been stressed by the latest IPCC assessment report published in 2014, climate change can have a substantial impact on the economy, ecosystems and human welfare, and may have catastrophic impacts for parts of the world. Thus, there is a need to reduce greenhouse gas emissions as well as to adapt to inevitable changes. In 2015 the international community was successful in reaching a treaty (the Paris agreement) where nearly all countries in the world agreed to reduce their greenhouse gas emissions. A lot of details have still to be worked out, but technology improvements are widely held to be essential if we are to achieve the required emission cuts.

However, there are several challenges: the research and development effort, as well as diffusion and utilization of new, environmentally friendly energy sources, require appropriate incentives. Another important challenge is the future design and improvements of climate and energy treaties, such as the Paris agreement, that will help achieving a better social outcome. In this respect effective policy instruments and fair outcomes are important. The aim of CREE,

Oslo Centre for Research on Environmentally friendly Energy, is to provide a solid base for policy making on these topics. CREE will also contribute to the collection and establishment of knowledge on how different regulations affect both the energy market and technological development. The centre studies policy instruments designed to reach the goals established in national and international energy and climate policy, while also examining how international treaties could be designed to achieve broader participation and deeper abatement.

The research of the centre is primarily grounded in economics, as reflected by the main research partners: Department of Economics at the University of Oslo, the Research Department at Statistics Norway, the Frisch Centre and the Tilburg Sustainability Centre. In addition, in 2016 the centre has drawn on other perspectives through cooperation with researchers from other disciplines within the social sciences, law and technology.

The centre has the following vision, which is stated in our Strategic Plan:

- We want to be a leading international research centre within energy, environmental, resource and climate economics
- We will generate knowledge that can contribute to a cost-effective and sustainable exploitation of Norwegian and international energy resources by industry and governments, as well as an effective and fair climate and energy policy, both nationally and internationally
- We will contribute to recruitment and training at the master, doctoral and post doctoral levels in energy and environmental economics at the University of Oslo. Recruiting women to research will have a particular focus.

This report summarizes the activities and the achievements of the centre in 2016.

## **2 Research plan and strategy**

CREE organized its research into the following five work packages in 2016:

### ***Work Package I: Regional and national energy and climate policies***

***(Research Director: Brita Bye, Statistics Norway)***

WP I concentrates on analyses of regional and national energy and climate policies. Analyses of regional and national energy and climate policies are in nature more close to reality than global studies, and often analysed empirically. Examples of topics analysed in this work package are policies that deal with carbon leakage when the carbon policy is unilateral or multi-lateral but not global, as border carbon adjustments (tariffs etc.), supply vs. demand side regulations of fossil fuels, or free allocation of quotas in a tradeable emission quota system as, e.g., the EU-ETS. Interactions between policy instruments as energy efficiency measures, carbon pricing and other regulations are other topics.

The methods range from simple models used to illustrate some theoretical results, to detailed multi-sector and multi-region partial and economy-wide models that analyse specific policies.

### ***Work Package II: Global climate policies and negotiations***

***(Research Directors: Michael Hoel, Department of Economics, University of Oslo, and Mads Greaker, Statistics Norway)***

WP II concentrates on analyses of global climate policies and negotiations. By the end of 2015 the UN climate negotiations ended with a treaty in Paris. The treaty is exceptional because nearly all countries in the world committed to reduce their GHG emissions. Although a success, the Paris treaty raises many challenges: First and foremost, the current emission reduction pledges are not large enough to reach the 2<sup>0</sup> C target. Thus, a crucial question which CREE aims to study is how to get countries to step up their emission reduction pledges. Second, the emission reduction pledges are not legally binding, and there is no sanction mechanism built into the treaty aimed at countries not fulfilling their pledges.

Third, everyone agrees that technological development is crucial for combatting climate change, but how the clean R&D step up is going to happen is not formalized in the treaty.

While the research in this work package builds on economic theory and game theory, it is multidisciplinary as several of the projects are based on behavioral economics and theories of equity.

***Work Package III: Innovation and Diffusion policy***

***(Research Director: Rolf Golombek, Frisch Centre)***

Transition to a low-carbon society will require radical environmentally-friendly technology innovations. Work package III contains theoretical and empirical studies on how to promote innovation in environmentally-friendly technologies on how to ensure that these technologies are widely used by firms and consumers. The methods used in this work package cover applied economic theory, large-scale simulation models and econometrics/statistics.

A key reason for the government to support private R&D is that the innovator will in general not be able to appropriate the full social benefit of the innovation. This observation provides a rationalization for the government to support private research and development. One unconventional R&D instrument is an innovation prize, that is, the actor receives an amount of money from the regulator/government if he succeeds in developing a new technology that meets some pre-specified technical conditions. We have shown that the regulator can design an innovation prize that provides the correct social incentives to undertake R&D.

We have examined different types of R&D support for CCS (carbon capture and storage), and asked whether this should take the form of support to development of CCS technologies or purchase of CCS technologies. Our conclusion is that we should support the development of the CCS technology.

Another major activity has been to study empirically how environmental regulations may trigger more environmentally friendly R&D, measured by the number of patents. Here, we draw on a rich Norwegian panel data set that includes information about the type and number of patent applications, technology standards, non-tradable emission quotas, and a large number of control variables. We identify strong and significant effects on innovations from the implicit regulatory costs of direct environmental regulations.

#### ***Work Package IV: Regulation and Market***

***(Research Director: Nils-Henrik M. von der Fehr, Department of Economics, University of Oslo)***

In this work package, the main research question is how regulation of energy markets affects the development of green energy, and how measures to promote green energy impact the functioning of energy markets. It is of particular interest to study the implication of regulation across national borders, especially with respect to infrastructure, since an international regulatory framework is crucial for the exploitation of Norwegian energy and environmental resources, both in traditional areas and in new areas like capture and storage of CO<sub>2</sub>. The work is mainly theoretical and empirical studies, but numerical models, either already existing or developed in other work packages, are also utilized.

#### ***Work Package V: Evaluation of Environmental and Energy Policy Measures***

***(Research Director: Bente Halvorsen, Statistics Norway)***

Work Package V contains empirical studies evaluating the impact of environmental and energy policy measures. In 2016, the work was in close collaboration with social anthropologists from Centre for Development and the Environment (SUM), which is one of our sub-contractors.

An important topic in understanding how to cut GHG emissions is the use of smart technologies, like heat pumps. We find large rebound effects when households install this technology; our results suggest that average electricity consumption is roughly unchanged. This is due to reduced use of firewood and fuel oils, but also to an increase in heated area and higher indoor temperature. There are large variations in indoor temperature throughout the day between households, which depends on installed heating equipment. Further, households with heat pumps and common central heating system keep a higher indoor temperature. Using anthropological methods, we analyse how households respond to electricity meters showing energy consumption by various activities. We find that households seem to appreciate information about costs.

Needless to say, the research in all work packages benefit from contact with subcontractors and user partners. For the vision and strategy of the total CREE activity, see the new CREE strategy plan, which was finalized in 2016:

<http://www.cree.uio.no/about/pdf/cree-strategic-plan-2015-2019.pdf> .

For a complete listing of all projects, see the CREE project directory (<http://www.cree.uio.no/projects/>).

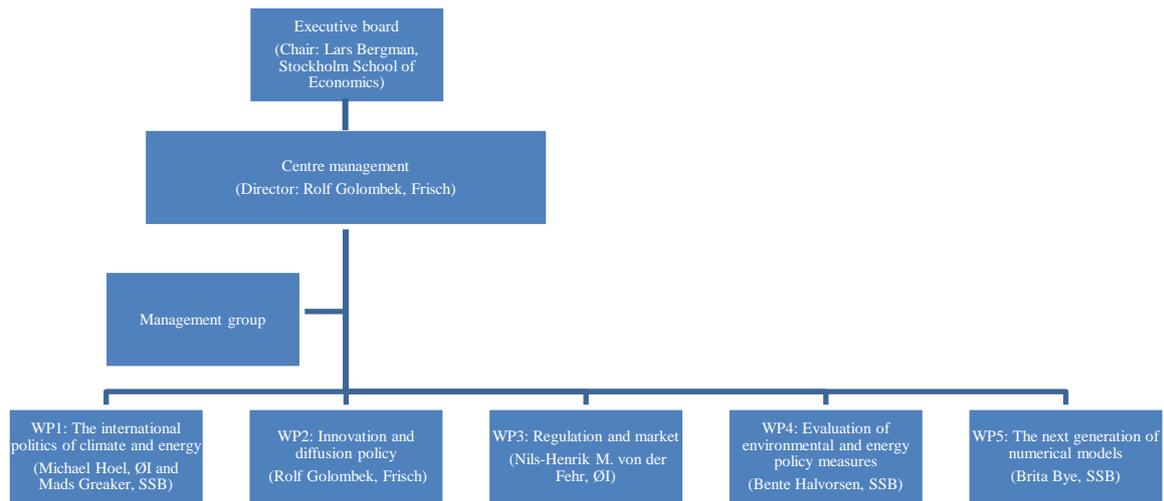
### **3 Centre organization**

In 2016, Snorre Kverndokk served as the CREE Director until July 1, when Rolf Golombek continued as the CREE Director. The organization of the centre in 2016 was as shown in the figure below.

The chair of the executive board (Lars Bergman, Stockholm School of Economics) does not represent any of the research partners, user partners or sub-contractors, and is therefore independent of the partners in CREE.

The board also consisted of one member from each of the three Norwegian research partners and one member from each of the user partners. At the end of 2016, the board members were Sverre A. C. Kittelsen (Frisch Centre), Cathrine Hagem (Statistics Norway), Karine Nyborg (University of Oslo), Kenneth Birkeli (The Norwegian Environment Agency), Kjell Berger (Statkraft), Jan Bråten (Statnett), Ellen Skaansar (Norwegian Water Resources and Energy Directorate) and Ståle Aakenes (Gassnova). The Norwegian Ministry of Petroleum and Energy does not want to be on the board. The board had four meetings in 2016, see [http://www.cree.uio.no/about/board/board\\_meetings/](http://www.cree.uio.no/about/board/board_meetings/).

