

FME Samfunn

Midterm Evaluation of Centres
for Social Science-related Energy Research

Evaluation
Division for Energy, Resources and the Environment



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Preface

This evaluation report presents the midterm evaluation of the three Centres for Social Science-related Energy Research, FME Samfunn, which started in 2011. The FME Samfunn scheme is a part of the FME scheme (Centres for Environment-friendly Energy Research) but is restricted to research within the social sciences.

The overall objective of the scheme is to establish centres that would contribute to developing a fact-based knowledge pool for decision-making in the public and private sectors. The centres are expected to be visible in the public debate, contribute to international research cooperation and to researcher training. The main criteria for selecting centres were their relevance to the authorities and other key user groups and the scientific quality of the research.

The centres are co-financed by the Research Council, host institutions and the partners in the centre. User partners from industry and public sector are expected to participate actively in a centre's governance and research.

When the centres were established, they were given a contract for five years. Based on a successful midterm evaluation, the contract may be extended for another three years.

The three centres have been evaluated by a panel of five international experts; three scientific experts with competence to evaluate the research activities of the centres, and two experts with experience both from management of similar programmes and from similar evaluation tasks.

The members of the evaluation panel were:

- Professor Mary O'Kane, Australia, Generalist and Panel leader
- Dr. Peter Svensson, programme manager, VINNOVA, Sweden, Generalist
- Professor Runar Brännlund, University of Umeå, Scientific expert
- Professor Thomas Sterner, University of Gothenburg, Scientific expert
- Professor Jim Watson, University of Sussex, Scientific expert

The report from the evaluation panel has two main purposes:

1. It will form the basis for a decision made by the Research Council about whether to continue the individual centre for the remainder of the overall eight-year term, or to wind it up after five years.
2. The evaluation will give advice to the centres on aspects of their activity that should be improved.

The Research Council of Norway wants to express a great appreciation to the international evaluators. Particular thanks go to Mary O'Kane for her professional leadership of the panel and the process of writing the report. The evaluation team has accomplished to communicate well with the centres. The team has produced a report which will be of great value both for the further activities of the centres and for the Research Council in the administration of this and similar schemes.



Fridtjof Unander
Executive Director



Rune Volla
Director

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1. Overall report from generalist evaluators

1. Introduction

The Midway Evaluation of Centres for Social Science Related Energy Research (CICEP, CREE and CenSES) took place on 3-5 March 2015. The members of the international evaluation team were Mary O’Kane (Chair) and Peter Svensson as generalists, and Runar Brännlund, Thomas Sterner and Jim Watson as scientific experts. This overall report was prepared by the generalists but drew on detailed input from the whole evaluation team. The generalists would like to acknowledge the help of their scientific expert colleagues with the material in this report.

The evaluation was undertaken with particular reference to the success criteria for Centres for Social Science Related Energy Research scheme.

2. Overall Impressions of the FME Samfunn Scheme

We were impressed with the construction of the FME Samfunn Scheme and, in general, with the three centres evaluated. The scheme appears to be rare in the set of energy research funding schemes around the world in that its centres are within social science fields whereas most energy research centres are primarily focused on technology research at best incorporating some social science research. Having a social science research centre leads to different and generally broader-scale research questions being posed. The research questions in these centres are social science research questions, drawing on technology knowledge as needed. The value of this type of centre was illustrated during the centre evaluations by the number of research projects in the centres (especially CICEP and CREE) that are providing input, through public sector user partners, for national policies and for UNFCCC meetings and associated negotiations in Paris in December 2015.

The three centres evaluated are focused in quite different ways in terms of research disciplines. CREE is very focused on economics; the core of CICEP is political science while CenSES draws on and contributes to several disciplines in addressing its five Research Areas. These cover a range of topics including energy systems analysis, scenario development, public engagement, policy instruments, market analysis and innovation systems.

While there are some multidisciplinary projects between the centres and the fields of law, business and anthropology, there is little that touches on public administration, psychology and sociology – all areas that could be encouraged in any new call for centres under this scheme

Detailed comments on each of the three centres are contained in the individual centre reports.

- **Recommendation 1:**

That the scheme continue and a new round be called before the current centres finish. This new round could particularly call for centres that cover, at least in part, research in law, business, anthropology, public administration, psychology and sociology.

2.1. Visibility and relevance of the FMEs

The scheme is highly relevant to the current fast-evolving energy and climate policy debate and market changes taking place. The centres funded under the scheme have clearly benefited social-science-related energy research in Norway, energy research more generally, and the Norwegian public and private actors concerned with energy markets specifically. They have generated valuable research,

some of which has been published in highly ranked journals. At the same time, some of the research produced has been of direct use to many of the public and private user partners of the centres. These user partners value not only the research content produced but also the connections to the researchers. Many user partners testified that the existence of a centre had decreased the proximity between them and the academic researchers, and, in addition, they commented that it was so much more convenient to call on someone at a centre instead of trying to go through the university directory when in need of advice.

The research of CICEP and CREE probably has had a bigger impact on policy makers than industry although CICEP has been rather good at finding new ways of delivering value (e.g. one-day strategic workshop on climate policy and China at Statoil) to industry and Statoil pointed out that it valued having the economic expertise of CREE available should it need it. CenSES' research, on the other hand, probably has had a bigger impact on industry and energy corporations although it has a public sector focus too, most notably on energy innovation policy.

With regard to visibility, CenSES has worked with its partners to build a distinct identity. CREE and CICEP, however, acknowledge they are less visible as centres. Their work is more associated with their host institutions, the Frisch Centre and CICERO respectively. This is a pity as the centres receive long-term funding (8 years assuming the midway evaluation is successful), enough time to be visible as specialist resource entities for the community and public and private sector actors who are not already user partners.

2.2. The added value of operating as a centre

By choosing a centre-with-user-partners model, RCN provides long-term financing but gets synergetic effects of pooled cash and in-kind resources. The long-term nature of the centres allows them to examine 'big' and even 'wicked' problems in energy and climate.

In examining the added value the evaluation team examined the contra-factual question at each of its interviews with the centres *viz* what if the centre had not been established but the individual researchers had still have received the equivalent research funding? In CICEP and CenSES it is clear that a value has been added through the centre organisation model. Users and researchers had found ways to cooperate, some unusual and difficult transdisciplinary questions had been tackled, there was an added value from being part of a multidisciplinary centre (even if it was hard), and novel practices had emerged.

For example CICEP's information gathering for the 7-country 'biggest emitters' study is of considerable value to user partners. While it may not be deep fundamental research (yet), it is clearly valued by all the Centre's user partners, providing data and insights that would be hard to get off the shelf from even the best global, high-profile management consulting firms. Such firms would cost a lot more and most likely be less anchored in scientific methods.

2.3. Multidisciplinarity and link between technological and social-science related energy research

One component of the success criteria is that "The centre utilises a multidisciplinary approach in its research activities". CenSES conforms quite well with this requirement. Its research has its core in energy system research but this research is informed by economics, organisational theory and management and innovation studies.

The other two centres, while producing very good research in their core disciplines, were less multidisciplinary in nature though both provided good examples of projects involving researchers from two or more disciplines. CICEP demonstrated a deeper understanding of what is required in multidisciplinary research than CREE which is firmly anchored in the economics research paradigm. Indeed CREE had the feel of a Centre of Excellence rather than an FME Samfunn Centre. This raised a dilemma for the evaluators. It was clear CREE was producing excellent research output in economics and that its output is useful to a range of government agencies, particularly the Norwegian Finance Ministry, but in several ways (including the multidisciplinary requirement) it did not fully meet the success criteria. Will CREE be able to find synergetic effects between striving for publications in the best journals and exploring new ways of organising itself? Is it a success or not?

- **Recommendation 2:**

That RCN ask current and future centres to devote more attention to the processes and resources required to conduct interdisciplinary research, building on the experience of the FME programme and other, related programmes (e.g. ENERGIX). RCN could also consider adapting the preliminary guidance and success criteria for research centres and programmes so that there is greater encouragement to incorporate interdisciplinary research from the start.

In terms of centre-centre cooperation, the three centres have various cooperative activities at both centre level (e.g. joint-user conference between CICEP and CREE), and between individual researchers. There is more limited cooperation with the technical energy centres funded under a parallel RCN scheme. CenSES is the exception here. It cultivates productive links with various technical energy centres, taking advantage of its host institution's focus and well established reputation in technical energy research.

2.4. Internationalisation

All three centres had valuable international links even as formal as research partners to the centres. Many of the international links were very productive in terms of co-authored publications and often built on individual researchers' existing links. However none of centres had explicit internationalisation strategies that could guide their activities to ensure that the centre was recognised as internationally-recognised entity attracting senior scholars and top students, or managing future prioritisation and targeting of international collaborations.

Nevertheless all three centres were active and, in several cases, successful in seeking EU program funding with a variety of international partners.

2.5. Value adding through data collections

Given the complementary nature of the three centres and that they all study energy and climate issues, all have core funding from the same funding body (RCN), and have several user partners in common, the evaluation team considered that the centres could have pooled their resources even better.

One way of cooperating is through establishing databases on energy topics together. If the databases are properly curated it can be a valuable asset for unique knowledge-building and a way to attract foreign researchers to Norway.

Also all three centres lack a data-policy strategy, a particularly important issue with the increasing international trends towards open data and open government. Centres ought to be able to clearly demonstrate which data they have and are using in various experiments. It is more and more important

to be able to reproduce data and calculations described in a published paper. Such data can be published on centre websites.

To encourage the centres to be more serious about their approach to the data they collect and use, RCN might need to provide financial incentives.

- **Recommendation 3:**

That RCN consider the case for further investment in facilities to store and curate energy data. This could be considered as part of broader approaches to social science data infrastructure. RCN should also consider whether a public body with research capabilities such as Statistics Norway would be an appropriate host for these facilities.

2.6. Education

All three centres expand the knowledge capacity in their fields through PhD students and Masters students. This is important for a program like this. All were producing PhD and Masters graduates and, to varying degrees, influencing undergraduate programs. CenSES, in particular, is to be commended for the large number of PhD students it supports.

It was apparent however from the interviews with students that they and the postdocs were often worried about career prospects and uncertain about how to approach job opportunities. This seemed odd given the high profile nature of and demand in the fields in which they are working.

- **Recommendation 4:**

That RCN encourage centres to give greater thought to career progression for PhD and early career researchers. RCN should also consider whether industrial doctorates could be funded more extensively, including for social science disciplines and interdisciplinary research.

2.7. Board and management

As the centres are all formally located in host institutions, the centre boards are effectively Advisory Boards, the main roles of which are to discuss and endorse strategy, ensure management delivery on work plan, and check financials. However CICEP has given its Board an extra task which is particularly helpful for centres such as this that are relatively inexperienced at working with user partners. In CICEP the Board is “the primary venue for user partners to discuss their views and priorities, and to give input to the work of CICEP. Board meetings typically involve presentations of plans for future work at CICEP (e.g. annual work plans for the individual work packages), reporting of work already undertaken, and (at most meetings) an academic presentation by CICEP researchers of one or two recent studies.” This is an inspired use of the expertise sitting around the Board table and could be profitably adopted by all centres in the scheme.

Another example of good practice in governance is having an independent chair of the centre board as CREE currently has.

- **Recommendation 5:**

That the centre boards as well as having the tasks of endorsing strategy, ensuring management delivery on work plan, and checking financials, be the primary venue for user partners to discuss their views and priorities, and to give input to the work of the centre. It is recommended further that these boards should have an independent chair.

