

The Centres for Environment-friendly Energy Research scheme (FME) – Description of the scheme, 2015

- The FME scheme seeks to develop expertise and promote innovation through focus on long-term research on environment-friendly energy and carbon capture and storage (CCS) in close cooperation between prominent research communities and users.
- The scheme seeks to enhance technology transfer, internationalisation and researcher training.
- It is assumed that the centres will be co-financed by the host institution, the centre's partners and the Research Council. User partners must take active part in the centre's management and research activities. The centres will be established for a maximum period of eight years (an initial five-year period with the possibility of a three-year extension).
- The centres will be selected primarily on the basis of their potential to generate innovation and value creation and on the scientific merit of the application and its relevance relative to specific strategic and thematic guidelines set out in the call for proposals.

1. Objectives and aspirations of the FME scheme

The overall objective of the FME scheme is to help to solve key challenges in the energy sector, generate solutions for the low-emission society and enhance the innovation capacity of the business sector.

The FME scheme is designed to:

- Boost innovation and value creation both for companies and public institutions participating in the centre's activities and for Norwegian society at large;
- Help to reduce national and international greenhouse gas emissions, promote more efficient use of energy and increase production of renewable energy;
- Cultivate research groups that are in the forefront of the international research community and that are an integral part of dynamic national and international networks;
- Increase the visibility of research results and promote a knowledge-based debate on environment-friendly energy.

While the FME scheme will focus primarily on enhancing the innovation capacity of the business sector, it will also promote quality and efficiency in the public sector. The FME scheme provides user partners with the opportunity to employ long-term perspectives, increase continuity and reduce risks in their research initiatives. For research groups, the scheme makes it possible to achieve long-term development of expertise through research of high international calibre conducted in close cooperation with users of the research results.

2. Background for the funding announcement and the establishment of the FME scheme

The first funding announcement for the FME scheme was issued in May 2008. Eight centres were selected in February 2009 and began their activities in the course of 2009/2010. A second funding announcement was issued in 2010, targeting only social science-related energy and climate research. Three FME Centres for Social Science-related Energy Research (FME Samfunn) were selected for funding and began their activities in 2011.

The FME scheme is an important and comprehensive initiative in the field of energy research. The scheme was established by the Research Council in 2008 in light of:

- The broad-based political agreement on climate policy achieved in the Storting in 2008 and the allocation of funding to strengthen research in the fields of renewable energy and CCS that was proposed as a consequence;¹
- The first Energi21 strategy document, which was published in 2008 and recommended the establishment of a centre scheme;
- The positive experiences with the schemes for Centres of Excellence (SFF) and Centres for Research-based Innovation (SFI) in Norway and with comparable schemes abroad, as well as the ability of these schemes to promote high-level research and innovation.

According to the guidelines for the FME scheme, a midterm evaluation of each centre is to be conducted under the auspices of the Research Council of Norway. The initial eight centres were evaluated in 2013. The overall evaluation of the FME scheme was very positive: *“In all, the FME programme is already a very impressive achievement. We believe that in the long run, fluctuations in energy policies and economy notwithstanding, the programme has the potential to result in very important applications to the benefit of Norwegian society and industry.”*²

In its evaluation of the Research Council, the Technopolis Group concludes that the Council’s centre schemes have “contribut[ed] to renewal, increased quality and reduced fragmentation in the research system”.³ The centre schemes also help to structure the strategies of the host institutions, concentrate resources and improve researcher training and international exposure.

3. Main features of the FME scheme

Host institution: The host institution for an FME centre must be a research institution: a university, university college or independent research institute. Establishment of a centre must be viewed in the context of the research strategy of the host institution. The host institution’s administration must sign a letter of intent stating that the institution will assume the obligations entailed in hosting a centre, and must describe how the research conducted at the centre constitutes part of the host institution’s scientific strategy.

If the host institution is an independent research institute, satisfactory researcher training must be provided through cooperation with a university or university college which has the right to confer doctoral degrees in the relevant field.

The establishment and operation of the centre will be set out in a contract drawn up between the Research Council and the host institution for the centre.

¹ *Innst. 390 S (2011–2012) Innstilling fra energi- og miljøkomiteen om norsk klimapolitikk* (Recommendation of the Standing Committee on Energy and the Environment on Norwegian climate policy).

² Midterm Evaluation of Centres for Environment-friendly Energy Research, 2013.

³ A Good Council? Evaluation of the Research Council of Norway. Technopolis Group. 31 August 2012.

Partners: It is primarily the companies, other industrial enterprises and public institutions participating in the centre's activities that are to reap the benefits of the centre's research findings and expertise. These organisations are designated as "*user partners*". Each centre will normally have at least three user partners that support and participate in the centre's activities. The user partners should take active part in the centre's research projects and must conduct their own innovation activities. The scheme is highly flexible with regard to encouraging involvement by large, internationally oriented enterprises and small and medium-sized companies.

Research institutions may also be partners in the centre and may participate in establishing, financing and carrying out the centre's research activities. These participants are designated as "*research partners*".

Internationalisation: Research at the centre should be conducted in close cooperation between Norwegian and international research groups, companies and public-sector bodies. Proposals for centres that incorporate international companies as partners will be viewed in a positive light, but the overall objective of the FME scheme is to enhance innovation and value creation in Norway.

Importance will be attached to the applicant's experience with international cooperation and the centre's potential to become a key actor in international cooperation, such as within the EU. This also includes the research groups' international profile and status.