The administration of CREE is located at the Frisch Centre. Dr. Rolf Golombek is the Director (Dr. Snorre Kverndokk was the Director until July 2016), and Jørg Gjestvang is the Project Coordinator. The administration has regular meetings with the management group, that is, the work package leaders, to discuss matters of importance for the centre.



The partners of CREE are divided into research partners and user partners. The research partners are:

Ragnar Frisch Centre for Economic Research (Frisch Centre), Oslo (host institution)  
 Research department, Statistics Norway, Oslo  
 Department of economics, University of Oslo  
 Tilburg Sustainability Center, Netherlands.

CREE has six user partners:

Gassnova SF  
 Norwegian Environment Agency  
 Norwegian Ministry for Petroleum and Energy  
 Norwegian Water Resources and Energy Directorate  
 Statkraft Energy AS  
 Statnett SF.

Statoil withdrew as a user partner from 15 March 2016.

The user partners of the centre contribute with funding and with members on the board, but also to the research with detailed knowledge about markets, technologies and policy.

In late fall 2016, the Norwegian Research Council decided to finance the last three years of the eight-years centre period, subject to some requirements suggested by the international

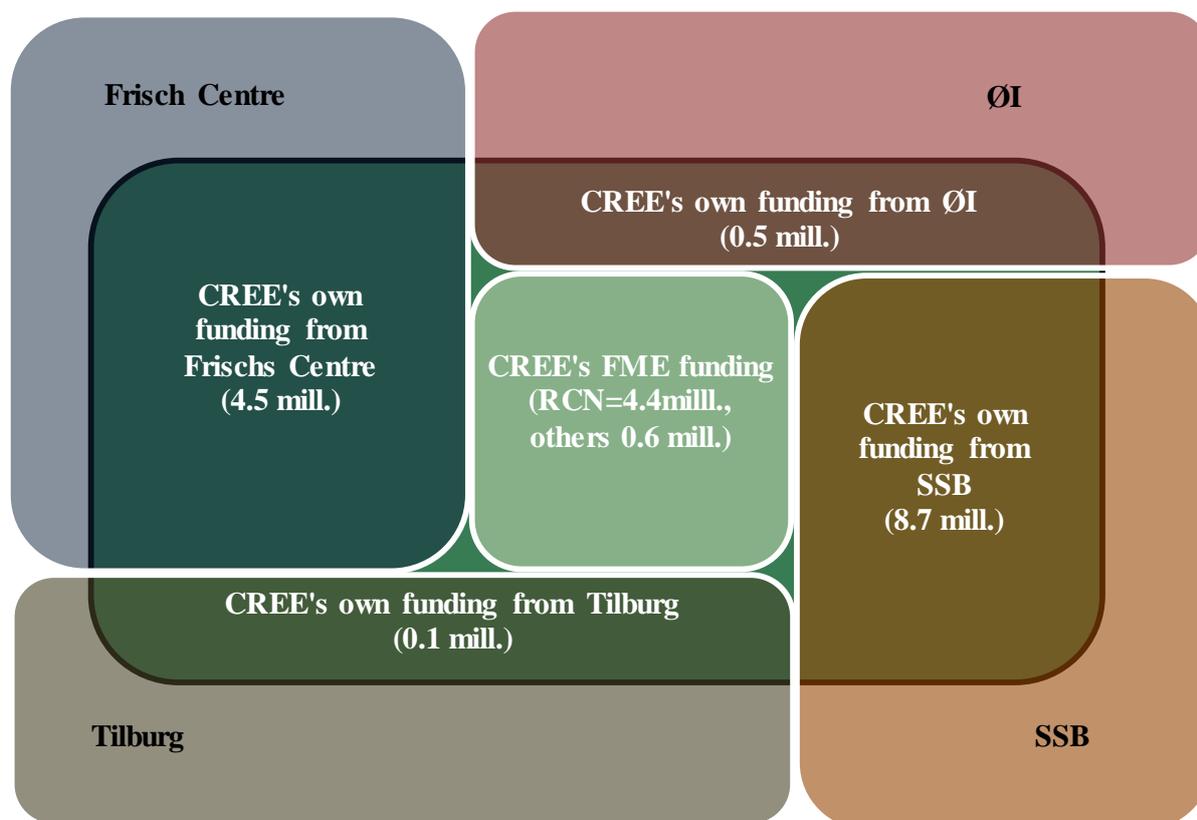
evaluation committee that assessed CREE in 2015. These requirements include i) stronger user involvement, ii) enhanced additionality of the centre, iii) more interdisciplinary activities, iv) implementation of a centre strategy for international cooperation, and v) structural changes of the CREE administration and its board. In November, the CREE administration, joint with key CREE researchers, started to reorganize the centre in order to meet the requirements. This effort, which takes place in close cooperation with the CREE users, is expected to be finalized at the end of the first quarter in 2017.

## **4 Funding**

The funding of CREE in 2016 comes from various sources. The centre has normally an annual contribution from the Research Council of Norway (RCN) of NOK 8 million, user partner funding of NOK 350,000, and funding from the University of Oslo (UoO) of NOK 500,000. Because of the delay in deciding whether CREE would receive the last three years of funding, the centre received NOK 4 million from RCN and 175,000 from user partners. In addition, the centre has secured its own funding through other programs under RCN. The figure below gives an overview of the total funding in 2016. Note that in the figure, the funding from RCN is NOK 4.4 million, which is more than the annual grant. The reason is that 0.4 million was transferred from 2015. For more detailed information, see Appendix A2, which also shows the distribution of costs by CREE research partners and other units affiliated to the centre. Note that costs cover activities directly funded by RCN as well as activities financed by own funding, for example, funding through other RCN programs.

## CREE funding in 2016

Total CREE centre funding incl. own funding. (18.8 mill.)



Own funding = professional work that is beneficial to the CREE centre, but is not part of CREE's direct funding from The Research Council of Norway. Own funding should be at least 25% of the total budget of CREE.

### FUNDINGS

The Research Council of Norway	4.4
Others	0.6
<i>Public funding (UoO)</i>	0.4
<i>Privat funding (User partners)</i>	0.2
Own funding	13.8
<i>Frisch</i>	4.5
<i>SSB</i>	8.7
<i>ØI</i>	0.5
<i>Tilburg</i>	0.1
<b>Sum total funding</b>	<b>18.8</b>

## 5 Professional activities and results

The professional activities in 2016 have been concentrated on the research in the work packages, the research workshop, CREE seminars, and several user activities including the user conference and the dialogue seminar.

The CREE workshop took place in Oslo (at Statistics Norway) on 24-25 October. 30 people attended the workshop, mainly researchers from the research partners and sub-contractors in CREE, but also from our international network. Presentations covered research from the work packages, and on subjects related to the work packages. The program is available at <http://www.cree.uio.no/outreach/events/6th-research-workshop.html>.

There were 9 CREE seminars 2016, including 5 seminars given by international visitors. The seminars were given at Statistics Norway, Frisch Centre and University of Oslo. For a list of all seminars, see <http://www.cree.uio.no/outreach/events/?view=allprevious>.

The user conference was held in April and was co-organized with CICEP, another centre for social science research on environmentally friendly energy (FME-S). The conference was in Norwegian and the topic was “The Paris Agreement: Towards a global green shift?” This was successful, and about 90 people attended the conference. For more information about the conference, see

[http://www.cree.uio.no/outreach/events/brukerkseminar\\_cree\\_cicep\\_160428.html](http://www.cree.uio.no/outreach/events/brukerkseminar_cree_cicep_160428.html).

CREE also organized a half-day dialogue seminar with the user partners, where the user partners chose the subjects for dialogue; see

[http://www.cree.uio.no/outreach/events/user-meetings/dialogseminar\\_161208.html](http://www.cree.uio.no/outreach/events/user-meetings/dialogseminar_161208.html).

In 2016, 23 papers were published in international peer reviewed journals (see the Publications table below and Appendix A3). We have also published one book<sup>2</sup>, five book chapters and produced 15 CREE working papers. Further, we have published 18 popular science articles and 8 other publications. The CREE scientists have held 76 conference and seminar presentations. They have also been mentioned at least 20 times in the media. When

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<sup>2</sup> Førsund, F. (2015): *Hydropower Economics*. Second Edition. New York; Springer Science & Business Media.

comparing with output from previous years, the fact that CREE received NOK 4 million – as compared to NOK 8 million in previous years – should be taken into account.

### **Publications 2011-2016**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Journal articles:	8	16	21	28	19	23
Books and article in books:		2	7	6	2	6
Working Papers:	9	21	30	20	24	15
Popular scientific articles:	4	10	12	7	7	18
Other publications:		5	3	2	18	8
Conference and seminar presentations:		100	100	74	108	76
CREE in the media:	9	41	31	23	26	20

For more information about the publications, see <http://www.cree.uio.no/publications>



## 5.1 Snapshots of some research projects in 2016

### **The effects of the EU Emissions Trading System on greenhouse gas emissions**

The study "The impacts of the EU ETS on Norwegian plants' emissions, value added and productivity" examines the impacts of the EU Emissions Trading System (EU ETS) on the environmental and economic performance of Norwegian plants. The EU ETS is regarded as the cornerstone climate policy both in the EU and in Norway, but there has been considerable debate regarding its effects due to low quota prices and substantial allocation of free allowances to the manufacturing industry. Both quota prices and allocation rules have changed significantly between the three phases of the ETS (respectively 2005-7, 2008-12, and 2013-20).

Access to detailed data at the plant level for the years 2001-13 allowed us to investigate potential effects of the ETS on several important aspects of plant behaviour, using statistical methods. The results indicate a weak tendency of emissions reductions among Norwegian plants in the second phase of the ETS, but the result is not statistically significant. In the other two phases, no effects on emissions were found. We find no significant effects on emission intensity (emissions per unit of production) in any of the ETS phases.