The centres would also benefit from advice from high profile international peers delivered in a formal setting. In particular this should take the form of an International Scientific Advisory Board (ISAB) comprised of 3-4 eminent scholars who will be critical friends of the centre and promoters of its strengths on a global stage. It is important that this ISAB meet physically at the centre at least annually and that it be gender balanced.

ISABs will assist with the visibility issues discussed previously.

- **Recommendation 6:**

That all centres in the scheme establish International Scientific Advisory Boards comprising with 3-4 eminent scholars and that such boards be gender balanced and meet annually at the centre, providing the centre with a written report on its current performance in international terms and suggested improvements for the following period.

It was clear from the self-assessments and the interviews that the leadership and management of the centres need to be chosen with care and then well supported by the boards. The Director and management team need to be skilled at long-term planning for high impact and innovative research and delivery on their plans; establishing and leading multidisciplinary teams; communication both scholarly communication and communication with end users and the broader public; and taking advantage of the centre to attract significant new research funds.

2.8. Mobility

The mobility success criterion “The centre has achieved reciprocal mobility of staff between the centre’s partners” had not been satisfactorily met by any of the centres. This should be a point of emphasis for the second phase of the existing centres and a point of emphasis from the start for any centres under a new call. Well-established techniques such as industrial doctorates can be good ways to achieve mobility but mobility should be two way.

2.9. Gender issues

The evaluation team noted that all three centres had made significant efforts to address gender balance issues.

2.10. Planning for the next financing period and beyond

CenSES is clear that it intends to exist in some form after the formal scheme funding ceases and accordingly has given significant attention to planning for the next period and, to some extent, beyond. CICEP’s plans for the next period were adequate although it would benefit from taking on board its user partners’ desire that it be more future focused. CREE however has done relatively little planning for the future and is clearly worried about its ability (or not) to attract other funds. This matter is addressed in the CREE report. It is important that centre boards provide strong guidance to the centres’ management on the issue of future planning.

An important aspect of future planning is for RCN and the centres to give attention to how the work of these centres fits into the wider national ambition with regard to social sciences research relevant to energy and climate, especially with regard to economic transition within these sectors and internationally. Norway has other strongholds in research about systems of innovation. It might be beneficial for the programme to involve more innovation researchers especially those working on a policy level.

- **Recommendation 7:**
That RCN should work with the existing centres and the wider social science energy and innovation research communities to develop an agenda for energy innovation research. This would build on research underway or planned within the centres, and should also seek to build stronger links with the mainstream innovation research community within Norway.

3. Recommendations to RCN

- **Recommendation 1:**
That the scheme continue and a new round be called before the current centres finish. This new round could particularly call for centres that cover, at least in part, research in law, business, anthropology, public administration, psychology and sociology.
- **Recommendation 2:**
That RCN ask current and future centres to devote more attention to the processes and resources required to conduct interdisciplinary research, building on the experience of the FME programme and other, related programmes (e.g. ENERGIX). RCN could also consider adapting the preliminary guidance and success criteria for research centres and programmes so that there is greater encouragement to incorporate interdisciplinary research from the start.
- **Recommendation 3:**
That RCN consider the case for further investment in facilities to store and curate energy data. This could be considered as part of broader approaches to social science data infrastructure. RCN should also consider whether a public body with research capabilities such as Statistics Norway would be an appropriate host for these facilities.
- **Recommendation 4:**
That RCN encourage centres to give greater thought to career progression for PhD and early career researchers. RCN should also consider whether industrial doctorates could be funded more extensively, including for social science disciplines and interdisciplinary research.
- **Recommendation 5:**
That the centre boards as well as having the tasks of endorsing strategy, ensuring management delivery on work plan, and checking financials, be the primary venue for user partners to discuss their views and priorities, and to give input to the work of the centre. It is recommended further that an independent chair these boards.
- **Recommendation 6:**
That all centres in the scheme establish International Scientific Advisory Boards comprising with 3-4 eminent scholars and that such boards be gender balanced and meet annually at the centre, providing the centre with a written report on its current performance in international terms and suggested improvements for the following period.
- **Recommendation 7:**
That RCN should work with the existing s and the wider social science energy and innovation research communities to develop an agenda for energy innovation research. This would build on research underway or planned within the centres, and should also seek to build stronger links with the mainstream innovation research community within Norway.

4. Conclusion

Energy research has traditionally focused heavily on technical aspects. There is now a strong need globally for large-scale energy and climate research in the social sciences. This need is addressed directly and successfully by the FME Samfunn Scheme and the centres it funds. We strongly recommend the scheme continue, taking on board the issues raised in this report.

Mary O’Kane (Chair) & Peter Svensson

2. Strategic Challenges in International Climate and Energy Policy (CICEP)

1. Introduction

On 3 March 2015, the Chair of the Centre Board, Kristin Halvorsen, board members, the Centre Director, Steffen Kallbekken, colleagues in CICEP, PhD students, user partners, and research partners had a formal interview with the members of the evaluation team (Mary O’Kane (Chair) and Peter Svensson as generalists, and Runar Brännlund, Thomas Sterner and Jim Watson as scientific experts). At interview Tone Ibenholt and Eivind Hoff-Elimari were present on behalf of RCN. We thank all members of the Centre and the RCN team for their efforts in providing information for the evaluation via the self-evaluation report, related material and partner surveys as well as in the meeting with the evaluation team.

This evaluation was undertaken with particular reference to the success criteria for Centres for Social Science related energy research.

2. Research activities

The main objectives of CICEP are 1) to identify international policy options to drive the transition towards low carbon energy systems and 2) to determine consequences of various international policy trajectories for major Norwegian industries and government strategies.

Secondary objectives include studying the role of seven key countries, identifying international regime arrangements that appear promising,

CICEP has been operating for 3-4 years and has established itself as a centre which involves more than thirty researchers of varying seniority and a high degree of visibility and policy impact. Its core performance when it comes to research is, according to the self-assessment, a total of 66 international peer reviewed publications. This quantity is, for a “startup” Centre that is also carrying out research in related projects, quite impressive. The evaluation team is keen, however, to understand these numbers better – and this has proved to be difficult. There is little discussion of publication strategies or success, and there is a lack of bibliometric analysis of the Centre’s outputs. The current tendency in evaluations that are used for university funding in many countries is to be quite detailed in this respect. Sometimes, excessive attention is given to a detailed ranking of journals and publications. This would not be constructive or appropriate for CICEP since they conduct applied research that seeks to have academic impact and more broader societal relevance and impacts.

Nevertheless, the evaluation team feels that some discussion and some indicative measurements would be appropriate. Starting with formalities, the evaluation team would like to ensure that the publications do acknowledge support from CICEP. Moving to quality, the evaluation team would like to know how many of the publications are in books and how many in journals – maybe broadly categorized into 2 or 3 categories of quality. Other information, for example whether research has led to media attention or notable citations, could also be indicators of impact and success.

The evaluation team’s quick assessment of the list of publications is that there is a reasonable balance, although clearly more tilted towards applied policy research. There is less of a focus on more

fundamental disciplinary or interdisciplinary research. The publications profile includes several papers in well known and highly regarded applied journals such as *Climate Policy*, *Environmental Research Letters* and *Energy Policy*. The evaluation team discussed this issue with CICEP researchers at the interview, and Professor Underdal wisely said that he believed they needed a combination of the two in a program like CICEP. The evaluation team agrees, though we would encourage Centre researchers to give more thought to publications in higher ranked journals. It is also clear that there are a couple of ‘star authors’ who account for a disproportionate number of publications. These are to be congratulated and thanked, but it is also important in the long run to think of broadening the set of authors who make such an impact.

The evaluation team’s overall assessment is that the research is very prolific and very relevant but that it might not score quite as highly when it comes to being innovative or interdisciplinary. CICEP is said to be interdisciplinary but we found most of the research to be in political science, with economics research playing a secondary role. In the following, the research is discussed in more detail.

- **Recommendation 1:**

- That the Centre aim to produce more papers in highly-ranked journals.

Comments on work packages

In WP1, CICEP has explored climate policies for 7 key actors: Brazil, China, the EU, India, Japan, Russia and USA. The aim has been to understand the domestic mechanisms that shape international policies and thereby to understand if and how some combination of interest groups could emerge as a “winning coalition” in each country. The panel found this research interesting and novel. It seems to have generated some good publications and impacts.

The overarching question for WP2 is: Which international regimes and agreements appear most promising for mitigating the impact of human activities on the climate system? This WP appears to have generated a large number of publications, and clearly benefits from experienced leadership from Professor Underdal who is high profile academic who has good links to world class researchers like David Victor. Exciting methods such as agent based modelling (ABM) are being tried. The evaluation team was not entirely convinced about the exact case for using ABM instead of game theory for analysing small numbers of countries that clearly behave strategically.

The focus of WP3 has been on the effects of international climate and energy policies on energy markets and their climate effect, with special attention to large developing economies. Methodologically this WP explores the environmental and economic consequences of various policy options. The primary model used within WP3 is the CGE model GRACE. Modelling research focused on emerging economies and developing countries in the EU – including analysis of the phaseout of nuclear power in the EU. This modelling has not generated quite as many publications. However, complementary research in WP3 using input-output modelling has had a significant academic impact, building on previous research by Glen Peters. The evaluation team was left wondering about the integration of WP3 into the overall program. CGE models have well known disadvantages, some of which were acknowledged by the Centre team. In the light of these it was not entirely clear why the GRACE model was chosen. Furthermore, CICEP does not appear to have taken up the opportunity to use the deeper insights from other WPs to inform future oriented modelling of global energy and emissions scenarios. We recommend that these linkages are developed more fully in CICEP’s future research plans – either through further CGE modelling, or by developing collaborative relationships with researchers using other energy systems or economic modelling tools.

- **Recommendation 2:**

That the Centre revise its approach to future-oriented modelling of global energy and emissions scenarios using insights from across its work packages and by extending the range of modelling tools. Furthermore it is recommended that this research is given greater prominence in the next phase as it is clear that the Centre user partners would like to see the Centre develop a more significant future-oriented focus.

WP4 focuses *inter alia* on the making of EU climate, energy and technology policies, and the responses of companies, member states and Norway to the EU ETS. The methodology focused on interviews with companies, and the evaluation team feel that the practical and policy importance of such a large and ambitious data collection effort was considerable. Furthermore, it could open up exciting research questions concerning political economy and behaviour of the business sector in response to climate policies.

WP5 is the integration and communication work package which seems effective, particularly in terms of ensuring the CICEP researchers have a strong media impact.

Data infrastructure

A notable feature of the CICEP is that it brings together large amounts disparate information to provide useful analyses of why various public and private actors have reached the decisions they have on climate change, emissions and consequent energy systems changes. Little attention seems to have been paid to storing and curating the information and data on which these analyses are based. The evaluation terms believes this is a missed opportunity to provide a resource which would be attractive to other scholars working on these problems, possibly from the perspective of other disciplinary approaches. Also it is increasingly seen that good scholarly practice involves holding data for an appropriate time for reproducibility studies.

- **Recommendation 3:**

That the Centre develop and implement a formal data strategy.

3. Internationalisation

Due to its primary research focus on international climate policy, CICEP includes significant international collaboration within its research programme. From the outset, the Centre has included collaborations with some well-known academics and research groups in this field such as Professor David Victor, University of California (San Diego), and the Basque Centre for Climate Change (BC3). It is clear from the self-evaluation and the meetings held with the evaluation team that many of these collaborations have been substantive. Activities have included joint publications (for example with researchers from Lund and Fudan), researcher exchanges or visits, and the hosting of CICEP PhD students (e.g. at BC3). Researchers from the Centre have also been involved in a number of related EU research projects. There are also welcome plans to extend collaboration to include a new partner, the Free University of Berlin, due to the importance of the German *Energiwende* for European climate and energy policy debates. The proposed partner institute (FFU) at the FU Berlin has a good international reputation. The partnership will include the fractional appointment (20%) of Professor Miranda Schreurs at the University of Oslo for 3 years.