The FME scheme seeks to make Norway an attractive location for international companies to establish their operations.

Organisation: FME centres are required to have a collective leadership group, a common research plan, and a board responsible for the centre's overall scientific and administrative activities.

All the units of a centre may be physically located in the same location, or the centre may be organised according to a decentralised model. Regardless of the model chosen, the centre must facilitate researcher exchange between the host institution and partners as well as implement other measures to promote cohesiveness among the centre's units.

The user partners must have majority representation on the centre's board.

Financing: The responsibility for centre financing is shared by the Research Council, the host institution and the partners. The Research Council's allocation to the centre may comprise a maximum of 50 per cent of the centre's overall budget. The contribution of user partners must equal at least 50 per cent of the Research Council's allocation to the centre.

The host institution's contribution may consist of office space, equipment, personnel and strategic resources. Partners may provide budget funds or their own resources in the form of participation in open research projects at the centre. User partners' own follow-up in the form of internal innovation projects is not included here. The partners responsible for the establishment of a centre must commit to long-term involvement in the centre's activities and financing.

To ensure that the research conducted at the centres has adequate depth and impact, the annual allocation from the Research Council to each centre is planned to be roughly NOK 10–30 million. Along with the contributions from the host institution and partners this will result in an overall annual budget for each centre of about NOK 20–60 million. Experience shows that it may be constructive to introduce a gradual escalation of activities during the initial years, and applications that include such an escalation plan will be considered.

Duration:

The centres will be established for a maximum period of eight years (an initial five-year period with the possibility of a three-year extension). After three to four years a midterm evaluation of the centre will be carried out under the auspices of the Research Council. This evaluation will form the basis for determining whether funding from the Research Council will be continued for an additional three years following the initial five-year period. After a maximum period of eight years the Research Council's funding for the centre will cease, and the centre will no longer have status as an *FME centre*. Doctoral students must complete their studies within the budget framework established for the centre.

Thematic priority areas: This funding announcement targets the entire spectrum of environment-friendly energy research. As a starting point it encompasses all of the areas covered by the Research Council's thematic programmes on energy and CCS research (the ENERGIX and CLIMIT programmes).⁴

Centres may be established within or across the following thematic priority areas:

- Energy systems
- Energy use and conversion
- Renewable energy
- Carbon capture and storage (CCS)

These areas are described in more detail in the work programmes for the ENERGIX and CLIMIT programmes.

⁴ The Large-scale Programme for Energy Research (ENERGIX) www.forskningradet.no/energix and the Norwegian RD&D CCS programme (CLIMIT) www.forskningradet.no/climit.

This funding announcement for 2015 does not encompass FME Centres for Social Science-related Energy Research (FME Samfunn). However, the new FME centres are encouraged to address relevant social science-related questions.

Application and selection:

A funding announcement for the FME scheme has been issued at the national level by the Research Council of Norway, which is responsible for processing applications and selecting the awardees. Applications will be accepted from all interested and relevant research institutions. Applications for status and funding as an FME centre must be submitted by the host institution for the centre in consultation with the user partners and other partners that will be participating in the centre's activities and financing.

The FME centres will be selected on the basis of following main assessment criteria:

- Potential for innovation and value creation;
- Scientific merit of the application;
- Relevance of the application relative to specific strategic and thematic guidelines set out in the call for proposals.

In the overall assessment and selection process, special emphasis will be placed on the relevance criterion. However, in order to qualify for FME status and funding, the centres must demonstrate an adequately high level of both scientific merit and potential for innovation and value creation. The Research Council will also take into consideration the profile of the FME portfolio as a whole to avoid overlap between activities at the various centres. Importance will be attached to each centre having a distinct profile that distinguishes it from the other FME centres.

The Research Board of the Division for Energy, Resources and the Environment, or a committee comprised of members of the research board and other resource persons, will submit its recommendation to the Research Council Executive Board, which is responsible for final approval of the award of centre status and allocation of funding.

4. The FME scheme vis-à-vis other schemes**Centre schemes**

The Research Council established the *Centres for Environment-friendly Energy Research scheme (FME)* in 2009, as part of the escalation of R&D in the field of environment-friendly energy. The FME scheme shares a number of features with the Research Council's *Centres for Research-based Innovation scheme (SFI)*, and also has certain features in common with the *Centres of Excellence scheme (SFF)*. Unlike the other schemes, the focus of the FME scheme is targeted specifically towards environment-friendly energy and CCS.

The SFI, FME and SFF centre schemes all seek to promote basic research of high international calibre and increase internationalisation. These schemes represent a long-term

investment in research with the aim of developing dynamic research communities. The centres are intended to give added value to the participating groups and to create ripple effects as a result of the expertise and recruitment which will have an impact far beyond the lifetime of the centre. While the SFF scheme focuses exclusively on scientific excellence and is not concerned with the relevance and benefit to society of the research conducted, the SFI and FME schemes are targeted towards the knowledge needs of trade and industry and the government administration. The SFI and FME schemes seek to promote collaboration between dynamic research groups and users of the research results, primarily R&D-performing companies, and to strengthen long-term research that enhances innovation and value creation.

Programmes

The FME scheme must be viewed in context with the Research Council's research programmes, primarily those on environment-friendly energy and CCS: the ENERGIX programme and the CLIMIT programme, respectively. With its long-term, large-scale projects, the FME scheme supplements and reinforces activities under these thematically oriented programmes.

The Research Council of Norway will facilitate satisfactory coordination between the national funding instruments which already exist or will be established to promote innovation and basic research.