The study also finds positive effects on wealth creation and productivity for the regulated plants in phase 2 of the ETS, but not in the other two phases. The positive effects may be due to the large amount of free allowances, relatively high carbon prices, and that plants may have passed on the additional marginal costs to consumers. The results of this study indicate that

most Norwegian firms can tolerate somewhat smaller amount of free allowances without operating at a loss.

Klemetsen, M.E., K.E. Rosendahl and A.L. Jakobsen (2016): The impacts of the EU ETS on Norwegian plants' environmental and economic performance. *Discussion papers No. 833*, Statistics Norway, *NMBU Working Paper 3/2016*, *CREE Working Paper 03/2016*.

### **Climate policies in a fossil fuel producing country – demand versus supply side policies**

The conventional way of implementing policies to reduce CO<sub>2</sub> emissions is through the demand side, that is, introducing measures or instruments to reduce the consumption of fossil fuels. Supply side measures, that is, cutting domestic production of fossil fuels as a climate policy measure is less frequently discussed, let alone pursued. In the present situation where countries or a group of countries act unilaterally, demand side versus supply side policies matters.

The purpose of this paper is to deduce the cost-effective combination of the two types of policies, given a target for a country's (or coalition's) contribution to global CO<sub>2</sub> abatement. We explore how the optimal domestic climate policies depend on the emissions from extraction, the costs of downscaling domestic fossil fuel demand and supply, and the market behaviour in the fossil fuel markets. These aspects are crucial for the global abatement effects of demand- and supply-side policies. Our numerical analysis looks at Norway, which has an ambitious target for domestic demand side measures for 2020, but has so far not considered using supply side measures.

Even though leakages are likely to be larger with supply side measures than demand side measures, the main conclusion of this analysis is that it is cost-effective for Norway to let most of the contribution to global emission reductions be achieved through supply side measures. In our benchmark scenario, two thirds of a given global reduction should be realised through supply side measures, that is, by reducing oil extraction. The most targeted instrument for supply side policies is a tax per barrel of domestic oil extraction. The paper discusses the practical challenges with implementing supply side measures and points to

alternatives like more restrictive practise when it comes to opening new areas for oil exploration.

### **Innovation prizes**

The government influences demand for new abatement technologies through its environmental policy. If the government uses innovation prizes to provide the socially correct incentives for a monopoly innovator to invest in R&D, the innovation prize for environmental R&D will therefore in general differ from the innovation prize for market goods R&D. We show that if the slope of the demand curve/marginal benefit of abatement curve is sufficiently large relative to the slope of the marginal cost curve, then the innovation prize for environmental R&D should be greater than the innovation prize for market goods R&D. We also demonstrate that if the government can use a tax rebate to promote diffusion of the innovation, the innovation prize for environmental R&D should always be greater than the innovation prize for market goods R&D.

Golombek, R., M. Greaker and M. Hoel (2015): Innovation prizes for environmental R&D. *CREE working paper*, 19/2015.

### **Energy technology and energy economics:**

#### **Analysis of energy policy in two different model traditions**

Models are useful and widely employed tools for studying energy and climate policy in the disciplines of both technology and economics. We use one-country models from each tradition to elucidate similarities and distinctions between the two traditions. Our policy example is the introduction of a cap on the household sector's purchase of energy. The two models generate fairly different results, particularly with respect to the electricity market. In the economic CGE model SNOW, almost all the reduction takes place as less household electricity demand, through increasing energy efficiency and limiting demand for energy-based housing services. The latter option is excluded as a response in the technology-rich energy system model TIMES-Norway, since energy services are exogenously given. As in the economic model, induced energy efficiency measures reduce energy demand. Nevertheless,

household demand for electricity remains virtually unchanged. One important explanation is the rich modelling of alternate energy production technologies in homes. A cap on marketed energy leads to increased investment in heat pumps and substitution of ambient energy. Electricity demand is kept up as it is required for operating heat pumps. Household demand for other kinds of energy, particularly firewood, drops instead. The analyses reveal that even if a large knowledge exchange has resulted in the two model traditions approaching each other, significant differences remain. There is a need to consider the effects of energy policy from several disciplinary perspectives before taking important policy decisions.

Bye, B., K. Espegren, T. Fæhn, E. Rosenberg and O. Rosnes: Energiteknologi og energiøkonomi: Analyser av energipolitikk i to ulike modelltradisjoner. *Samfunnsøkonomen*, nr. 6, 2016.



## **5.2 Snapshots of some collaboration with user partners**

### Ministry of Finance

CREE has collaborated with the Ministry of Finance to develop an equilibrium model for the Norwegian economy (SNOW-No) that can be used for calculations in the next White Paper on Long-term Perspectives for the Norwegian Economy (Perspektivmeldingen). In accordance with the wishes of the Ministry of Finance the model extensions include updating the dataset, expansion of the number of sectors, more detailed breakdown of taxes, as well as the inclusion of all greenhouse gases in the Kyoto Protocol. The model has been adapted so that the model user can control some parameters that are particularly relevant/interesting for the Ministry of Finance. Further adaptations makes it possible for the Ministry of Finance to

simulate various configurations of climate policy (eg., a cap on emissions, carbon taxes and allowances). In addition, the model has become more user-friendly. Several courses and workshops on how to use the model has been arranged for the Ministry of Finance.

#### Norwegian Environment Agency I

CREE has developed and updated a model for the study of energy and climate policy. The model combines the macro perspective of numerical equilibrium approaches with the technology knowledge of energy models. In this project CREE has collaborated with The Norwegian Environment Agency on data processing and with IFE (Institute for Energy Technology) on modelling. In the autumn of 2016, CREE shared their experiences with this type of collaboration with researchers and bureaucrats in Scotland.

#### Norwegian Environment Agency II

In the spring of 2016, the Norwegian Environment Agency worked on a report that would calculate the cost of electrifying private car transport in Norway. Because achieving emission reductions in transportation is a lengthy process, it is important to know how comprehensive the policies implemented now should be.

The Norwegian Environment Agency invited CREE to discuss how fast costs would decrease, and to what extent the fall in costs will depend on market developments in Norway. The CREE research in the work package on innovation and diffusion of clean technologies was vital to the CREE contribution.

#### Ministry of Finance, Ministry of Petroleum and Energy

CREE has assisted the Ministry of Finance and the Ministry of Petroleum and Energy in conducting cost-benefit analyses of three CCS projects: Norcem's cement plant at Porsgrunn, Yara fertilizer plant in Porsgrunn, and the Klemetsrud waste management plant in Oslo. Our contributions were related to i) assessing whether it was likely that the projects would spur technological innovations that would benefit future CCS facilities, and ii) determine the value of the technological gains. Our activity during the work package on innovation and diffusion of clean technologies provided a scientific basis for assessing these two issues. As far as we know, this is the first time technological gains have been valued in a cost-benefit analysis.

### Ministry of Climate and Environment, Ministry of Finance

A project has been completed on the Norwegian costs for achieving the 2030 targets on greenhouse gas emissions, in close communication with experts from the Ministry of Climate and Environment and the Ministry of Finance. Several discussion meetings and a presentation of the final report have been completed. A section of the 2017 National Budget is devoted to this report.

### **5.3 Interdisciplinary contact and cooperation**

Technology research is essential for developing our numerical models. IFE has been an important partner and subcontractor to CREE from the beginning. Their work on modelling various energy technologies in the detailed energy optimization model TIMES-Norway can provide valuable input in economic models. Especially IFE has supplied estimates of energy efficiency technologies and potentials in the building sector, and we have published a joint article in the journal *Samfunnsøkonomen* where we compare the engineering approach and the economist approach of modelling energy efficiency and relevant measures. Cooperation with IFE has so far also resulted in research projects from the research programme ENERGIX (RCN).

Beyond the collaboration with technologists, we have initiated and started a series of multidisciplinary collaborative projects with researchers from the fields of anthropology, psychology and law. Social anthropologists at SUM (UoO) are heavily involved in the work package "Evaluation of Environmental and Energy Policy Measures". A joint project with the Department of Psychology (UoO) is based on the common methodology of behavioural experiments (in lab). The project provides a good foundation for studying attitudes to risk relevant to the design of climate policies. Further, researchers at the Faculty of Law (UoO) are participating in one of our ENERGIX projects.



## 6 International cooperation

All the research partners in CREE have a large international network, which is shown through extensive co-authorship with researchers from other countries (see <http://www.cree.uio.no/publications/>). When it comes to articles in peer reviewed international journals, about half of the 23 papers that were published in 2016 had foreign authors or co-authors. This illustrates that CREE works internationally, both through co-authorship and through impacts in the international research community.

CREE researchers also participate actively at international conferences and seminars (e.g., IAEE and EAERE), in international groups (e.g., IPCC), networks (e.g., CESifo), and lecture at foreign universities and institutions.

CREE has an international research partner - Tilburg Sustainability Center - and three foreign researchers had a part-time position paid by CREE in 2016:

- Fridrik Baldursson, Reykjavik University
- Christoph Böhringer, Oldenburg University
- Jared Carbone, University of Calgary.

In addition to the foreign researchers who are employed part time by CREE, several foreign researchers have contracts on CREE projects that are externally funded, i.e., not paid by the direct funding of CREE.

CREE organizes an annual research workshop where we invite researchers from our network. At the workshop in 2016 (24-25 October), the following non-Norwegian researchers attended (see

[http://www.cree.uio.no/outreach/events/research\\_workshops/6th-research-workshop.html](http://www.cree.uio.no/outreach/events/research_workshops/6th-research-workshop.html)):

- Reyer Gerlagh (University of Tilburg)
- Mario Blazquez de Paz (Research Institute of Industrial Economics, Sweden)
- Christoph Böhringer (Univ. Of Oldenburg)
- Itziar Lazkano (University of Wisconsin-Milwaukee)
- Fridrik Baldursson (Reykjavik University).