On the whole, CICEP has therefore performed well with respect to the success criteria for internationalisation: Centre researchers have succeeded in achieving international recognition. The

CICEP 'brand' has not necessarily achieved wide recognition since many researchers are known by their primary affiliation (e.g. CICERO). From the information available, it wasn't possible to assess all indicators of international profile, e.g. the number of keynote speeches by Centre staff.

- Centre researchers have been successful to some extent in international research co-operation. This includes a number of joint publications, participation in EU COST projects, and advisory roles for high profile institutions such as IIASA. Now that Professor Underdal has stepped down from a number of advisory boards, the Centre management team may find it useful to consider whether there has been any negative impacts on its international profile and networks.
- There is active collaboration with a number of research groups or academics in other countries, the most notable including partnerships with BC3 (Spain), University of California San Diego (USA) and Fudan University (China). Given the importance of China in international climate policy, consideration could be given to building additional links with Chinese institutions. Furthermore, if CICEP wishes to develop a comprehensive understanding of feasibility and international climate architecture, we feel that it should also deepen its links with low income, low carbon emitting countries (building on Centre research in India and Tanzania for example). This would complement its existing collaborations that provide important insights into the US, Europe and some of the larger emerging economies.
- The Centre has attracted some high profile international researchers as visitors or as part-time members of staff (or proposed part-time members of staff). Professor Schreurs and Professor Victor stand out in this respect: not only because they are well known but also because their interactions with CICEP have involved much more than a short term visit. This has been complemented by a series of inward and outward visits by other international researchers and Centre researchers.

4. Researcher training, engagement in education

The Centre has funded three PhD students out of the core budget. Two of these are working at CICERO, and one at the Department of Political Science, UiO. In addition CICEP provides partial funding to its international partners for two PhD students and one postdoc. In addition, three PhD students and one postdoc recruited through open competition are working on issues relevant for CICEP. It should also be mentioned that CICEP-related research partner projects have further increased the pool of young researchers by one PhD student and one postdoc. Taken together the number of young researchers (PhD and postdoc) is higher than envisaged in the original proposal. This is of course positive.

Concerning research training, apart from courses offered by the research partners, CICEP encourages students and young researchers to take part in courses offered at other universities and institutes, which seems natural. As part of its competence-building strategy CICEP offered a course in agent-based modelling the first year. In addition a course in 'political feasibility analysis' is planned in the spring of 2015. Offering specific courses within the CICEP research themes is important from a competence-building perspective. In the original proposal it was envisaged that at least one interdisciplinary PhD course should be offered annually within CICEP. According to the proposal those courses should be aimed at an international audience, with teachers from CICEP's international partners. Given the outcome, more can be done here. Maybe one way to proceed is to offer courses in collaboration with the other FME centres.

Concerning education at undergraduate and Masters levels, CICEP researchers are involved quite significantly, specifically at the Masters level in political science related to energy and environmental politics. Also this may be important in a long-run competence building strategy.

So far, no personnel mobility between user partners and the CICEP team has taken place, nor has there been a strong interest in such mobility.

- **Recommendation 4:**

That the Centre help its students with career progression; maybe through Centre-funded postdoctoral positions.

5. Organisation and Management of the Centre

The Board is quite large (11 members) but well constituted with an excellent Chair who brings highly relevant knowledge, experience and connections to the role. At interview Board members were clearly deeply engaged with the Centre but frank in their assessment of what had been achieved and what could be improved.

The Board has an unusual but very effective way of operating. As well as setting the direction for the Centre's work and assuring itself that management is operating properly, delivering on its work plan on a timely manner within appropriate financial parameters, the Board (in the words of the self evaluation) uses its meetings as "*the primary venue for user partners to discuss their views and priorities, and to give input to the work of CICEP. Board meetings typically involve presentations of plans for future work at CICEP (e.g. annual work plans for the individual work packages), reporting of work already undertaken, and (at most meetings) an academic presentation by CICEP researchers of one or two recent studies.*" As one of the most important aspects of the Centres for Social Science Related Energy Research Program is effective engagement with user partners, this is an example of good practice which could be usefully deployed in similar centres.

Good management processes were established by the inaugural Centre Director and these still underpin the current management approach. The (current) Director and his management team were clear about their roles and strongly committed to making CICEP a success. While they have followed a detailed work plan, they (and the Board) emphasised the need for the Centre be sufficiently flexible in its planning to be able to respond to major developments in global climate-change-response negotiations.

CICEP is well supported by and integrated with its host institution CICERO. Indeed it is clear that CICEP in many respects does not have a clear identity separate to CICERO.

CICEP is also well connected to wider developments across the University of Oslo, especially the relatively new initiative (UiO Energi) bringing together the University's various energy research activities.

6. Relevance and benefit to users and the society (beyond partners)

The evaluation team noted that the Centre has produced research that is a clearly relevant of to its user partners and external stakeholders. At interview almost all the topics of the Centre's work packages were mentioned favourably by the user partners. For example the Centre put together a full day

workshop on China and climate policy upon request. This workshop format also shows a good adaptability to new preferences from the user partners. We also commend the breakfast seminars that seem to combine a lot of ingredients that constitutes being a centre; e.g. presentations by user partners, involvement of students and practitioners.

The user partners are also happy to have CICEP as a knowledge platform they can turn to, especially when they are enquiring about political processes and climate policy. Otherwise it is hard to find the right person at a university. The media coverage also implies that journalists know where to find the researchers.

Another concrete example with a slightly different format is how CICEP has assisted the Norwegian delegation to the UNFCCC negotiations. This is how it is presented in the self-evaluation: *“The projects have involved presentations at (and involvement in) several closed workshops for climate negotiators, which has resulted in several requests to take part in other international workshops. This work has also been of interest to our user partners, for instance, Miljødirektoratet has met with CICEP to discuss one of the reports.”* This is a clear case of fact-based policy advice.

There seems, however, to be room for improvements. The Centre benefits from having frank user partners in the Board and it seems as if the Board is a well-functioning platform for open discussions. These assets can be used to continually improve the relevance of the research areas and the outreach format. One suggestion that come up during the evaluation was for CICEP researchers to take part in commercial companies long-term strategy work and/or take part in internal reference groups set up to make the procurement of consultancy work relevant.

User partners want to see a better website and more accessible research reports. We expected that to be in place at this stage of the Centre development.

- **Recommendation 5:**

That the Centre concentrate even further in the next phase on working to deliver significant benefit to user partners especially through leveraging the Centre’s deep political analysis to help user partners with future scenarios.

7. Gender aspects

CICEP has addressed gender balance issues well. Half the management team and almost half the Board members are female. There are more female doctoral students than male associated with the Centre.

8. Financial aspects

The finances of the Centre as described in the material for the evaluation appear to be well managed. The Centre’s budget reflects the operations of the Centre as described in the general material provided to the evaluation.

We assess that the user partners will continue to finance the Centre based on their statements about relevance of the research and the benefits they receive. And they are positive about doing so even after the RCN Centre program funding finishes. However, an increase of funding from the user partners seems to be hard to obtain and probably would not be enough to make the Centre financially sustainable. It is therefore imperative that CICEP continues to actively apply for new funds.

9. Plans for final three-year period and future activities

CICEP has satisfactory plans in place for the final three-year period. It is likely and appropriate that these will need to be modified to respond to the Paris 2015 UNFCCC.

For the longer term, the management team realises the need to fund continuation of CICEP through applying for new and diverse funds and has been quite active and successful in this regard to date. One particular initiative planned is to join with others to apply for a Centre of Excellence to cover continuation of the more theoretical aspects of the Centre's work.

10. Conclusion and recommendations to the centre

CICEP is a good example of a Centre for Social Science-related Energy Research (FME samfunn) producing prolific research which is highly relevant to Norwegian government agencies and corporations, especially those that are user partners. The Centre has addressed the program success criteria satisfactorily.

The evaluation team recommends continued funding of CICEP. In making this recommendation we make the following recommendations to help the Centre in planning for its next phase.

Recommendations to strengthen the Centre are:

- **Recommendation 1:**
That the Centre aim to produce more papers in the top-ranked journals.
- **Recommendation 2:**
That the Centre revise its approach to future-oriented modelling of global energy and emissions scenarios using insights from across its work packages and by extending the range of modelling tools. Furthermore it is recommended that this work is given great prominence in the next phase as it is clear that the Centre user partners would like to see the Centre develop a more significant future focus.
- **Recommendation 3:**
That the Centre develop and implement a formal data strategy.
- **Recommendation 4:**
That the Centre help its students with career progression; maybe through Centre-funded postdoctoral positions.
- **Recommendation 5:**
That the Centre concentrate even further in the next phase on working to deliver significant benefit to user partners especially through leveraging the Centre's deep political analysis to help user partners with future scenarios.

Mary O'Kane (Chair)

Runar Brännlund,

Thomas Sterner

Peter Svensson

Jim Watson

3. Oslo Centre for Research on Environmentally Friendly Energy (CREE)

1. Introduction

On 4 March 2015, the Chair of the Centre Board, Einar Hope, board members, the Centre Director, Snorre Kverndokk, colleagues in CREE, PhD students, and representatives of user and research partners had a formal interview with the members of the evaluation team (Mary O’Kane (Chair) and Peter Svensson as generalists, and Runar Brännlund, Thomas Sterner and Jim Watson as scientific experts). At interview Tone Ibenholt and Einar Wilhelmsen were present on behalf of RCN. We thank all members of the Centre and the RCN team for their efforts in providing information for the evaluation via the self-evaluation report and related material and partner surveys as well as in the meeting with the evaluation team.

This evaluation is undertaken with particular reference to the success criteria for Centres for Social Science Related Energy Research.

2. Research activities

The success criteria concerning research activity require *inter alia* that the Centre has (a) a distinct research profile, (b) relevant research of high international standard, (c) a multidisciplinary approach in its research activities, and (d) proves its quality through its output of doctorates, scientific publications, and visibility at conferences.

The CREE research programme is organised into five different work packages (WPs), which cover a broad range of interrelated topics: international climate and energy politics, innovation policy, regulation of energy markets, evaluation of energy policy, and generation of new numerical models. The research agenda is interesting, and ambitious, although still credible considering that the WPs all share a common theoretical and methodological core. The core research group consists of very competent and experienced researchers that cover the issues raised in the WPs very well. It’s not unfair to say that the research group is one of the leading groups in Europe, and maybe in the world within the field of environmental and resource economics. Concerning the multidisciplinary aspect of the program, and the related research activities it is, if not absent, of small magnitude. An exception though is within WP4, in which collaboration with social anthropologists seems to have been successful.

Overall the research output is impressive with a large number of publications, and a relatively large share of the publications in high ranked general economic journals, as well as high ranked field journals. Examples of the former are American Economic Review, and Journal of Political Economy, and examples of the latter are Journal of Environmental Economics and Management, Environmental and Resource Economics, and the Energy Journal. In total, since the establishment in 2011, about 80 articles are published in peer reviewed journals. In addition there are around 30 popular scientific articles, and a substantial number of working papers.

A clear pattern is that those articles that are published in the most highly ranked general economics journals almost exclusively belong to issues related to WP1 (international politics of climate and energy) and they can also be considered as relatively theoretical in nature. Articles related to the other WPs are mostly published in field journals, in most cases of a high rank, such as Environmental and Resource Economics, Ecological Economics, Climate Policy, Energy Policy, and Climate Change Economics. Without doubt the apparently very clear publication strategy has led to a clear and internationally visible research profile for CREE, which also to quite a large extent shows in an extensive international network, which also is manifested in the amount of co-authored articles.

Concerning the research output, in terms of quantity and quality (measured by share of articles published in high ranked journals) the conclusion has to be that it is excellent. However, as evaluators we would like to look behind the basic journal counting to get a deeper understanding of the impact and contribution to overall success of the program. On this point we are somewhat critical of the self-assessment. First, there is no, or little, discussion of how the various publications contribute to issues raised in each WP, and second, there is no kind of bibliometric study, that makes it possible to draw any kind of conclusion concerning impact in relation to resource use. All in all this makes it very difficult to assess to what degree the research output answers the questions raised in the individual WPs, and hence how it has contributed to the success of the program as a whole. This may possibly be related to the fact that there seems to be no attempt, so far, to try to synthesize the research within and between WPs. Maybe this is the time now to do so. What has been accomplished so far, in relation to the objectives, and given this, what direction should be taken?

There is a plan for 2015, but it seems to be more of the same without any seemingly specific attention of what has been achieved so far in relation to the objectives with the program. The plan consists essentially of lists of a large number of more or less seemingly unrelated “projects”.

In summary the research activities in this program are driven by a group of very highly competent researchers within the field of environmental, energy, and resource economics. The output of the research is of very high quality, as is verified by the fact that they publish in very high quality journals. This also leads to a high international visibility. As such the research activities fulfil those aspects of the success criteria. This outcome seems to be the result of a clear publication strategy. However, such a strategy also comes with a risk in the sense that the balance of the program as a whole may become skewed. That is, it may lead to a situation in which some of the more applied and/or multidisciplinary type of research activities gets too little space and attention.

As a recommendation we would suggest that more attention is given to the future research agenda in a more integrated way rather than simply listing papers to be written. Within this, priorities concerning different model developments, etc. can, and should be clarified. Here it would also be a possibility to show a bit more on how to build in more interdisciplinarity and user-partner involvement.

- **Recommendation 1:**

That the Centre produce an integrated research agenda which explicitly addresses the program all the success criteria with regard to research activity.

3. Internationalisation

Many of CREE’s researchers have a significant international profile, and have engaged in international collaboration in a number of ways. From the outset, CREE has included partnerships with well known

individuals and/or research groups in their field including with Oldenburg University, Germany (Christoph Bohringer), and Calgary University, Canada (Jared Carbone). International collaboration has taken various forms including a few longer-term inward visits of international researchers to CREE, and similar outward visits by CREE researchers. There have also been shorter interactions (e.g. hosting of guest speakers from abroad). At the formal interview, a PhD exchange programme with the University of Calgary (Canada) was also mentioned.

CREE researchers have been very active in the European Association of Environmental and Resource Economists (EAERE). Karine Nyborg from CREE was President of EAERE in 2013, and several Centre researchers have been awarded international prizes including by EAERE. CREE has applied with CICEP to host the EAERE conference in Oslo in 2017.

These international activities have led to some joint publications. In addition, some CREE researchers have been involved in the IPCC since the 1990s – particularly in working group III (mitigation). CREE funding has also enabled some funded research collaboration at European level, including participation in an EU framework programme project (ENTRACTE), and in the development of Horizon 2020 proposals.

Turning to the four success criteria on international activities:

- It is clear that CREE researchers have been very successful in being recognized internationally in their field of environmental and natural resource economics – including through publications in the highest rated economics journals (which was emphasized at the formal interview as a key mechanism for achieving international impact), awards and being invited to give keynote speeches. Given the primary focus of CREE on energy it is surprising that they do not report more engagement with the International and European Associations for Energy Economics (though the chair of the board has been active in IAEE for many years, and was its President in 2010).
- The Centre has also been successful in international research cooperation through some joint EU-funded research projects within Framework 7 and, more recently, Horizon 2020.
- At an individual researcher level, it is clear that there are multiple international collaborations that have led, for example, to some joint publications. The internationalization of Norwegian research has been significantly strengthened by CREE in their field through their publications strategy of targeting leading economics journals. Whilst the Centre has collaborated with well known research centres abroad, it is striking that there has been no strategy to guide and prioritise such collaborations at the Centre level (or indeed at the individual researcher level).
- CREE has hosted visits from international researchers, though few of them have been for a significant period of time. Likewise, CREE researchers at various levels (from senior staff to PhD students) have spent significant periods abroad in well-known research institutions.

A recommendation is that CREE should strengthen its international collaboration at the Centre level (as opposed to the level of individual researchers). The evaluation team is impressed by individual researchers' international profile, connections and activities. But at the Centre level, the lack of an explicit strategy is problematic. Such a strategy should be developed and implemented to guide the future prioritisation and targeting of international collaborations.

- **Recommendation 2:**

That the Centre develop and implement a strategy for international collaboration at the Centre level (as opposed to the level of individual researchers).

4. Researcher training, engagement in education

CREE has funded a small number of PhD students and postdocs. At the Department of Economics in Oslo they hired one postdoc in 2012 and two PhD students, one in 2011 and one in 2014. These are all integrated into the ordinary activities of the Department of Economics (employment and PhD program respectively). In addition to this, CREE also provides partial funding to one PhD student at Statistics Norway and one postdoc in Tilburg. Originally there were plans for at least one more recruitment but research funds have not been sufficient. This comes across as a missed opportunity.

CREE has a Masters program and again it is a small and rather exclusive program offering each one of up to three masters students a stipend of 20 000 NOK as well as an office and supervision by CREE researchers. There is also the added incentive of possibly publishing their Masters theses as CREE Working papers.

Concerning education at undergraduate and Masters levels, CREE researchers are involved quite significantly, specifically in the University of Oslo and in Tilburg as well as in various other research schools and, for instance, by contributing lecturers to the research school of all the other FME centres. This is an important contribution to long-run competence building strategy.

The students and postdoc we met seemed focused and pleased to be at CREE but quite concerned about funding and about future employment. It would of course be positive for this group and for future recruitment of senior researchers if more could be done to support this group of mid-career academics.

5. Organisation and Management of the Centre

As noted above, in many respects CREE is not acting like a research centre as defined by the success criteria for the program. It might be time to consider whether some of the issues might be best addressed at least in part through changes to the governance and management arrangements.

The Board has functioned satisfactorily and, especially through its eminent Chair, has provided guidance on research and other topics. But as the Centre noted in its SWOT analysis, one of its challenges is the lack of satisfactory engagement of most of the user partners in the research questions. This might be addressed at least in part by adopting many aspects of the CICEP Board operating model.

CICEP's board carries out the functions such an advisory board usually does (endorsing strategy, ensuring management delivery on work plan, checking financials, etc.) but also (in the words of the CICEP self-evaluation report) it uses its meetings as "the primary venue for user partners to discuss their views and priorities, and to give input to the work of CICEP. Board meetings typically involve presentations of plans for future work at CICEP (e.g. annual work plans for the individual work packages), reporting of work already undertaken, and (at most meetings) an academic presentation by CICEP researchers of one or two recent studies."

- **Recommendation 3:**

That the Centre consider adopting some aspects of the CICEP Board operating model. However it is recommended that CREE retain an independent Board Chair.

In considering management issues, the evaluation team questions whether the Centre is making best use of its current senior personnel. Whoever is Director needs to devote considerable time and effort to ensuring the Centre meets the program success criteria. This means a considerable focus on promoting high-quality, multidisciplinary research, developing multidisciplinary teams and engaging user partners more and finding new sources of funds. Inevitably it means less time for research. Of course the Director need not necessarily come from the host institution.

- **Recommendation 4:**

That the Centre revisit its assignment of senior roles given the need to address the program success criteria. It is important that whoever is Director be interested in a) how to promote high-quality, multidisciplinary research and develop multidisciplinary teams and b) user partner engagement.

6. Relevance and benefit to users and the society (beyond partners)

CREE has a high degree of visibility in the public debate and provides facts for this debate. Furthermore, the Centre is playing an important role as an advisor to policy makers, e.g. several contributions to Official Norwegian Reports (NOU).

The Centre has established outlets for presenting research to the user partners such as the annual user conference, well-attended seminars and workshops. We also find the popularised versions of its research are appreciated by user partners. However, most of the interaction with user partners is through disseminating the research. It seems as if it is mostly an one-way type of communication except for a couple projects e.g. the Modelling Forum.

We would like to see different formats of interaction between researchers and user partners being tried out. This might increase the long-term sustainability of the Centre because of increased relevance to user partners and improved external funding possibilities. Another related new format of interaction might be to ask the user partners for data sets, and see if there might be interest in developing them jointly.

- **Recommendation 5:**

That the Centre explore new ways of interacting (two-way interaction) with user partners.

7. Gender aspects

Gender aspects of the Centre are satisfactory. Half the board members and half the management team are female. Three out of the four PhD students funded by the Centre are women as are many of the Masters students affiliated with the Centre.

8. Financial aspects

CREE struggles with attract significant funding from user partners. CREE's research is mostly policy-related and it is hard to get private industry to see the benefit of financing research that is not obviously directly relevant to it. However, most private companies in the energy sector are dependent on policy makers and need arguments to convince policy makers. We would therefore encourage CREE to think further about how it presents its excellent research and the Centre itself to future user partners.

The evaluation team also acknowledges the tough external situation for CREE in applying for research grants. We believe however that it will be hard to change the research funding schemes, we therefore suggest that CREE tries to see what it can change in its applications in order to meet the requirements of the various schemes to which it can apply.

We also encourage CREE to continue applying for EU financing.

9. Plans for final three-year period and future activities

As noted above, the plan for 2015 needs more work. Similarly the plans for the next three years as presented in the material for the evaluation need revision if the Centre is to address the scheme success criteria satisfactorily over the next period. Many of the research issues raised for the next three years are exciting as are some of the plans for disseminating research results but more needs to be done if CREE is to be a successful centre and not just a loose collection of good researchers. Addressing this matter will also be important for positioning CREE for attracting funding after the RCN Centre funding ceases.

10. Conclusion and recommendations to the centre

While CREE has produced some outstanding research, it has not succeeded yet in addressing all the success criteria satisfactorily (notably with regard to some of the success criteria listed under the following headings: Research Activity; Relevance and Benefits to Users; Partners and Funding; and Organisation). However the evaluation team believes that by following the recommendations to strengthen the Centre given below, CREE should be able to address the success criteria satisfactorily over the next year and, accordingly, recommends continued funding.

Recommendations to Strengthen the Centre are:

- **Recommendation 1:**
That the Centre produce an integrated research agenda which explicitly addresses the program all the success criteria with regard to research activity.
- **Recommendation 2:**
That the Centre develop and implement a strategy for international collaboration at the Centre level (as opposed to the level of individual researchers).
- **Recommendation 3:**
That the Centre consider adopting some aspects of the CICEP Board operating model. However it is recommended that CREE retain an independent Board Chair.

- **Recommendation 4:**

That the Centre revisit its assignment of senior roles given the need to address the program success criteria. It is important that whoever is Director be interested in a) how to promote high-quality, multidisciplinary research and develop multidisciplinary teams and b) user partner engagement.

- **Recommendation 5:**

That the Centre explore new ways of interacting (two-way interaction) with user partners.

Mary O’Kane (Chair)

Runar Brännlund,

Thomas Sterner [Note: Professor Sterner declared he was too acquainted with many members of the CREE team and did therefore not participate fully in the formulation of the recommendations.]