Several foreign researchers held CREE seminars in 2016. Below is a list of these seminars:

Stef Proost, Economics at KULeuven: Benefits to the Majority From Universal Service, 15. Nov. 2016

Karen Pittel, CES Ifo: Policy Options for the Decarbonization of the EU Power Sector, 10. Mai 2016

Geoffrey Heal, Columbia University: Feeling the Heat: Temperature, Physiology & the Wealth of Nations, 25. Apr. 2016

Brooks Kaiser, University of Southern Denmark: Technical and Institutional Change: transitions in Resource-Based Inuit Communities, 12. Apr. 2016

Reyer Gerlagh, Tilburg University: Committed to a decarbonizing world, 2. Mars 2016

## **7 Recruitment**

In 2016, two of our scientists defended their thesis and our Post Doc Daniel Spiro finished his four years of work:

- Bjart Johannes Holtmark (Statistics Norway) defended his thesis "Seven essays on policies and international cooperation to abate emissions of greenhouse gases" for the dr. philos degree on 15 January
- Marit Elisabeth Klemetsen (Statistics Norway) defended her thesis "Impacts of policies on emissions and environmental innovation in Norway " for the PhD-degree on 6 June.

CREE gives a master scholarship of NOK 20.000 to up to three master students annually. These are offered an office at one of the Norwegian research partners, supervision by one or two of the CREE researchers, access to all CREE arrangements, and the possibility to publish

their thesis in the CREE Working Paper series. For 2016 scholarships were given to Marie Brun Landmark and Shan Jiang. Their theses are published in the CREE working paper series.

## **8 Cooperation with other FME centres**

CREE has a close collaboration with CICEP, one of the other social science-related energy research centers (FME Samfunn) funded by the Research Council of Norway. CICEP has many overlapping projects with CREE as both centres have a large interest in international climate negotiation and agreements. Every spring CREE and CICEP organize a joint user conference for our research partners and other interested institutions. We also organize research workshops together, write joint research proposals and have some joint research projects.

In addition, we have common interests with CenSES, the third FME Samfunn, in numerical modelling of energy markets and new energy technologies, and we have organized workshops and Model Forums together. In 2016 we were both involved in the project “Implications of Paris”, a project initiated by Joint Global Change Research Institute (JGCRI), University of Maryland, that will study several implications of the Paris agreement. The project is organized as a series of workshops; the first one was in the spring 2016.

## **9 Communication and dissemination**

The main users of CREE are, in addition to the research community, industry, Government and the general public. The communications to users are mainly through the following channels:

- Dissemination of research and media activity through our webpage ([www.cree.uio.no](http://www.cree.uio.no))
- Hold an annual user conference (April). This is organized together with CICEP
- Organize user activities such as meetings and seminars
- Publish in Norwegian-language journals such as *Samfunnsøkonomen* and *Økonomiske analyser*
- We contribute to hearings in the Parliament and public debates.

CREE has invested heavily in communication, for instance through an internal reward system for communicating through the media. We have dedicated a website for news on CREE research, see <http://www.cree.uio.no/outreach/>, and had 20 reports in the media in 2016. Researchers from CREE have been involved in debates in the media over the past year on subjects such as climate treaties, electric vehicles, bio fuels, and energy efficiency.

When it comes to user-oriented communication measures, we usually give about 75-100 presentations each year. This includes meetings with all user partners, seminars, workshops and conferences. In addition to the two regular user arrangements in the spring and the fall, we organize seminars for users that are interested in certain topics.



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

Name: CREE

Address: Frisch Centre, Gaustadalléen 21, 0349 Oslo, Norway

Phone: 22 95 88 10

E-mail: [cree-admin at frisch.uio.no](mailto:cree-admin@frisch.uio.no)

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

## Appendix:

### A1 Personnel

#### Key Researchers

Name	Institution	Main research area
Golombek, Rolf	Frisch Centre	Environmental Economics, Energy Economics, Applied Game Theory
Hauge, Karen	Frisch Centre	Environmental Economics
Kittelsen, Sverre	Frisch Centre	Production theory, Efficiency measurement, Regulation, Health Economics, Energy Economics
Kverndokk, Snorre	Frisch Centre	Environmental and Resource Economics, Health Economics
Nævdal, Eric	Frisch Centre	Resource Economics, Economic management of ecological systems, dynamic optimization, modeling of the risk of disasters, animal behavior
Røgeberg, Ole	Frisch Centre	Welfare analysis, endogenous preferences, rational addiction theory, consumer theory
Strøm, Steinar	Frisch Centre	Microeconomics
Asheim, Geir	Department of Economics, University of Oslo	Game theory, intergenerational justice, green national accounting
Brekke, Kjell Arne	Department of Economics, University of Oslo	Behavioral Economics, Experimental Economics, Resource and Environmental Economics, Real options and stochastic analysis
Framstad, Nils Christian	Department of Economics, University of Oslo	Stochastic optimization
Førsund, Finn	Department of Economics, University of Oslo	Resources, energy, environment, production theory, productivity
Harstad, Bård	Department of Economics, University of Oslo	Political Economics, Public Economics, Contract Theory, Environmental Economics
Hoel, Michael	Department of Economics, University of Oslo	Energy and climate economics, environmental economics, resource economics
Lund, Diderik	Department of Economics, University of Oslo	Resources, energy and environment, economics
Nyborg, Karine	Department of Economics, University of Oslo	Environmental economics, economic analysis of social and moral norms, behavioral economics.
Piacquadio, Paolo Giovanni	Department of Economics, University of Oslo	Microeconomic Theory, Welfare Economics, Game Theory, Public Economics, and Environmental Economics
Strand, Jon	Department of Economics, University of Oslo	Natural resources economics, Environmental economics, Climate policy, Public, transportation and energy economics, Water economics, Cost-benefit analysis
Vislie, Jon	Department of Economics, University of Oslo	Microeconomics, environmental economics, incentives, public economics
Von der Fehr, Nils	Department of Economics, University of Oslo	Microeconomics, Industrial Economics, Regulation, Competition Policy.
Aune, Finn Roar	Research Department, Statistics Norway	Energy and environmental economics
Bye, Brita	Research Department, Statistics Norway	Macroeconomic
Fæhn, Taran	Research Department, Statistics Norway	Macroeconomic
Greaker, Mads	Research Department, Statistics Norway	Energy and environmental economics
Grimsrud, Kristine M.	Research Department, Statistics Norway	Energy and environmental economics
Hagem, Cathrine	Research Department, Statistics Norway	Energy and environmental economics
Halvorsen, Bente	Research Department, Statistics Norway	Energy and environmental economics
Holtmark, Bjart	Research Department, Statistics Norway	Energy and environmental economics
Isaksen, Elisabeth Thuestad	Research Department, Statistics Norway	Energy and environmental economics
Larsen, Bodil Merethe	Research Department, Statistics Norway	Energy and environmental economics
Rosnes, Orvika	Research Department, Statistics Norway	Energy and environmental economics
Storrøsten, Halvor B.	Research Department, Statistics Norway	Energy and environmental economics
de Zeeuw, Aart	Tilburg Sustainability Center	Sustainability, Dynamic game theory, Environmental economics, Environmental policy, Mathematical economics
Gerlagh, Reyer	Tilburg Sustainability Center	Climate Change, Economics, Energy economics, Environmental economics
Smulders, Sjak	Tilburg Sustainability Center	Energy and environmental economics
van der Heijden, Eline	Tilburg Sustainability Center	Energy and environmental economics

**Associated Researchers**

Baldursson, Fridrik	Reykjavik University	Financial Economics, Industrial Economics, Environmental and Resource Economics
van den Bijgaart, Inge M.	Planbureau voor Leefomgeving (Netherlands Environmental)	Effect of Fiscal Regulations of CO2 Emissions of New Cars
Böhringer, Christoph	University of Oldenburg	Energy Economics
Carbone, Jared	University of Calgary	Environmental and Resource Economics
Eyckmans, Johan	Hogeschool-Universiteit Brussel	Economics of climate change, emissions trading, applications of game theory to the formation of international environmental agreements, cost benefit analysis, general equilibrium and integrated assessment modeling, evaluation of environmental policies, economics of waste management, industrial organization and normative economic theory
Gravir, Anders	Ringerikskraft	Energy markets
Green, Richard	Imperial College London	Energy markets
Jensen, Svenn	Norewegian University of Life Sciences	Environmental Economics
Liski, Matti	Aalto University School of Economics	Energy and environmental economics
Rosendahl, Knut Einar	Research Department, Statistics Norway	Energy and environmental economics
Spiro, Daniel	Oslo and Akershus University College of Applied Sciences.	Energy and environmental economics
Tahvonen, Olli	University of Helsinki	Economics of forestry, Age-structured population models and economic optimization, Economics of natural resource utilization and conservation, Environmental economics, Economic-ecological optimization models, Economic growth, environment and natural resources, Economics of climate change, Economics of non-renewable resources

**Post Doc students with financial support from the Centre budget**

Name	Funding	Nationality	Period	Sex M/F	Topic
Spiro, Daniel	CREE	Swedish	2012-2016	M	Energy and environmental economics

**Post Doc students working on projects in the centre with financial support from other sources**

Name	Funding	Nationality	Period	Sex M/F	Topic
Holtmark, Katinka Kristine	Department of Economics, University of Oslo	Norwegian	2015-2019	F	Microeconomics, political economy, environmental economics

**PhD students with financial support from the Centre budget**

Name	Funding	Nationality	Period	Sex M/F	Topic
Ciccone, Alice	CREE	Italian	2011-2015	F	Economic of the climate change with econometric applications
Klemetsen, Marit	CREE	Norwegian	2011-2015	F	Innovation in energy- and environmental technology industries: Identifying knowledge externalities and effects of policies
Michielsen, Thomas	CREE	Dutch	2010-2014	M	Innovation in energy marked

**PhD students working on projects in the centre with financial support from other sources**

Name	Funding	Nationality	Period	Sex M/F	Topic
Midttømme, Kristoffer	Department of Economics, University of Oslo	Norwegian	2011-2014	M	Technology diffusion
Dalen, Hanne Marit	Research Department, Statistics Norway	Norwegian	2009-2017	F	The use of multiple instruments in energy and environmental policy.
Mideksa, Torben	Department of Economics, University of Oslo	Swedish	2012-2016	M	Primary Concentration: Contract Theory Secondary Concentrations: Environmental Economics and Political Economics
Holtmark, Katinka Kristin	Department of Economics, University of Oslo	Norwegian	2012-2016	F	Development Economics, Natural Resource Economics, Microeconomics
van den Bijgaart, Inge M.	Planbureau voor Leefomgeving (Netherlands Environment)	Dutch	Nov. 2013- Aug. 2016	F	Effect of Fiscal Regulations of CO2 Emissions of New Cars

Master thesis CREE Name	Institution granting degree	Adviser	Year	Sex	Title of thesis
Abrahamsen, Kamila Lund		Spiro, Daniel	2014	F	Elektrisitetspriser: En empirisk og teoretisk analyse av tilbud og etterspørsel
Andersson, Runa Haave		Nyborg, Karine og Holtsmark, Bjart	2013	F	"STABILITY OF INTERNATIONAL CLIMATE TREATIESHE IMPORTANCE OF HETEROGENEITY"
Andenes, Liv Jorunn		Wilhite, Harold Langford	2014	F	Bicycle Commuting in Oslo - Practices, Constraints and new Directions for Policy
Beisland, Christina Stene	CREE	Greaker, Mads	2013	F	<a href="#">From Targets and Timetables to Technology Investments</a>
Birkelund, Henriette	CREE	Halvorsen, Bente	2013	F	<a href="#">Oppvarming og innnetemperaturer i norske barnefamilier - En analyse av husholdningenes valg av innnetemperatur</a>
Boroumand, Yasaman		Rosendahl, Knut Einar		F	Price Elasticity of Non-OPEC Supply
Gavenas, Ekaterina		Rosendahl, Knut Einar		F	On the way to a Cleaner Future: A Study of CO2 Emissions on Norwegian Continental Shelf
Hjort, Ingrid C.	CREE	Greaker, Mads	2015	F	<a href="#">Innovation Prizes for Environmental R&amp;D in Presence if Lobbyism</a>
Jakobsen, Anja Lund		Rosendahl, Knut Einar		F	Does the Polluter Pay in the EU ETS, or does the EU ETS Pay the Polluter?
Jiang, Shan	CREE	Kverndokk, Snorre	2016	F	<a href="#">Pareto improving Climate Policies for the Main CO2 Emitting Countries/Regions</a>
Landmark, Marie Brun	CREE	Harstad, Bård	2016	F	<a href="#">Environmental effects of international electricity trade</a>
Matungwa, Bernard		Wilhite, Harold Langford	2014	M	An Analysis of PV Solar Electrification on Rural Livelihood Transformation: A Case of Kisiju-Pwani in Mkuranga District, Tanzania
Nesje, Frikk	CREE	Ekstern	2013	M	<a href="#">Distrust, but verify?: Theoretical insights into auditing carbon sequestration in tropical forests</a>
Nesvik, Linn Camilla		von der Fehr, Nils-Henrik M.	2012	F	Geografiske kostnads- og prisforskjeller i det norske kraftmarkedet : En tidsserieanalyse av de norske kraftprisene fra 2006 til 2011
Reinlie, Kristine Borgeraas		Brekke, Kjell Arne	2014	F	Er elsertifikatene grønne? En analyse av samspillet mellom det svensk-norske elsertifikatmarkedet og det europeiske kvotemarkedet
Røed, Tiril Salhus		Hoel, Michael	2014	F	Klimagassutslipp og subsidiering av fornybar Energi: En numerisk analyse av klimagevinst ved innføring av grønne sertifikater
Salvesen, Ingerid		Wilhite, Harold Langford	2014	F	Practicing the preaching?: A study of the Transition Movement in Norway and its effort to change energy-related practices
Sletten, Thea Marcelia		Hoel, Michael	2012	F	<a href="#">A Framework for Studying the Environmental Impact of Biofuel Policies</a>
Syrstad, Ragnhild Sjoner	CREE	Golombek, Rolf and Müller, Andreas	2016	F	<a href="#">Climate and Energy Security Policies in the EU: Conflict or Cohesion?</a>
Valseth, Asmund Sunde	CREE	Harstad, Bård	2014	M	<a href="#">Competing Climate Policies</a>
Verlo, Kjell Rune	CREE	von der Fehr, Nils-Henrik M.	2015	M	<a href="#">Kommersielle nettinvesteringer - Løsningen på behovet for økte investeringer i overføringsnettet?</a>
Weidle, Maiken Katrine	CREE	Greaker, Mads and Nyborg, Karine	2014	F	<a href="#">Is low carbon taxation optimal climate policy for a developing country? A numerical simulation of technology adoption</a>
Weyer, Ingrid Semb	CREE	Greaker, Mads	2015	F	<a href="#">Directed technical change in clean and dirty technologies: Is it possible to redirect R&amp;D in a multiregion world?</a>
Vik, Martin Andreas		von der Fehr, Nils-Henrik M.	2012	M	Node- eller soneprising i kraftmarkeder: Hvilket markedsdesign løser best markedsrett ved flaskehals?

## A2 Statement of Accounts

(All figures in 1000 NOK)

### Funding

	Amount
The Research Council	4 359
<b>Research Partners (own funding)</b>	
Frisch Centre (Host Institution)	4 521
Statistics Norway	8 684
Department of Economics, UoO	500
Tilburgs Sustainability Center	125
<b>User partners</b>	
Statkraft Energy AS	50
Statnett	125
<b>Public partners</b>	
University of Oslo	448
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Total	18 812
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### Costs

<b>Research Partners</b>	
Frisch Centre (Host Institution)	6 811
Statistics Norway	9 632
Department of Economics, UoO	1 079
Tilburgs Sustainability Center	250
Centre for Development and the Environment, UoO	250
The Faculty of Law - Natural Resources Law, UoO	50
Institute for Energy Technology (IFE)	740
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Total	18 812
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## A3 Publication

### Journal papers (<http://www.cree.uio.no/publications/>)

**Aaheim, A. and T. Mideksa (2016):** [Requirements to Metrics of Greenhouse Gas Emissions, Given a Cap on Temperature](#). *Ecological Economics*. Vol 131, s 460- 467.

**Asheim, G. B. and F.. Nesje (2016):** Destructive intergenerational altruism, *Journal of the Association of Environmental and Resource Economics*, Vol 3, no. 4 Page 957-984. [PDF]

**Battaglini, M. and B. Harstad (2016):** [Participation and Duration of Environmental Agreements](#), *Journal of Political Economy*, Volume 124, No 1 Page 160-204.

**Bye, B, and M. E. Klemetsen (2016):** [The Impacts of Alternative Policy Instruments on Environmental Performance: A Firm Level Study of Temporary and Persistent Effects](#), , *Environmental and Resource Economics*, Volume 65, Issue 263 Page 1-25.

**Böhringer, C., J.C. Carbone and T. F. Rutherford (2016):** [Embodied Carbon Tariffs](#), , *Scandinavian Journal of Economics*.Forthcoming.

**Böhringer, C., J. C. Carbone and T. F. Rutherford (2016):** [The Strategic Value of Carbon Tariffs](#), , *American Economic Journal: Economic Policy*, Vol 8 Issue1, Page 1–25.

**Eyckmans, J., S. Fankhauser and S. Kverndokk (2016):** [Development Aid and Climate Finance](#), *Environmental and Resource Economics*, Volume 63, Issue 2, pp 429-450

**Fæhn, T., C. Hagem, L. Lindholt, S. Mæland, and K.-E. Rosendahl (2016):** [Climate policies in a fossil fuel producing country, Demand versus supply side policies](#)., *Energy Journal* Vol 38, Issue 1, pp 77-102.

**Fæhn, T. and E. T. Isaksen (2016):** [Diffusion of climate technologies in the presence of commitment problems](#), *Energy Journal*, Vol 37, No 2

**Gerlagh R., van den Bijgaart, I.M., Michielsen, T., Nijland, H (2016):** [Fiscal policy and CO2 emissions of new passenger cars in the EU](#), *Environmental and Resource Economics*, Volume 65 Issues 263, Pages 1-32

**Greaker, M. og K. Midttømme (2016):** [Network effects and environmental externalities: Do clean technologies suffer from excess inertia?](#), *Journal of Public Economics*, Volume 143, Nov 20163 , Pages 27-38

**Green, R.J., D. Pudjianto, I. Staffell and G. Strbac (2016):** [Market Design for Long-Distance Trade in Renewable Electricity](#), *The Energy Journal*, Vol 37, Bollino-Madlener Special Issue, pp. 5-22

**Grimsrud, K.,K. E. Rosendahl, H. B. Storrøsten, M. Tsygankova (2016):** [Short Run Effects of Bleaker Prospects for Oligopolistic Producers of a Non-renewable Resource](#), *The Energy Journal*, Volume 37, Nr 3 , Pages 293-314

**Halvorsen, B., B. Larsen, H.L. Wilhite, T. Winther (2016):** [Revisiting household energy rebound: Perspectives from a multidisciplinary study](#), *Indoor and Built Environment* 27(7), p. 1114-1123.

**Hansen, A., K. Nielsen and H. Wilhite. (2016):** [Staying Cool, Looking Good, Moving Around: Consumption, Sustainability and the 'Rise of the South'](#). *Forum for Development Studies* Vol. 43 Issue 1 Pages 5-25.