Peter Svensson

Jim Watson

4. Centre for Energy Studies (CenSES)

1. Introduction

On 5 March 2015, the Chair of the Centre Board, Kari Melby, board members, the Centre Director, Asgeir Tomasgard, colleagues of CenSES, PhD students, user partners, and research partners had a formal interview with the members of the evaluation team (Mary O’Kane (Chair) and Peter Svensson as generalists, and Runar Brännlund, Thomas Sterner and Jim Watson as scientific experts). At interview Tone Ibenholt and Einar Wilhelmsen were present on behalf of RCN. We thank all members of the Centre and the RCN team for their efforts in providing information for the evaluation via the self-evaluation report and related material and partner surveys as well as in the meeting with the evaluation team.

This evaluation is undertaken with particular reference to the success criteria for Centres for Social Science related energy research.

2. Research activities

The CenSES research programme is organised into five Research Areas (RAs), which cover a range of related topics including energy systems analysis, scenario development, public engagement, policy instruments, market analysis and innovation systems. Overall, this is an interesting and scientifically credible research agenda. It draws on (and contributes to) internationally recognised research in a number of interdisciplinary fields. The evaluation team was impressed at the formal interview with the Centre’s level of ambition for interdisciplinarity, and the healthy creative tension the Centre has encouraged between the different researchers and disciplinary perspectives. As the Centre team acknowledged, conducting interdisciplinary research is not easy, and requires significant effort and resources.

As with many research programmes conducted by research centres of this size, particularly where they include such diversity of disciplines and perspectives, a key challenge is synthesis and integration. CenSES has had credible and interesting plans for synthesis from the outset, focusing on scenario development and a series of ‘user cases’ and position papers.

Taking into account the papers provided by the Centre and the formal interview, the evaluation team has a number of specific comments on the research programme.

First, a key strength of CenSES is in modelling, using a range of models and tools. This is backed up by the number of journal articles that report on the development and application of models, particularly models of electricity markets. It is also strengthened by some international collaboration focused on modelling (see international section below); and modelling of international energy issues – e.g. through the associated LinkS project. The evaluation team is particularly impressed by research within RA3 on electricity markets and on the effect of taxation on the Norwegian vehicle fleet. The Centre also demonstrated a thoughtful approach to the development and use of these models within the different RAs, including the need to be critical and transparent about input assumptions. The plan to explore better links or integration between models (e.g. to bring together energy systems and macro-economic models) is welcome since this would be innovative and could lead to significant academic

and other impacts. It will, however, be very important for sufficient resources to be devoted to this research, and the Centre should be encouraged to develop a clearer plan for this activity.

A second area of strength is the Centre's research on public attitudes and engagement research. This is demonstrated by the number of journal publications on attitudes and engagement (which include international comparisons) and the engagement of CenSES in international collaborations that focus on this area. This research has largely been located in RA4, but is now being re-located in RA1 (which focuses on policy making and transition strategies) from 2015. This re-structuring makes sense, and may strengthen opportunities to link this research with the other elements of RA1 (e.g. the research on specific actors in transition processes).

The Centre's research on innovation and commercialisation in RA4 is more mixed. The research agenda set out in the original CenSES proposal is interesting in that it includes both a systems perspective and a firm-level perspective. However, it has not contributed as much to the Centre as RAs 1-3 so far. Furthermore, the Centre's publications (see below) do not include articles in the leading innovation systems journals such as *Research Policy* or *Industrial and Corporate Change*. The Centre team acknowledged some of the weaknesses of RA4, and explained that RA4 brings together three research groups who had not previously worked together. *Whilst the panel recognise that developing new relationships takes time, future plans for RA4 require further development that provides a clearer focus.* One possibility might be for the Centre to develop a user case and/or position paper(s) on Norwegian energy research strategy to inform thinking within the national government and research funding agencies. CenSES is well placed to do this, perhaps through the new user case that is planned on 'nurturing new technologies'.

- **Recommendation 1:**

That the Centre revise its plans for RA4, providing a clearer focus for the activities in this RA and a more targeted output/publication strategy for the results from this RA.

In terms of outputs, the Centre has performed well, judging by the information provided. The Centre has published a large number of papers in recognised international journals in the Centre's fields. This includes papers in *Energy Economics*, *Environmental Politics*, *Energy Policy*, *climatic change*, *Energy*, *Renewable and Sustainable Energy Reviews*, *Science and Technology Studies*; the *Energy Journal*, *Environment and Planning B* and *Global Environmental Change*. As noted above, the evaluation team was surprised that Centre researchers have not published in mainstream innovation systems or innovation journals. CenSES researchers have also published conference papers, book chapters and books – though to a lesser extent than academic journal papers. Furthermore, the Centre's reports record a large number of conference presentations that show a high level of activity in Norway, Europe and further afield.

The Centre discussed its future publication strategy in the formal interview, including its aspirations to publish in more highly rated journals in some cases. *The evaluation team recommends that this strategy should be developed further, building on the successes already achieved. Within this, further consideration could be given to prioritisation of papers (to avoid researchers spreading themselves too thinly) and prioritisation of further high impact journals where appropriate.*

- **Recommendation 2:**

That the Centre develop its publication strategy further with more emphasis on prioritising papers especially aiming for high-impact journals where appropriate.

One notable omission from the publication record is a Centre working paper series which could be a good way for researchers (including PhD students) to communicate research findings more quickly. The Centre's user cases and associated position paper series has not made as much progress as originally planned. The evaluation team was impressed at the interview by the impacts already achieved by draft position papers and by the engagement with users in the process of developing these papers. For example, a user case on 'Norway's role as a flexibility provider' was developed in draft in 2013, and was the subject of a high level Technoport forum which included European Commissioner Connie Hedegaard amongst the speakers. In addition, the case on energy demand has included significant engagement with Enova. However, the Centre should ensure that enough resources are devoted to completing those papers already in progress as well as the new papers that are planned for 2015 and beyond.

There extent to which activities in RA5 have helped to facilitate integration across the Centre was discussed in some depth at the interview. As the self-assessment for the Centre acknowledges, these integration activities have not been given enough resources so far:

The high number of deliverables and the focus on PhD education and research has demonstrated a need to increase our focus on structuring the results in relation to our main objective and to thematic areas for the next period. Thus, for the next four years CenSES will increase capacity on synthesis work which require more senior capacity.

The 2014 work plan included plans to make progress with scenario development to help integrate research across the Centre, and the 2015 work plan repeats this ambition. *In the light of the discussion at the formal interview, the panel would like to reinforce the need for the Centre to think further about the role of RA5.* Whilst the ambition to use scenario development to help draw together and integrate research across CenSES is a good one, this does not necessarily need to be all encompassing. An alternative approach could be to selectively integrate some of the Centre's research in a more modest way, and focus scenarios on specific energy issues that are of particular relevance to the user partners and other stakeholders. Examples could include the transition of the Norwegian economy away from oil, different transport futures and their impacts on the wider energy system, or the implications of different Norwegian energy futures for integration into European energy markets. Above all, RA5 should be encouraged to retain the focus on using scenarios to engage users and to integrate some research within the Centre – but also to make contributions to the academic literature on scenario methodologies.

- **Recommendation 3:**

That the Centre give further consideration to the role of RA5.

3. Internationalisation

CenSES is mainly located in the middle of Norway and one might argue that it would be both more difficult but perhaps also more important to consider collaboration both with groups in Oslo and internationally. In fact it has followed a conscious strategy of building strategic international partnerships including with strong research groups in Berlin and Tsinghua University in China. Now it has quite a large group of collaborations that basically build on earlier long run collaborations. This has allowed it to participate in various kinds of workshops, network activities, conferences, and researcher exchange programs. It has also taken part in various bids for new international projects with funding from ERA, Horizon 2020, Nordic Energy Research, Swedish grants etc.

With the Berlin researchers it has developed a spatial CGE model for the energy system and used it to analyse questions like the incidence of CO₂ taxes or nuclear phase-out in Germany.

Another important international collaboration is with the University of Maryland and Tsinghua University. Here the GCAM model is used to study global climate policy and regional development of energy systems. CenSES also collaborates with Nordic partners in NORD-STAR to develop state-of-the-art climate visualisation techniques to help present research and policy results to users.

In addition there are several more programs with the Netherlands and other European countries as well as collaborations with local stakeholders such as municipalities or companies in Norway. All in all the evaluation team's impression was that the Centre has been very successful at creating an exciting meeting place between academics from many backgrounds, disciplines and countries as well as with practitioners.

At least one of their members, Professor Hertwich, served the IPCC AR5 as lead author and several other researchers straddle the Atlantic – for instance Steven Gabriel is at the University of Maryland and holds a 15% professor position at NTNU where he teaches energy systems modelling and Professor Asgeir Tomasgard shares his time between Brazil and Norway focusing on hydro-thermal energy in Brazil.

Overall, the evaluation team were impressed with the degree to which CenSES is well connected.

4. Researcher training, engagement in education

The Centre has invested heavily in PhD students in its four first years, and also made a major contribution to researcher training at Masters levels. A large number of doctoral researchers have finished already – 17 have completed, 6 of which had funding from the CenSES budget. As a result, a significant proportion of the research output the first four years is accounted to PhDs. A clear consequence of this is that PhD training has not been as interdisciplinary as planned. Furthermore, it may explain why research output has been rather project and even subject specific in the first four years. This may be viewed as a drawback considering the rather high ambitions concerning interdisciplinary research and the ambitions of a holistic research approach. The reason for this particular strategy seems to be mainly due to the fact that the in-kind funding has been in the form of PhD grants. Although described as a success in terms of research output, the plan for the remaining time is to shift somewhat from PhD research to research by more senior academics. The motivation for this, according to self evaluation report, is that the Centre would benefit from putting more effort on synthesis work which requires more senior capacity.

Concerning PhD and Masters education, the original plans were quite ambitious, and it is fair to say that the Centre has come half way in meeting its ambitions. Originally the plan was to develop a CenSES Masters programme. This has not been implemented in practice. Nevertheless, quite a large number of MSc dissertations have been supervised in partner institutions within the CenSES research areas. CenSES PhD education is organised in the CenSES PhD network. Apart from courses offered independently of CenSES by the research partners (NTNU, NHH and UiO), a number of specialised courses within the disciplines relevant for CenSES students are offered. Also worth mentioning is the annual summer school. Most specialized courses offered within the network are short intensive

courses. Apart from the specific intensive courses, the network has arranged courses of general interest for researchers across disciplines in scientific writing.

The evaluation team had the opportunity to meet three PhD students and one postdoc. The main conclusion from the meeting was that all of them find a value in belonging to CenSES, for several reasons. One reason was that the affiliation to CenSES provided them with a group identity and provides a network of students and researchers valuable for them. However, the enthusiasm and perceived usefulness of the cross, or, interdisciplinary approach in the Centre was mixed.

Overall it is fair to say that the engagement in researcher training and education is quite ambitious and also fairly successful. Already a substantial number of PhDs have finished. More importantly perhaps is the build up of a PhD network within CenSES, which offers support for students carrying out interdisciplinary projects and common short intensive courses. The PhD students are spread out over several different research partners, and therefore it is of particular importance to offer these kind of courses. This is of course also very important in long-term competence building and network perspective.

- **Recommendation 4:**

That the Centre consider what more it might do to strengthen PhD networking, training and 'coherence' of their cohort. The Centre could consider designating one of its senior managers to have prime responsibility for PhD training and support.

5. Organisation and Management of the Centre

The Centre has worked hard to establish good governance, management and communication processes. This is particularly important this Centre has a large number of partners which are geographically dispersed and represent diverse user and research provider interests.

The mandates for its General Assembly and Board are clear. Together these bodies are responsible for approving major variations to the work plan and budgets and ensuring management is delivering in terms of financial integrity, and work plan deliverables.