**Harstad, B. (2016):** [The Dynamics of Climate Agreements](#), *Journal of the European Economic Association*, Vol 14, Issue 3, Pages 719-752

**Hauge, K. E. (2016):** [Generosity and guilt: The role of beliefs and moral standards of others](#), *Journal of Economic Psychology*, Volume 54, June 2016, Pages 35-43

**Hoel, M., and T. M. Sletten (2016) :** [Climate and forests: The tradeoff between forests as a source for producing bioenergy and as a carbon sink](#), *Resource and Energy Economics*, Volume 43, Pages 112-129

**Klemetsen, M. E., B. Bye, A. Raknerud (2016):** Can non-market regulations spur innovations in environmental technologies? A study on firm level patenting, *The Scandinavian Journal of Economics* [forthcoming](#)

**Nyborg, K. John M. Anderies, Astrid Dannenberg, Therese Lindahl, Caroline Schill, Maja Schlüter, W. Neil Adger, Kenneth J. Arrow, Scott Barrett, Stephen Carpenter, F. Stuart Chapin III, Anne-Sophie Crépin, Gretchen Daily, Paul Ehrlich, Carl Folke, Wander Jager, Nils Kautsky, Simon A. Levin, Ole Jacob Madsen, Stephen Polasky, Marten Scheffer, Brian Walker, Elke U. Weber, James Wilen, Anastasios Xepapadeas, Aart de Zeeuw (2016):** [Social Norms as Solutions](#), *Science* 07 Oct 2016, Vol. 354, Issue 6308, 42-43

**Staffell, I and R.J. Green (2016):** [Is there merit in the Merit Order Stack?](#), *IEEE Transactions on Power Systems*, Volume 31, Issue 1, Pages 43-53

**van der Bijgaart, I.M. (2016) :** [The unilateral implementation of a sustainable growth path with directed technical change](#), *European Economic Review*, Vol 91, Jan 2017, Pages 305-327

**van der Ploeg, F. and A. de Zeeuw (2016) :** [Non-cooperative and Cooperative Responses to Climate Catastrophes in the Global Economy: A North–South Perspective](#), *Environmental and Resource Economics*, Volume 65, Issue 3, Pages 519-540

**von der Fehr, Nils-Henrik M and Stephanie Ropenus (2016):** [Renewable Energy Policy Instruments and Market Power](#), *Scandinavian Journal of Economics*, forthcoming

## Books and article in books (<http://www.cree.uio.no/publications/>)

**Fischer, C., M. Greaker and K.E. Rosendahl (2016):** Are Renewable Energy Subsidies in Need of Reform?, In J. Strand (ed.): [The Economics and Political Economy of Energy Subsidies](#), CESifo Seminar Series, Cambridge, MA: The MIT Press.

**Kverndokk, S. (2016):** Økonomiske virkemidler i miljøpolitikken , chapter 5 in K.P. Hagen and G.Holst Volden (eds.): [Investeringsprosjekter og miljøkonsekvenser. En antologi med bidrag fra 16 forskere, Concept rapport nr 48](#), NTNU, Trondheim: Ex ante akademisk forlag, pp. 100-113.

**Rosendahl, K.E. (2016):** Miljøgevinster av å subsidiere fornybar energiteknologi, chapter 8 in K.P. Hagen and G.Holst Volden (eds.): [Investeringsprosjekter og miljøkonsekvenser. En antologi med bidrag fra 16 forskere, Concept rapport nr 48](#), NTNU, Trondheim: Ex ante akademisk forlag, pp. 147-159.

**von der Fehr, Nils-Henrik M. (2016):** Under pressure: European electricity markets and the need for reform, in Ian Parry, Karen Pittel, and Herman Vollebergh (eds), Energy Tax and Regulatory Policy in Europe: Reform Priorities, MIT Press. (forthcoming)

**Webb, R. and R.J. Green (2016):** Impact on Electricity Markets in [Liu, C.C., S. McArthur and S-J. Lee Handbook of Smart Grids](#), Chichester, Wiley. Vol 3 - 78, ISBN 978-1-118-75548-8

**Wilhite, H. (2016):** [The Political Economy of Low Carbon Transformation: Breaking the Habits of Capitalism](#). London: Routledge.

## CREE working paper

([http://www.cree.uio.no/publications/CREE\\_working\\_papers/](http://www.cree.uio.no/publications/CREE_working_papers/))

**Aune F. R., R. Golombek, A. Moe, K. E. Rosendahl og H. H. Le Tissier (2016):** Eksport av russisk gass til Europa, [CREE working paper no 2](#)

**Baldursson, F. M. E. Lazarczyk, M. Ovaere, and S. Proost(2016):** Cross- border exchange and sharing of generation reserve capacity, [CREE working paper no 14](#)

**Ciccone A. (2016):** Voluntary contributions to bargaining: hold up problem in the lab, [CREE working paper no 8](#)

**Golombek R., M. Greaker, S. Gaure, S. A.C. Kittelsen and K. E. Rosendahl (2016):** Promoting CCS in Europe: A case for green strategic trade policy?, [CREE working paper no 5](#)

**Hagem C. and H. B. Storrøsten (2016):** Supply versus demand side policies in the presence of carbon leakage and the green paradox, [CREE working paper no 4](#)

**Hjort I. (2016):** Potential Climate Risks in Financial Markets: A Literature Overview, [CREE working paper no 10](#)

**Hjort I. (2016):** Potential Climate Risks in Financial Markets: Report from a workshop, January 20, 2016, [CREE working paper no 11](#)

**Jiang S. (2016):** Pareto improving Climate Policies for the Main CO2 Emitting Countries/Regions, [CREE working paper no 6](#)

**Klemetsen M. E., K. E. Rosendahl og A. L. Jakobsen (2016):** The impacts of the EU ETS on Norwegian plants' environmental and economic performance, [CREE working paper no 3](#)

**Kristoffersen M. (2016):** **Compatibility Choice:** In the Electric Vehicle- and Charging Market, [CREE working paper no 15](#)

**Landmark M. B. (2016):** Environmental effects of international electricity trade, [CREE working paper no 7](#)

**Leroux J. and D. Spiro (2016):** Unilateral strategies for avoiding arctic oil exploration, [CREE working paper no 12](#)

**Nesje F. And G. B. Asheim (2016):** Intergenerational altruism: A solution to the climate problem?, [CREE working paper no 9](#)

**Syrstad R.S. (2016):** Climate and Energy Security Policies in the EU: Conflict or Cohesion?, [CREE working paper no 1](#)

**Tahvonen O. and A. Rautiainen(2016):** Economics of forest carbon storage and the additionality principle, [CREE working paper no 13](#)

## **Popular scientific articles (<http://www.cree.uio.no/publications/>)**

**Aune, F. R. , A. C. Bøeng, S. Kverndokk, L. Lindholt and K. E. Rosendahl (2016):** [Fuel efficiency improvements – feedback mechanisms and distributional effects in the oil market](#), *Discussions papers* 839, Statistisk sentralbyrå

**Aune, F. R. og T. Fæhn (2016):** [Makroøkonomisk analyse for Norge av klimapolitikken i EU og Norge mot 2030](#), *Rapporter* 2016/25, Statistisk sentralbyrå

**Aune, F. R., R. Golombek, A. Moe, K. E. Rosendahl og H. H. Le Tissier (2016):** Ekssport av russisk gass til Europa. [Samfunnsøkonomen, Nr 1 2016 \[PDF\]](#)

**Aune, F. R. , K. Grimsrud, L. Lindholt, K. E. Rosendahl and H. B. Storrøsten (2016):** [Oil consumption subsidy removal in OPEC and other Non-OECD countries](#), *Discussions papers* 846, Statistisk sentralbyrå

**Baldursson, Fridrik Mar, Ewa Lazarczyk, Marten Ovaere and Stef Proost (2016):** Cross-border exchange and sharing of generation reserve capacity, [IAEE Energy Forum](#), Bergen Special Issue 2016, 29-30. [ [PDF](#) ]

**Borge, L. E., B. Bye, M. Hoel og K. E. Rosendahl (2016):** Oppfølging av Grønn skattekommissjon [Samfunnsøkonomen](#), Nr 5 2016 [ [PDF](#) ]

**Bye, B., K. Espegren, T. Fæhn, E. Rosenberg, O. Rosnes (2016):** Energiteknologi og energiøkonomi: Analyser av energipolitikk i to ulike modelltradisjoner. [\*Samfunnsøkonomen\*](#), Nr 6 2016 [ [PDF](#) ]

**Bye, B., C. Hagem, B. Halvorsen og B. M. Larsen (2016):** [Evaluering av virkemidler for å fremme energieffektivisering. En oversikt over økonomisk litteratur](#) *Rapporter* 2016/16, Statistisk sentralbyrå.

**Böhringer, C., K. E. Rosendahl og H. B. Storrøsten (2016):** Smarte virkemidler mot karbonlekkasje [\*Samfunnsøkonomen\*](#), Nr 2 2016 [ [PDF](#) ]

**Fæhn, T. (2016):** Norske klimaløft etter Paris-løftene. - En vurdering av Norges løfter og mål for 2030 [\*Samfunnsøkonomen\*](#), Nr 2 2016 [ [PDF](#) ]

**Fæhn, T., M. Greaker (2016):** Forslag til klimalov [\*Samfunnsøkonomen\*](#), Nr 6 2016 [ [PDF](#) ]

**Fæhn, T., C. Hagem, L. Lindholt og K. E. Rosendahl. (2016):** Er oljekutt god klimapolitikk? Forskningsnytt, [\*Samfunnsøkonomen\*](#), Nr 2 2016 [ [PDF](#) ]

**Golombek, R., F. R. Aune og H. H. Le Tissier (2016):** Phasing out nuclear power in Europe. [\*IAEE Energy Forum Index, Bergen Special Issue 2016\*](#), 11-12 [ [PDF](#) ]

**Golombek, R. og S. Kverndokk (2016):** Paris-avtalen: Konsekvenser for EU og Norge [\*Samfunnsøkonomen\*](#), Nr 2 2016 [ [PDF](#) ]

**Hagem, C. (2016):** Energieffektivisering erstatter fornybarmål: Fra vondt til verre, Leder [\*Samfunnsøkonomen\*](#), Nr 3 2016 [ [PDF](#) ]

**Hagem, C. (2016):** Grønn bølge, Leder [\*Samfunnsøkonomen\*](#), Nr 6 2016 [ [PDF](#) ]

**Hagem, C. and H. B. Storrøsten (2016):** [Supply versus demand-side policies in the presence of carbon leakage and the green paradox.](#) *Discussion paper*, Nr 36 Statistics Norway

**Nyborg K.2016:** [Skriftlige kommentarer til Vismandsrapporten 2016](#), Danmarks Miljøøkonomiske råd.

## **Other publications (<http://www.cree.uio.no/publications/>)**

**Battaglini, M. and B. Harstad (2016):** [The Political Economy of Weak Treaties](#), *NBER working paper w22968*

**Holtmark, B. (2016):** [Seven essays on policies and international cooperation to abate emissions of greenhouse gases.](#) Doctoral thesis, University of Oslo.

**Jaakkola, N., Spiro, D., van Benthem, A. (2016):** [Finders Keepers](#), *NBER working paper w22421*

**Klemetsen, Marit (2016):** Policy incentives for firm behaviour. 4 articles on environmental innovation and emissions. Doctoral thesis, University of Oslo.

## **Conference and seminar presentations**

Asheim G. and F. Nesje (2016): Combining expert opinion on valuing the future: Implications for climate policy , Royal Economic Society Conference 2016. Brighton, UK. 2016

Asheim G. and F. Nesje (2016): Combining expert opinion on valuing the future: Implications for climate policy , SURED 2016. Banyuls sur Mer, France. 2016

Asheim G. and F. Nesje (2016): Combining expert opinion on valuing the future: Implications for climate policy , EAERE Annunal Conference 2016. Zurich, Switzerland. 24 June 2016

Asheim G. and F. Nesje (2016): Destructive intergenerational altruism, Winter School on Inequality and Social Welfare Theory 11. Alba di Canazei, Italy. 2016

Baldursson F. M. (2016): Cross-border exchange and sharing of generation reserve capacity, 39th IAEE International Conference, NHH, Bergen, Norway, June 20-23, 2016

Baldursson F. M. (2016): Cross-border exchange of generation reserve capacity, CREE - 6th Research Workshop. i SSB Oslo, 24-25 oktober 2016

Bye B. (2016): Integrated macroeconomic-environment models for Norway, foredrag på Nordic conference on climate-economic and macroeconomic models (arr: Foreningen Norden, Regeringskanselliet, Naturvårdsverket, OECD), Stockholm, 25 mai 2016

Bye B. (2016): Karbonlekasje, CREE-seminar for Energi Norge, 12 januar 2016

Bye B. (2016): Residential energy efficiency and European carbon policies: A CGE-analysis with bottom-up information on energy efficiency technologies, "Skatteforum" - Norges forskningsråd sin konferanse om skatteforskning, Halden, 7-8 juni 2016

Bye B. (2016): Technology and economy: Energy policies in bottom-up and top-down models, CREE - 6th Research Workshop. i SSB Oslo, 24-25 oktober 2016

Bye B. and T. Fæhn (2016): Energieffektivisering, energisystemer og økonomi, CREE Modellforum i SSB, 14 april 2016.

Casoria F., A. Ciccone and C. Gutkunst (2016): Climate agreements and the role of investments: an experimental approach, 11th Nordic Conference on Behavioral and Experimental Economics. Oslo, Norway. 2016

Casoria F., A. Ciccone and C. Gutkunst (2016): Climate agreements and the role of investments: an experimental approach, European meeting of the Economic Science Association 2016, Bergen, Norway. 2016

- Ciccone A. (2016): Guest Lecture: "Economic Incentives and Behaviour Change", University College Hedmark, Department of Public Health. 2016
- Ciccone A. (2016): Voluntary contributions to bargaining: hold-up problem in the lab, 11th Nordic Conference on Behavioral and Experimental Economics. Oslo, Norway. 2016
- Crampes, C. and N.-H. M von der Fehr (2016): Cooperation and Regulation for Building Electric Interconnectors, 11th International Conference on Competition and Regulation, Rhodes, 1 July 2016.
- Drupp M., M. Freeman, B. Groom and F. Nesje (2016): Combining expert opinion on valuing the future: Implications for climate policy , Envecon 2016, London, UK. 2016
- Fæhn T. (2016): Energy Efficiency in residential, EAERE Annunal Conference 2016. Zurich, Switzerland. 24 June 2016
- Fæhn T. (2016): Norske klimamål- hvem tar kostnaden?, Energi Norges frokostseminar ("bedre og mer fleksibel klimapolitikk mot 2030» 10.03.16
- Fæhn T. (2016): The best of two traditions: Integrating bottom-up information in CGE models, Workshop on linking CGE and TIMES models, Univ. of Strathclyde, Glasgow 9.10.16
- Fæhn T. (2016): Tiltakskostnader utenfor ETS, Energi Norge, Halvdagsseminar om klima og energipolitisk forskning, 12. jan'16
- Førsund F. (2016): Hydro and nodal pricing, 39th IAEE International Conference, NHH, Bergen, Norway, June 20-23, 2016
- Gerlagh R. (2016): Climate Policy Commitment Devices, CREE - 6th Research Workshop. i SSB Oslo, 24-25 oktober 2016
- Gerlagh R. (2016): Climate Policy Commitment Devices, EAERE Annunal Conference 2016. Zurich, Switzerland. 24 June 2016
- Golombek R. (2016): Modelling av vindkraft og solkraft i LIBEMOD, CREE Modellforum i SSB, 14 april 2016.
- Golombek R. (2016): Phasing out nuclear power in Europe. , 39th IAEE International Conference, NHH, Bergen, Norway, June 20-23, 2016
- Golombek R. (2016): Stochastic equilibrium modeling: The impact of uncertainty on the European energy market. , EcoMod 2016 International conference on Economic Modeling, Lisbon, Portugal. 2016
- Golombek R. (2016): Towards a low-carbon society: Societal challenges. , Strategy conference of UiO Energy. Oslo. 2016
- Hagem C. (2016): Electrification of Transport: Challenges, mechanism and solutions (ELECTRANS), Kompetanseprosjekt for Næringslivet , 2016 - 2019, NFRs Energiforskningskonferanse, 26. 05. 2016

Hagem C. (2016): Supply versus demand-side policies in the presence of carbon leakage and the green paradox. , Presentation at the 22nd Annual Conference of the European Association of Environmental and Resource Economists, organized by ETH Zurich. 2016

Hagem C. and A. Lind (2016): Optimal location of wind power- The social cost of uniform versus non-uniform feed-in tariffs, CREE - 6th Research Workshop. i SSB Oslo, 24-25 oktober 2016

Hoel M. (2016): Design av støttesystemer for fornybar energi, CREE-seminar for Energi Norge 12. januar 2016.

Hoel M. (2016): Grønne skatter og miljøavtaler., Innledning på frostseminar ved Nox-fondet, 9. februar 2016

Hoel M. (2016): Hvorfor trenger vi økonomisk vekst og hva skjer med samfunn som ikke har økonomisk vekst samt går det ann å ha grønn økonomisk vekst? Civitafrokost, 31.11.2016

Hoel M. (2016): Innovation prizes for environmental R&D (joint paper with S. Kverndokk and S. Kittelsen), EAERE Annunal Conference 2016. Zurich, Switzerland. 24 June 2016

Hoel M. (2016): Presentasjon av rapporten fra «Grønn skattekommisjon» (NOU 2015:15 Sett pris på miljøet) , NHO 11. februar 2016

Hoel M. (2016): Presentasjon av rapporten fra «Grønn skattekommisjon» (NOU 2015:15 Sett pris på miljøet) , Jernbaneverket 4. april 2016.

Hoel M. (2016): Presentasjon av rapporten fra «Grønn skattekommisjon» (NOU 2015:15 Sett pris på miljøet) , Delegasjon fra Nederland som besøker Finansdepartementet 21. oktober 2016.

Holtmark B. (2016): Biodrivstoff fra norsk trevirke - konsekvenser for norske CO2-utslipp, Finansdepartementet, 25. februar 2016

Holtmark B. (2016): Biodrivstoff, skog og avskoging, Seminar hos WWF og SABIMA. 29. mars 2016.

Holtmark B. (2016): Elbilpolitikken - virker den etter hensikten?, Foredrag på Energi-dagen på Norges Handelshøyskole, 8. februar 2016.

Holtmark B. (2016): Global warming potentials of wood fuels, Presentation at The Royal Swedish Academy of Agriculture and Forestry, Stockholm 22. Juni 2016.

Holtmark B. (2016): Klimaeffekten av dagens biodrivstoff, Landsmøte i foreningen La Naturen Leve, Gardermoen 21. April 2016.

Holtmark B. (2016): Klimaeffekten av storskala satsing på biodrivstoff fra norsk skog, Arbeiderpartiets stortingsgruppe 28. April 2016

- Kverndokk S. (2016): Fuel efficiency improvements - feedback mechanisms and distributional effects in the oil market, 11th Tinbergen Institute Conference “Combating Climate Change, Lessons from Macroeconomics, Political Economy and Public Finance”, Amsterdam, 21-22 April 2016.
- Kverndokk S. (2016): Implications of Paris, presentasjon på CREE-Censes modellforum, Statistisk sentralbyrå, 14. april, 2016.
- Kverndokk S. (2016): WP 4: EU-wide climate policies and the electrification of transport in Norway, presentasjon på Kick-off workshop, ELECTTRANS, Statistisk sentralbyrå, 5. april, 2016.
- Lind A. (2016): Hvordan påvirker begrenset fremsyn investeringer i norsk vindkraft?, CREE Modellforum i SSB, 14 april 2016.
- Lind A. (2016): The Use of Bottom-up Optimisation Models for Analysing the Transition to Low-Carbon Cities, CREE - 6th Research Workshop. i SSB Oslo, 24-25 oktober 2016
- Nævdal E. (2016): Catastrophic risk in resource economics , Keynote presentation at 23rd Ulvön Conference on Environmental Economics , Ulvön, Sweden, 15th-17th of June, 2016
- Nævdal E. (2016): The Economics of Learning with an application to Climate Change, Keynote presentation at TradeM International Workshop 2016 - Assessing climate change adaptation and mitigation options, Tromsø-Trondheim, Norway, 9-12 October 2016
- Nyborg K. (2016): Atferdsøkonomi: Om miljø og sosiale normer, Aktualitetsuka, Fagutvalget ØI, UiO, 10. mars. 2016
- Nyborg K. (2016): Consumer Evaluation and Democratic Decision making: What is Cost Benefit Analysis of Environmental Regulation Really About?, Invited Plenary Talk, Fifth Annual Conference of the Italian Association of Agricultural and Applied Economics (AIEAA), June 16-17, Bologna 2016
- Nyborg K. (2016): ESOP debate on corporate social responsibility, Deltaker i paneldebatt, Oslo 03.11.16.
- Nyborg K. (2016): Impressions, Invited speech at the 25 years’ anniversary of the Beijer Institute of Ecological Economics, Royal Swedish Academy of Sciences, Stockholm, 12.09.2016
- Nyborg K. (2016): Klimakrisen - uløselig dilemma eller rom for optimisme? , Deltaker i paneldebatt (Forskningsdagene), Litteraturhuset i Oslo, 21.09.2016
- Nyborg K. (2016): Reciprocal Climate Negotiations. , European Meeting of the Economics Science Association, Bergen, Aug. 31 - Sept. 3. 2016
- Nyborg K. (2016): Save the Planet or Close Your Eyes: Testing Strategic Ignorance in a Charity Context. , Arne Ryde Workshop on Identity, Image and Economic Behavior, University of Lund, 28-29.10.16.