The Centre has a talented and energetic Director who leads the Centre and is responsible for day-to-day management. He is supported in this by the Deputy Director, a small administrative group, and the Centre Management Team (CMT) comprising the Director, the Deputy Director (like the Director, affiliated with NTNU) and a member from each of the other research partners. This geographically-dispersed Management Team meets at least quarterly and is responsible for planning, policy and taking the lead on strategy development. User partner meetings also provide input to strategy development and provide guidance on research planning and initiating user cases.

CenSES has created various ways of disseminating its research; e.g. webpage, newsletter, social media. We think it is really good that the Centre has experimented with new formats of dissemination. "Ung Energi" is the prime example of finding new ways for knowledge dissemination. Novel is also the initiative "Green Phase" which is a interdisciplinary think-tank on environmentally friendly energy. The think-tank has direct access to the ministry and disseminates knowledge through its blog.

Host institution support is strong (this Centre is in one of the University's main focus areas) and it is clear that NTNU is proud to have CenSES associated with it.

6. Relevance and benefit to users and the society (beyond partners)

CenSES has many user partners and most of them are quite happy with the Centre. The representative from Hydro emphasised that the user partners also have to make some changes in order to capture the most of what the Centre has to offer. We believe it might be of value to continue having a dialogue with user partners about their capability of capturing value from the Centre. Since most user partners are positive and active in this particular Centre already, we got the impression that they are willing to engage even further if the format is right.

Having such a diverse group of user partners mean that you have to find different ways of interacting with them. The Centre particularly relies on the format of user cases. There is a determination from the Centre leadership to proceed with the user cases and it seems, as noted above, that several of the initial problems have been overcome at this stage. We therefore encourage the Centre to keep on developing the user cases.

One of the research leaders gave a couple of concrete examples of high-impact interaction with user partners such as Statnett and Hydro. We would suggest that the Centre publishes the details of these high-impact cases, because this shows the relevance of the Centre and its researchers.

The representatives of Hydro, Statoil and Enova gave us examples of how to benefit from the knowledge-building at CenSES; as a recruitment base, knowledge reservoir and as a place for networking.

Another example creating value to society is the study of cooperation between industry and research using the eight technological FMEs as empirical data in RA4. It draws on the research capability of the centre and might add some value to industry, universities and RCN. We believe CenSES could be the focal organisation for thinking about how Norway can facilitate for more innovation within the energy sector and what institutions Norway needs to implement to transform its energy sector. However, again as noted above, the WP4 needs to be framed differently, maybe using the national innovation system approach?

7. Gender aspects

Gender aspects of the Centre are adequate though not outstanding. Currently three of the eight board members and three of 11 members of the Management Team are female. In the evaluation material, the Centre indicates that it is careful to attend to gender aspects in PhD student recruitment.

8. Financial aspects

The finances of the Centre as described in the material for the evaluation appear to be well managed. The Centre's budget reflects the operations of the Centre as described in the general material provided to the evaluation.

We assess that the user partners will continue to finance the Centre based on their statements about relevance of the research and benefits they draw and are positive about doing so even after RCN Centre funding finishes.

9. Plans for final three-year period and future activities

The Centre has been carrying detailed planning for the final three-year period. The plans produced appear to be sound although this activity will need to be revisited in the light of the recommendations above. The Director and his team acknowledged this at interview. We also suggest that the Centre consolidate some of its activities to make the Centre more coherent.

CenSES was created before the Centres for Social Science Related Energy Research call was announced. CenSES has sensibly used its first years as an RCN-funded Centre to find ways of cooperating between the research partners and the user partners. We believe this investment will pay off through continuing partner commitment to the Centre even when RCN Centre funding ceases. Also in this regard the Centre has been active in applying for funds from a range of sources and has management processes which would allow for an easy continuation.

10. Conclusion and recommendations to the centre

CenSES is a good example of a Centre for Social Science-related Energy Research (FME samfunn) which has satisfactorily met the program success criteria.

The evaluation team recommends continued funding of CenSES. In making this recommendation we make the following recommendations to help the Centre in planning for its next phase.

- **Recommendation 1:**
That the Centre, revise its plans for RA4, providing a clearer focus for the activities in this RA and a more targeted output/publication strategy for the results from this RA.
- **Recommendation 2:**
That the Centre develop its publication strategy further with more emphasis on prioritising papers especially aiming for high-impact journals where appropriate.
- **Recommendation 3:**
That the Centre give further consideration to the role of RA5.
- **Recommendation 4:**
That the Centre consider what more it might do to strengthen PhD networking, training and 'coherence' of their cohort. The Centre could consider designating one of its senior managers to have prime responsibility for PhD training and support.

Mary O'Kane (Chair)
Runar Brännlund,
Thomas Sterner
Peter Svensson
Jim Watson

Appendix 1 Terms of reference

**The Research Council of Norway
Division for Energy, Resources and the Environment**

Midterm Evaluation of the Centres for Social Science-related Energy Research (FME Samfunn) Background and terms of reference

1. About the FME Samfunn scheme

The overall objective of the FME Samfunn scheme is to establish centres that will make major contributions to developing a fact-based knowledge pool for strategic decision-making in the public and private sectors. Centres under the scheme must give high priority to the dissemination of research results. As participants in the public debate, the centres will also be responsible for dissemination of information to society at large. The FME Samfunn scheme seeks to enhance knowledge transfer, internationalisation and researcher training.

The FME scheme features a higher level of ambition, a longer term perspective and a more intense concentration of efforts than most other instruments in the Research Council of Norway.

For research-performing institutions, the FME scheme offers opportunities for long-term competence development by engaging in research of a high international standard in close collaboration with user partners from industry and public sector.

The scheme is administered by the Research Council of Norway, Division for Energy, Resources and the Environment and is mainly funded by the budgets of the Ministry of Petroleum and Energy. Each of the centres may receive funding for maximum eight years; five years plus a final three year period provided a positive outcome of a midterm evaluation.

2. Purpose of the evaluation

The midterm evaluation is outlined in the document “Requirements and guidelines”. Under the auspices of the Research Council, roughly 3 1/2 to 4 years after the centres are established; there will be an evaluation of each centre. The evaluation will be based on a uniform scheme involving the Research Council's governing bodies. The elements to which the evaluation will devote special attention are the Success criteria for 'Centres for Social-Science-related Energy research'.

In particular, the evaluation will assess the scientific results the centres have achieved relative to the original project description, and consider whether the scientific results achieved and the competence accrued are relevant and of benefit to users and the society. Further, the evaluation is to assess the plans for the centre's activities in the potential final three-year period. In addition to this evaluation, the Research Council of Norway will evaluate the administrative conditions at each centre.

The evaluation will form the basis for a decision about whether to continue the individual centre for the rest of the overall eight-year term, or to wind it up after five years. The evaluation will also

give advice to the centres on aspects of their activity that should be improved. The Board for the Division for Energy, Resources and the Environment, or a party authorised by the Board, will make the decision based on recommendations made by the administration.

3. The organisation of the evaluation

3.1. The evaluation team

Each centre will be evaluated by a team of international experts. The evaluation team will consist of up to six persons. The experts in the team will have the competence and the task to evaluate the centres from a scientific point of view. One or two of the experts in the team will have experience from centre schemes or programmes for collaboration between different research institutions and industrial and public partners. These “generalist” experts will look at the centre from a general point of view. Each centre will suggest up to four suitable scientific experts. The Research Council will decide whom to invite.

3.2. The evaluation sessions

The basic documentation will be distributed by the Research Council to the members of the evaluation team not later than one month prior to the evaluation. The evaluation of the three centres will be carried out during the period February 2015 – April 2015. The evaluation report is due within six weeks after the interview sessions.

During the site visit the evaluation team should meet:

- The Centre Leader
- The Chair of the Centre Board
- Representatives from the user partners
- Representatives from research partners
- Host institution staff incl. representatives from the top management
- Research leaders active within the centre
- Doctoral students.

Staff from the Research Council will be present at the site visits. The staff will act as administrators and should not take active part in the evaluation, but can add information during work sessions.

3.3. Background material for the evaluation

The following written material will form the background for the evaluation:

- *Present project description*
- *Budget tables from the Research Council's project data base.*
- *Annual reports for 2011, 2012, 2013 and 2014 (draft if available) from the centres.*
- *Work plan for 2015 including tables for funding and costs.*
- *Reports from the centres and its partners according to a standardised outline:*
 - A. A self-evaluation of the centre
 - B. Fact sheets including CV for the management team, list of publications, PhD candidates, financial data and selected indicators.
 - C. An assessment of the centre from the host institution.
 - D. An assessment of the centre from each of the partners.
 - E. Project description for the final three-year period, including a plan for the winding-up.

- *Documents describing the Centres for Social Science-related Energy Research Scheme. (The Research Council of Norway, Oslo 2010)*
 - Description of the scheme.
 - Requirements and guidelines.
 - Information to applicants.

4. Mandate for the Evaluation Team

The evaluation team will make the evaluation in the context of the success criteria (Appendix 1).

The evaluation team will review progress of scientific efforts, recognising it is early to expect conclusive results. The evaluators will form an opinion concerning the approach and measures taken so far by individual centres to judge the potential for their long-term development towards a successful FME. Evaluators may offer suggestions for remedial action to enhance the prospects for centre success.

The basic reference for the evaluation is provided for by the criteria on which the centres were originally selected:

- Scientific quality
- The relevance and benefit to users,
- Relevance with a view to the call for proposals, including relationship to the host institution's research strategy.

The evaluations of the individual centres are to emphasise the following elements:

A. Research activities

The centre has a distinct research profile, conducts long-term, thematically relevant research of high international calibre in the area specified in the project description, and demonstrates this through its production of doctorates, scientific publications, papers for presentation at recognised international conferences and other measures of scientific excellence.

- The centre utilises a multidisciplinary approach in its research activities; i.e. it forges close links between various subject areas within the field of social science. The centre also strengthens the links between social science-related energy research and technology-related energy research.
- Researchers from the host institution and research partners participate actively in the centre's research.
- The centre has achieved reciprocal mobility of staff between the centre and partners in the centre.
- The plans for research activities for the centres' final three-year period. The assessment will include the plans for the centres when their FME status and funding expire.

B. Relevance and benefit to users and the society

- The centre participates visibly in national and international arenas in which energy and climate-related questions are discussed.
- The centre has implemented measures to ensure that the expertise and results achieved by the research activity are effectively transferred to and utilised by the user partners, and actively disseminates research results to broader user groups and the public at large.
- The centre's user partners have increased their research commitments over time through participation in the centre's activities.

C. Internationalisation

- The centre is successful in international research cooperation, e.g. as a player under the EU framework program.
- The centre engages in active collaboration with international research groups, and has at least one international research partner.
- The centre attracts good foreign senior researchers, postdocs and PhD students.

D. Recruitment

- The centre has an effective framework for researcher training.
- The centre is actively engaged in education, especially at the master's level, with emphasis on increased recruitment of women.

E. Organisation and Management of the Centre

- The centre has good visibility and a strong identity.
- The centre is organised in a way that fits well into the host institution's organisation.
- The centre has a Board and management that ensure that the plans are followed up.
- The centre has an administration with high professional and administrative skills.
- The centre cooperate with other centres when relevant.
- The centre works to achieve gender balance.

F. Financial aspects

- The host institution and partners increase their funding (both cash and in kind)
- The centre has made active efforts to attract new partners (*some centres have from the start a rather complete set of partners, while others might have a greater potential to attract additional partners*)
- The centre has been successful in securing other external funding

G. Impact beyond the centres and their partners

An important basis for the evaluation is the overall objective of the FME Samfunn scheme, which is to establish centres that will make major contributions to developing a fact-based knowledge pool for strategic decision-making in the public and private sectors. As participants in the public debate, the centres will also be responsible for dissemination of information to society at large.

More specifically, the FME Samfunn scheme aims to establish centres that will:

- expand the knowledge base for shaping national energy policy and Norway's input to the international energy and climate policy debate;
- generate knowledge that is vital to triggering innovation and realising the value creation potential in the areas of renewable energy, energy efficiency and CCS, thus supporting the technology-related activities at the eight established FME centres;
- develop social science and socio-economic methodology and models to facilitate the achievement of the preceding objectives.

The evaluation team will also comment on the self-evaluation reports, partner assessments and the site visit. Although the individual centres will be the main focus, the evaluators should also comment on the organisation of FME scheme and the role of the Research Council of Norway.

To avoid giving a premature indication of the Council's decisions to prolong the individual centres, the Evaluation team is asked not to comment specifically on this issue.

The evaluation team will write an evaluation report for each centre, and also a brief overall report concerning the scheme as a whole. The reports should be written in consensus by the evaluation team and sent to the Research Council of Norway. Each centre will get the opportunity to comment on factual errors in the description of their own centre.

The report will be openly circulated to all Centres, host institutions, relevant ministries and to any other agency or person who have expressed interest in this kind of information.

Appendix

Success criteria for the Centres for Social Science-related Energy Research (FME Samfunn)

In addition to fulfilling the formal requirements, a successful FME Samfunn centre will be characterised by the following:

Research activity

- The centre has a distinct research profile, conducts long-term, thematically relevant research of high international calibre in the field specified in the project description, and demonstrates this through its production of doctorates, scientific publications, papers for presentation at recognised international conferences and other measures of scientific excellence.
- The centre utilises a multidisciplinary approach in its research activities; i.e. it forges close links between various subject areas within the field of social science. The centre also strengthens the links between social science-related energy research and technology-related energy research.
- Researchers from the host institution and research partners participate actively in the centre's research.

Relevance and benefit to users

- The centre participates visibly in national and international arenas in which energy and climate-related questions are discussed.
- The centre has implemented measures to ensure that the expertise and results achieved by the research activity are effectively transferred to and utilised by the user partners, and actively disseminates research results to broader user groups and the public at large.
- The centre has achieved reciprocal mobility of staff between the centre's partners.
- The centre's user partners have increased their research commitments over time through participation in the centre's activities.

Internationalisation

- The centre has been successful in achieving recognition at the international level (e.g. researchers associated with the centre have received awards or been invited to be keynote speakers at international conferences).
- The centre has been successful in international research cooperation, e.g. as a player under the EU's framework programme.
- The centre engages in active and binding collaboration with international research groups and has contributed in other ways to the internationalisation of Norwegian research. The centre has at least one recognised international partner.
- The centre attracts outstanding international researchers, including research fellows and senior staff, as visiting researchers.

Researcher training and recruitment

- The centre has an effective framework in place for researcher training, and helps to train highly skilled personnel in the centre's areas of specialisation.

- The centre is actively engaged in education, especially at the master's and doctoral levels, and promotes recruitment to the centre's subject areas, including increased recruitment of women.

Partners and funding

- The centre receives long-term funding from the host institution and partners.
- Active efforts are made to attract new partners.
- The centre has been successful in securing other external funding.

Organisation

- The centre has a visible profile, a strong identity and a successful collaboration with its partners.
- The centre is organised in a manner that is well adapted to the host institution's organisation.
- The centre has a board and management which ensure that the intentions and plan for the centre are followed up.
- The centre has a common administration with a high degree of scientific and administrative autonomy.

Appendix 2 Written material as background for the evaluation

Material submitted to the evaluation panel prior to the meetings

About the scheme

- FME Samfunn – information for applicants
- FME Samfunn – requirements and guidelines
- FME Samfunn – description of the scheme

For each of the centres

- Project description
- Budget tables from RCN project data base
- Work plans for 2014 and 2015 including detailed tables for funding and cost
- Annual reports 2011, 2012 and 2013 from the centres
- Reports from Centres according to a standardised outline:
 - A. A self-evaluation of the centre
 - B. Fact sheets according template including CV
 - C. A short report and self-evaluation from the host institution.
 - D. A short report and self-evaluation from each of the partners.
 - E. Project description for final three-year period, including a plan for the winding-up.

Appendix 3 Templates for reports from centres and partners

The Research Council of Norway
Division for Energy, Resources and the Environment

Midterm Evaluation of the Centres for Social Science-related Energy Research (FME Samfunn)

A - The Centre Self-evaluation

.....
(Name of centre)

.....
(Project number)

*To be prepared by the centre and signed by the Centre director and Chair of the Board.
Maximum length 14 A4 pages. Word format, Times New Roman,
12 pitch font, single line spacing*

Background

This Self-evaluation should devote special attention to the items listed in “Success criteria for Centres for the Social Science related Energy Research (FME Samfunn)”. The main sections below are the same as in this document. In addition to the Self-evaluation for the centre, each of the partners should submit a report (template C).

Brief summary (max. ½ page)

Progress of the centre regarding the main objectives of the centre, (main achievements, breakthroughs etc).

Write here....

..

1. Objectives

Primary and secondary objectives of the centre as stated in the contract/ project description.

Write here....

..

2. Research (max. 3 pages)

- *Main research achievements concerning the thematic areas of the centre*
- *Provide an overview of the research activities*
- *Core competence of the research team*
- *Comment on new types of research collaboration since establishing the centre*
- *Comment on the multidisciplinary approach in the research activities; also efforts done to strengthen the links between social science-related energy research and technology-related energy research, describe cooperation with other FMEs.*
- *Comment on the centre concerning critical size*

Write here....

..

3. Relevance and benefit to user partners and the society (max. 3 pages)

For the centre as a whole describe:

- *Visibility and participation in the public debate:*
 - *The way the centre has participated on national and international arenas in which energy and climate-related questions are discussed.*
- *Cooperation and communication with centre user partners:*

- *The way key issues are identified by partners, (how user partners are involved in strategy work and annual work plans.)*
- *Measures for establishing links and integration between research institutions and user partners and between the different user partners*
- *Measures taken to secure that the competence and results achieved by the research are effectively transferred to and utilised by the partners*
- *Describe steps taken to stimulate mutual personnel mobility between user partners and research institutions.*
- *Has the centre research generated additional concurrent R&D projects between research institutions and user partners?*
- *Describe expectations of value of the centre for society at large beyond the partners' participation in the centre's activities.*
 - *Have the dissemination activities been directed towards other than the partners in the centre including the public at large?*

Write here....

..

4. Internationalisation (max. 1 page)

- *Describe how international research cooperation is attended to (including if the partners have engaged in the EU's framework programme based on research projects in the centre)*
- *Describe collaboration with international partners in the centre and other international research groups and other ways of international collaboration*
- *Describe international exchange of researchers, both centre staff going abroad and visiting foreign researchers to the centre, including post docs, research fellows and senior scientific staff from other institutions*
- *Describe the role of the centre staff in international strategic fora.*

Write here....

..

5. Recruitment (max. 1 page)

- *Describe how the centre has organised researcher training at PhD level.*
- *Describe how the centre has engaged in education, especially at the master's level. Examples are researchers taking part in teaching, thesis of master students related to the research topics in the centre and summer jobs for students on projects in the centre.*
- *Describe in particular how increased recruitment of women is given attention.*

Write here....

..

6. Funding (max. 1 page)

- *Discuss concerns regarding the funding of the centre. Note that numbers (budget tables) will be submitted to the expert panel by RCN*
- *What have been done to attract new user partners? (It is realised that some centres from the start have a rather complete set of partners, while others should have a greater potential to attract additional partners)*
- *To what degree has the centre been able to obtain other external funding?*

Write here....

..

7. Management and Organization (max. 2 pages)

- *Describe role and activities of the:*
 - o *Board*
 - o *Centre director*
 - o *Management team*
- *Comment on the scientific leadership of the centre.*
- *Describe the process of idea generation, project selection, project planning and project review (including processes of cooperation when geographically distributed).*
- *Describe status and role of the Centre in relation to different organisational levels of the host institution.*
- *What steps are taken to develop cooperation with other FME-centres?*
- *Describe how gender balance has been managed in the centre.*

Write here....

..

8. Communication (max. 1 page)

- *Link to centre home page*
- *Describe communication activities both within the centre and to the public at large*

Write here....

..

9. SWOT analysis

Based on the previous self-evaluation of the centre, a SWOT analysis should be performed. This is considered to be a useful way to present the highlights of the status of the centre and may constitute a basis for the plans for the final three years of operation for the centre. This SWOT analysis should include the following steps:

- ***Describing internal factors:***

The strengths and weaknesses of the organisation. These are related to the organisation's resources (people, knowledge, financial means, and activities). The sources for this are the analysis mentioned above.

- ***Describing external factors:***

The opportunities and threats in the environment that have an effect on the organisation. These include changes in the policy domain, economic factors and other framework conditions.

- ***Confronting internal factors (strengths, weaknesses) with external factors (opportunities, threats):***

It is important to weigh the strengths, weaknesses, opportunities and threats by using a point system or a qualitative specification.

- ***Developing ideas on strategic options:***

Strategy development often occurs on the basis of a matrix in which the factors are presented in four cells based on strengths, weaknesses, opportunities and threats.

Example of SWOT table:

| | |
|---|--|
| <p>Strengths</p> <ul style="list-style-type: none"> • Advanced knowledge development; • The research is demand driven; • The partners are closely involved; • The activities have a clear effect; • A wide and active network, both nationally and internationally. | <p>Opportunities</p> <ul style="list-style-type: none"> • Extra attention and resources from public agencies for innovation in the sector; • Opportunities of interaction with national R&D programmes • Position to attract funding from EU framework programme |
| <p>Weaknesses</p> <ul style="list-style-type: none"> • Transfer of knowledge not adequately addressed • Resources are not prioritised well • Number of user partners is too low | <p>Threats</p> <ul style="list-style-type: none"> • The user partners cut costs and resources • Lack of public funding. |

Signatures

Place and date

.....
Centre director
(Signature and name in print)

.....
Chair of the board
(Signature and name in print)

.....

.....

The Research Council of Norway
Division for Energy, Resources and the Environment

**Midterm Evaluation of the Centres for Social Science-related Energy Research (FME
Samfunn)**

B - Fact sheet for the centre

.....
(Name of centre)

.....
(Project number)

*To be prepared by the centre and signed by the centre director.
Maximum length (Excluding title page) 5 A4 pages. Word format, Times New Roman,
12 pitch font, single line spacing*

Contents

1. *General information*

The centre

Name of centre

Name of centre director (Short CV, Enclosure 1)

Management team (Short CVs, Enclosure 1)

Address

Host institution

Partners

(Indicate if the partner has joined the centre after the start or has left the centre)

- Research partners
- Company partners
- Public partners

Governance

Board members

Other board or committees

Additional comments to General information

2. *Staff*

- a. List senior staff members that spend more than 10 % of their time working in the centre in 2014 (name, affiliation, university degree, sex, position within own organisation, % of full time in centre).
- b. List Administrative staff (name, position)

Own hard and soft indicators

The centre is requested to come up with their own hard and soft indicators (quantitative and qualitative) in addition to the sub-items in 3-6. These should be the indicators that they find relevant to give a good documentation of the results of the centre.

3. *Research*

- a. List publications for the whole period of operation-(Journal papers, Published conference papers, Books and Reports) Enclosure 2.
- b. Conferences and seminars hosted by the centre.