Spiro D. (2016): Decision making under uncertainty on resource markets, 39th IAEE International Conference, NHH, Bergen, Norway, June 20-23, 2016

Storrøsten H. B. (2016): On the path towards the low carbon society: Regulation, transition dynamics and intertemporal effects, CREE - 6th Research Workshop. i SSB Oslo, 24-25 oktober 2016

Tahvonen O. (2016): Economics of continuous cover vs. clearcut forestry, 5th International Faustmann Symposium, Beijing, China. 2016

Tahvonen O. (2016): Optimizing land allocation between forestry, agriculture and old growth preservation with carbon storage and bioenergy, 5th International Faustmann Symposium, Beijing, China. 2016

van den Bijgaart, I. M. (2016): The unilateral implementation of a sustainable growth path with directed technical change, CIRANO workshop in Montréal, 2016

van den Bijgaart, I. M. (2016): The unilateral implementation of a sustainable growth path with directed technical change, TI-VU ERC conference in Amsterdam, 2016

van den Bijgaart, I. M. (2016): The unilateral implementation of a sustainable growth path with directed technical change, CESifo Area Conference on Energy and Climate Economics, 2016

von der Fehr N.-H. M. (2016): Electricity Regions, Mannheim Energy Conference, MaCCi and ZEW, Mannheim, 20 May 2016.

von der Fehr N.-H. M. (2016): Market for Long-Term Contracts, CREG Expert Panel on Electricity Market Reform, Bogotá, 5 October 2016

von der Fehr N.-H. M. (2016): Market Time Unit, Workshop on Auction Design, University of Vienna, Vienna, 30 August 2016.

von der Fehr N.-H. M. (2016): Natural Resources and Sovereign Expropriation, 5th Atlantic Workshop on Energy and Environmental Economics, A Toxa, Spain, June 25. 2016

von der Fehr N.-H. M. (2016): Regions - the future for the European Internal Electricity Market? , CERRE Executive Seminar, Centre for Regulation in Europe, Brussels, 16 March 2016.

von der Fehr N.-H. M. (2016): Regions: the future of the European Internal Electricity Market, FSR And HERI Conference On European Energy Law And Policy, Athens, 30 September 2016.

von der Fehr N.-H. M. (2016): Renewables, CREG Expert Panel on Electricity Market Reform, Bogotá, 7 October 2016.

von der Fehr N.-H. M. (2016): Scarcity Price, Reliability Charge and Capacity, CREG Expert Panel on Electricity Market Reform, Bogotá, 5 October 2016

von der Fehr N.-H. M. (2016): Spot Market, FRS Policy Advisory Council, Florence School of Regulation, Florence, 21 November 2016.

Winther T. (2016): Matching policy and people? Results from empirical research in Norway on why measures for sustainable electricity consumption often fail, DEI Public Lecture. Durham Energy Institute, Durham University, UK, 04.05.2016.

Winther T. and S. Bell (2016): Do we want to know? Domesticating in-home displays in Norway and the UK, Electrifying Anthropology Workshop. Durham University, UK, 15.03.2016.

## **CREE in the news**

### **- Bil er største forurensere - unntatt olje**

I intervju med Stavanger Aftenblad sier CREE-forskeren Taran Fæhn (SSB) at regjeringens bilpakke vil ikke gi lavere CO2-utslipp.

**Stavanger Aftenblad 30 nov. 2016**

### **- MARKEDETS MAKT OVER MILJØET -**

#### **Vil kutt i norsk oljeproduksjon redde klimaet fra kollaps?**

I en artikkel om konsekvenser for CO2 utslipp av reduksjon av norsk oljeproduksjon uttrykker CREE-forskeren Catrine Hagem(SSB) at under dagens system vil norske kutt i oljeproduksjonen gi globale utslippsreduksjoner.

[Klassekampen 17 nov. 2016](#)

### **- Norske klimamål - hvilke mål?**

CREE-forskeren Taran Fæhn(SSB) drøfter i DN noe av utfordringene med uklare innenlandske klimamål.

[DN 24 okt. 2016](#)

### **- Snart vil du kunne bruke elbilen til å lage deg morgenkaffen**

Sammen med andre forfattere skriver CREE-forskeren Anders Gravir Imenes (Ringerikskraft) i to artikler i Dagbladet om hvordan Elbilen går på tilnærmet fornybar strøm og kan bli framtidens energilager.

[Dagbladet 12 okt. 2016](#)

### **- Elbilen er ingen klimaversting**

[Dagbladet 20 okt. 2016](#)

### **- Å snu onde sirkler**

CREE-forskeren Karine Nyborg(UiO) skriver i DN om hvordan klima-adferd kan endres gjennom sosiale normer.

[DN 7 okt. 2016](#)

### **- Skitne norske felt**

CREE forskeren Knut Einar Rosendahl (NMBU) uttrykte seg om CO2-utslipp fra norsk olje- og gassutslipp i Brennpunkt programmet Oljelobbyisten.

[NRK Brennpunkt 4 okt. 2016](#)

Se også artikkel i Morgenbladet om CO2-utslipp fra Norske felt

[Morgenbladet 7. okt. 2016](#)

### **- Trenger vi Hydrogenbilen?**

CREE-forskeren Mads Greaker(SSB) uttrykker i NRK:Forbrukerinspektøren skepsis til det å satse på både Elbil- og Hydrogenbil teknologien.

[NRK:Forbrukerinspektørene 5 okt. 2016](#)

### **- Regnskogsparadokset**

CREE forskeren Bård Harstad (UiO) skriver i en kronikk i DN om hvorfor det kan være så vanskelig å få rike land til å betale for å bevare regnskogen.

[DN 18 sep. 2016](#)

### **- Frykten for karbonlekkasje**

CREE forskerne Marit Elisabeth Klemetsen (SSB), Knut Einar Rosendahl (NMBU), Halvor Briseid Storrøsten (SSB) omaler noe av konsekvensene med Paris avtalen i forbindelse med karbonlekkasje problematikken.

[DN 4 mai 2016](#)

### **- Energieffektivisering gir ikke resultater**

Intervju med CREE forsker Cathrine Hagen (SSB) om rapport om effekter av energieffektiviseringstiltak i «Energieffektivisering gir ikke resultater»

**Klassekampen 21 apr. 2016**

### **- En klimapolitikk med bare vinnere**

I forbindelse med prosjektet [Intergenerational and intragenerational equity of climate policy](#) er CREE forskeren Snorre Kverndokk (Frisch) intervjuet av Forskningsrådet.

[Forskningsrådet 10 mars 2016](#)

### **- Feil og upresist om grønn skattekommisjon**

Medlemmer av grønn skattekommisjon, Lars-Erik Borge professor (NTNU), Brita Bye forsker (CREE,SSB), Michael Hoel professor (CREE,UiO) og Knut Einar Rosendahl professor (NMBU, CREE), korrigerer feil i Marius Holm sitt innlegg i [Aftenposten 4 mars.](#)

[Aftenposten 14 mars 2016](#)

### **- Biodrivstoff kan forsterke klimaproblemet**

CREE forsker Bjart Holtmarks (SSB) og hans [doktoravhandling](#) er ofte trukket frem i media i forbindelse med bruk av biodrivstoff.

[Diverse oppslag 2016](#)

### **- Feilslått politikk**

CREE forsker Cathrine Hagem (SSB) referert til i leserinnlegg om grønne sertifikater og vindkraft.

[Glåmdalen 03 Mars 2016](#)

### **- Han flytter klimapolitikken ned i bakken**

Økonomiprofessor Bård Harstad (UiO/CREE) er omtalt i forbindelse med at han har fått 15 mill. kroner fra EU for å analysere hvorvidt vi burde flytte klimapolitikken fra de høye luftlagene og ned i kullgruvene. CREE forsker Taran Fæhn (SSB) er intervjuet om temaet.

[Aftenposten 21 Feb. 2016](#)

**- Kvoter ga ikke utslippskutt**

Omtale av CREE-studie om EUs kvotesystem ved bl.a. CREE forskerne Marit Klemetsen (SSB) og Knut Einar Rosendahl (NMBU/SSB)

[DN 08. Feb. 2016](#)

[DN 09. Feb 2016 Leder](#)

**- Miljøøkonom Bård Harstad får 15 mill. fra EU**

CREE forskeren Bård Harstad (Prof. UiO) får sitt andre superstipend fra EU. I Norge er det bare Nobelprisvinner Moser som har klart det samme.

[UiO 25. Jan 2016](#)

[Aftenposten 23. Jan. 2016](#)

**- Teknologi alene redder ikke klimaet - vi må bite i det sure skatteplet**

CREE forsker Eric Nævdal (Frisch) forklarer hvorfor teknologiutvikling ikke kan løse miljøproblemene alene.

[Aftenposten jan/feb 2016](#)