4. *Communication activities and activities that involves user partners*

- a. List of conferences and seminars on your own account
- b. List of workshops
- c. Other relevant activities.

5. *International cooperation*

- a. List organisations in other countries that are taking active part in centre projects (name of organisation, country, time period of project).
- b. List researchers in other countries that are taking active part in centre projects (name, position, organisation, country, time period of project).

- c. List visiting senior researchers from other countries with a stay of more than two weeks (name, position, organisation, country, duration of stay).
- d. List researchers from the centre with a visit of more than one month to other countries (name, position, organisation, country, duration of stay).

6. Recruitment

- a. List PhD students working in the centre in 2014, both those financed by the centre budget and those that work in the centre and receive funding from other sources (name, affiliation, source of funding, sex, nationality, period worked in the centre).
- b. List Post docs working in the centre in 2014, both those financed by the centre budget and those that work in the centre and receive funding from other sources (name, affiliation, source of funding, sex, nationality, period worked in the centre).
- c. List PhD thesis completed on projects in the centre so far (name, sex, title of thesis, adviser, institution granting degree).
- d. List M.Sc thesis in centre in 2014 (name, title of thesis, sex, adviser, institution granting degree). A master student in the centre is writing his/her thesis on a topic within the research agenda of the centre and is supervised by one of the senior researchers in the centre.

Signatures

Place and date

.....

Centre director
(Signature and name in print)

.....

Enclosures

1. Selected CVs for the core team of the Centre (max. 10 pages for the whole team).
2. Publications (Journal papers, Published conference papers, Books and Reports)

The Research Council of Norway
Division for Energy, Resources and the Environment

**Midterm Evaluation of the Centres for Social Science-related Energy Research (FME
Samfunn)**

C – Host institution

**Please return the completed assessment directly to
Siri Ovstein, The Research Council of Norway, sov@rcn.no
as an attachment to an E-mail
Deadline 15 Jan 2015**

.....
(Name of host institution)

.....
(Name of centre)

.....
(Project number)

*To be prepared by the host institution and signed by the Project administrator
Maximum length 4 A4 pages. Word format, Times New Roman
12 pitch font, single line spacing*

Contents

1. *What is the total research activity of the host institution in the form of personnel and volume within broad thematic area of the centre?*

Write here....

..

2. *Describe how the thematic area of the centre relates to the research strategy of the host institution*

Write here....

..

3. *How do you evaluate the importance of the centre to realise the research strategy of your institution?*

Write here....

..

4. *How has the centre stimulated collaboration between researchers from different disciplines internally within the host institution and with researchers from research partners?*

Write here....

..

5. *How has the centre stimulated establishing leading national research groups across institutional borders, i.e. collaboration between university and research institute?*

Write here....

..

6. *How has the centre's activities benefited your international reputation as a research institution?*

Write here....

..

7. *How has the centre strengthened international cooperation?*

Write here....

..

8. *What potential do you see in the results from the centre in addition to benefit for the partners, both contribution to research in general and impact to society*

Write here....

.

9. *Has the centre contributed to improvement in study programmes at Master level (only relevant for universities)?*

Write here....

..

10. *Has the centre contributed to improvement in doctoral education (only relevant for universities)?*

Write here....

..

11. *How is the centre organised within your own organisation?*

Write here....

..

12. *How are the administrative and economic matters handled?*

Write here....

..

13. *Are there any other topics you want to report?*

Write here....

..

Host institution

.....

Place and date

.....

Signature and name in print of project administrator

.....

**Midterm Evaluation of the Centres for Social Science-related Energy Research (FME
Samfunn)**

D1 – User partner assessment

.....
(Name of partner)

**Please return the completed assessment directly to
Siri Ovstein, The Research Council of Norway (sov@forskningsradet.no)
as an attachment to an e-mail
Deadline 30 Nov 2014**

.....
(Name of centre)

.....
(Project number)

*To be prepared by the partner and signed by the contact person of the partner
Maximum length (excluding front page) 2 A4 pages. Word format, Times New Roman,
12 pitch font, single line spacing*

1. Describe the focus and importance of own research and analytical work in thematic area of the centre (strategic platform).

Write here....

..

2. What was the motivation for joining the centre and what expectations did you have to becoming a partner?

Write here....

..

3. How has your institution interacted with the centre?

| | Yes | No |
|--|-----|----|
| Membership in board | | |
| Participation in workshops for project plans and idea generation | | |
| Participation in research projects in the centre | | |
| Exchange of personnel | | |
| Others: | | |

4. What benefits has the centre created for your institution?
Would these benefits have been achieved without the centre?

Write here....

..

5. Has the centre contributed to specific outcome within your company? Please specify.

Write here.....

6. On a scale from 1 (Low) to 6 (High), please give your score for each of the following questions:
If not relevant write N/A

| | |
|--|-------|
| | Score |
|--|-------|

| | |
|---|-------|
| Has the participation in the centre influenced the R&D and Innovation strategy of your company? | |
| How do you evaluate the following aspects of the centre: | ----- |
| • Level of competency of centre staff | |
| • Project management of centre | |
| • Communication between centre and partners | |
| • The usefulness of research activities as seen from your aspect | |
| How has the centre's activities benefited you? | ----- |
| Ideas for new processes and/or services? | |
| New or improved methods/models developed by the centre | |
| Improvement of processes and/or services | |
| Strengthened knowledge base | |
| Improved access to competent personnel and knowledge institutions | |
| Recruitment of qualified personnel | |
| Improved network to other partners | |

7. *Do you have any suggestions on how the centre concept could be improved?*

| |
|----------------|
| Write here.... |
|----------------|

Partner

Place and date

.....

Signature, position and name in print of reporting person from partner

.....

Midterm Evaluation of the Centres for Social Science-related Energy Research

(FME Samfunn)

D2 – Research partner assessment

.....
(Name of partner)

**Please return the completed assessment directly to
Siri Ovstein, The Research Council of Norway (sov@forskningsradet.no)
as an attachment to an e-mail
Deadline 30 Nov 2014**

.....
(Name of centre)

.....
(Project number)

*To be prepared by the research partner
Maximum length 3 A4 pages. Word format, Times New Roman,
12 pitch font, single line spacing*

1. *What is the total research activity of your institution in form of personnel and volume within the broad thematic area of the centre?*

Write here....

..

2. *Describe how the thematic area of the centre relates to the research strategy of your institution*

Write here....

..

3. *How do you evaluate the importance of the centre in order to realise the research strategy of your institution?*

Write here....

..

4. *How has the centre stimulated collaboration between researchers from your institution and from the host institution and other partners?*

Write here....

..

5. *How has the centre stimulated to establishment of leading national research groups across institutional borders, i.e. collaboration universities and research institutes?*

Write here....

..

6. *How has the centre's activities benefited your research institution's international reputation*

Write here

7. *How has the centre strengthened international cooperation?*

Write here....

..

..

8. *Has the centre contributed to improvement of study programmes on Master level (only relevant for universities)?*

| | |
|----------------|----|
| Write here.... | .. |
|----------------|----|

9. *Has the centre contributed to improvement in doctoral education (only relevant for universities)?*

| | |
|----------------|----|
| Write here.... | .. |
|----------------|----|

8. *On a scale from 1 (Low) to 6 (High), please give your score for each of the following questions:
If not relevant write N/A*

| | Score |
|---|-------|
| Has the participation in the centre influenced the research strategy of your institution? | |
| How do you evaluate the following aspects of the centre: | ----- |
| Project management of centre | |
| Communication between host institutions and partners | |
| Overall scientific output of the centre | |
| How has the centre's activities benefited you as a research partner? | ----- |
| Increased scientific quality | |
| Increased visibility in the research community and society at large | |
| Better access to research funding | |
| Improved network to other research institutions | |
| Improved network to user partners | |
| Improved network to international research institutions | |
| Recruitment of qualified personnel | |

10. *Are there any other topics you want to report?*

| | |
|----------------|----|
| Write here.... | .. |
|----------------|----|

Name of Research partner

.....

Place and date

.....

Signature, position and name in print of contact person

.....

Midterm Evaluation of the Centres for Social Science-related Energy Research

(FME Samfunn)

E – Project description for the final three-year period and further plans

.....
(Name of centre)

.....
(Project number)

*To be prepared by the centre and signed by the Centre director and Chair of the Board.
Maximum length (Excluding front page) 8 A4 pages. Word format, Times New Roman,
12 pitch font, single line spacing*

Background

Each centre has a current project description for the whole period of the centre and a work plan for each year. During the four to five years since the original project description was written, many things may have changed. Even if some centres have made revisions through the first years, it is expected that the centre now should perform a more in depth review of the different sections of the project description. ***This report should focus topics that, as a result of this review, is going to be changed in the project plans for the final years. Those items where the centre will continue to follow present plans need not be commented upon.***

The centres may not have budget plans for the complete eight year period. In any case the budget for the next four years should be presented.

Objectives for the centre and background for changes in the project description

Write here....

..

1. Status

National and international state-of-the-art of the relevant technologies and research topics for the centre.

Write here....

..

2. Research methodology

Describe the methodology and theories planned used, and explain why they are suitable for generating relevant knowledge in the field. Describe plans for publication in scientific peer-reviewed journals as well as plans for conferences.

Write here....

..

3. Research tasks

Identify and describe the research questions that will be examined. Define key research tasks and research-related targets and explain their significance for policy-making and the society.

Write here....

..

4. Researcher training and recruitment

Describe plans for researcher recruitment. Specify the number of doctoral degrees planned within which research areas. Provide a target figure for the percentage of women fellowship-holders (cf. Point 8).

Write here....

..

5. Relevance and benefit to users and society

*Describe further plans to ensure that research activity is relevant to user partners
Describe plans for communication activities*

Write here....

..

6. Organisation

*Describe how the cooperation at the centre will be organised and why this structure has been chosen.
Describe how knowledge acquired through research activities at the centre will be transferred to the partners.*

Write here....

..

7. International cooperation

Describe plans for international cooperation at the centre.

Write here....

..

8. Gender balance

Describe how gender-related considerations will be incorporated into the centre's activities as well as plans for increasing recruitment of women.

Write here....

..

9. Progress plan with milestones

The plan should provide a timeline for and describe the main activities and milestones, including project deliveries associated with the given milestones.

Write here....

..

10. Budget

General comments on budget situation. Action plans for the final three year period.

Write here....

..

11. Costs distributed among the individual partners

An overview of how the project costs will be distributed among each of the R&D-performing partners is to be presented in table form.

| Cost | 2014 | 2015 | 2016 | 2017 | 2018 |
|----------------------|------|------|------|------|------|
| Host institution | | | | | |
| Consortium partner A | | | | | |
| Consortium partner B | | | | | |
| Consortium partner C | | | | | |
| | | | | | |
| Consortium partner N | | | | | |
| Total | | | | | |

12. Financial contributions from the individual partners

An overview of the partners which will contribute financially to the centre and their individual contributions are to be presented in table form.

| Funding | 2014 | 2015 | 2016 | 2017 | 2018 |
|----------------------|------|------|------|------|------|
| RCN FME-grant | | | | | |
| Host institution | | | | | |
| Consortium partner A | | | | | |
| Consortium partner B | | | | | |
| Consortium partner C | | | | | |
| | | | | | |
| Consortium partner N | | | | | |
| Other public funding | | | | | |
| Total | | | | | |

13. Environmental impacts

Describe whether and how the research conducted by the centre or the use of the results will have environmental impacts of significance (positive or negative).

Write here....

..

14. Plans for further activities after the eight year period of financing from RCN

Write here....

..

Signatures

Place and date

.....


.....

Centre director
(Signature and name in print)

Chair of the board
(Signature and name in print)

.....

.....



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