

# FME HighEFF

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



### Deliverable D5.2\_2022.03

#### Evaluation and execution procedures of novel emerging and innovative concepts

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**SINTEF Materials and Chemistry**

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Abstract
<p>The HighEFF Centre has allocated a funding for developing a new concept targeting Novel Emerging and Innovative Concepts (NEIC) that are not covered by the planned or on-going activities in the Centre. It is imperative that the NEICs should specifically contribute to target the main goals of HighEFF directly and be innovations with high potential impact.</p> <p>Recommendations for managing Novel Emerging and Innovative Concepts are divided in the following stages:</p> <ul style="list-style-type: none"> <li>Application requirements</li> <li>System for evaluation of applications</li> <li>Approval of detailed plan and budget</li> <li>Execution according to plan and budget</li> <li>Follow up after concluded execution</li> </ul>

## Executive summary

The ambitions of the HighEFF Centre are to accelerate and make a difference in the contribution to transferring the processes of the industrial partners into higher efficiency and more sustainable concepts. The funding for Novel Emerging and Innovative Concepts (NEIC) targets directly high impact, innovative concepts that can make a difference, including both short term and long term initiatives. These concepts must go beyond already planned or on-going activities in the Centre. It is imperative that the NEICs should specifically contribute to directly target the main goals of HighEFF and, at the same time, be innovative with high potential impact.

Recommendations for managing Novel Emerging and Innovative Concepts are divided in the following stages:

- Application requirements
- System for evaluation of applications
- Approval of detailed plan and budget
- Execution according to plan and budget

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## 1 Introduction

The HighEFF Centre has allocated funding for developing Novel Emerging and Innovative Concepts (NEIC) that are not covered by planned or on-going activities in the Centre. Procedures for evaluation and developing accepted NEICs are given in this document.

## 2 Overview

Recommendations for managing Novel Emerging and innovative Concepts are divided in 5 stages, summarized below with a more detailed description in Chapter 3, Methodology.

### Stage 1: The Call

The applications should be limited to 2 pages, covering the following topics: (1) Concept description with Technology Readiness Level (TRL) explained, (2) How it agrees with the overall objectives of HighEFF, (3) Main references to current knowledge (maximum 3, to be submitted with the application), (4) Short execution plan, (5) Tentative budget, and (6) Market potential.

### Stage 2: The Evaluation

HighEFF will appoint 3 permanent, internal evaluation members and 3 members from the industrial partners covering the main HighEFF industrial segments. If needed, additional members with relevant competence in the field may be invited to express their opinion. The main evaluation criteria, besides not being covered by already ongoing activities in HighEFF, are novelty and potential impact of the innovation. Additional criteria are realistic progress description, achievable goals related to the funding, acceptable technology readiness level (TRL) within the scope of the FME funding.

### Stage 3: Plan and Budget Approval

Approved projects will be subject to detailed planning and budgeting, defining progress plans with decision points and post project goals.

### Stage 4: Project Execution

The appointed project leader will be responsible for executing the project. The project leader will report to the evaluation team, unless project conditions make other arrangements more appropriate.

### Stage 5: Post Project

If the result of the project is successful, and if appropriate, mentors may be appointed to support further progress (next step) towards a successful implementation as a spin-off project.

## 3 Methodology

### 3.1 Stage 1: The Call

The call will be open to all Novel Emerging and Innovative Concepts (NEIC), but has to satisfy the following criteria:

- Be within the scope of the HighEFF objectives (In short: emerging, energy efficient and cross-sectorial technologies for the industry)
- Represent a novelty and innovation beyond state of the art

- Concept not covered by an on-going activity in the Centre (it is not an instrument to add financing to on-going research activities in the Centre)
- Have a realistic scope within the financing scheme (Typical HighEFF Allocation 1.5 MNOK/yr, but this may be higher if substantiated)
- Have a realistic time frame
- Only Research partners in HighEFF may utilise the funds allocated
- The outcome of the NEIC should be for the benefit of the HighEFF industrial participants

The call has no restrictions in means to demonstrate the NEIC, e.g., it may be through student work (summer internship, project and master theses), participating research bodies, participating industrial bodies, or combinations. In-kind contributions can be included, if appropriate.

For the evaluation team to be able to do a just decision, the following topics have to be included in the application:

- A concise description of the NEIC
- Description of the research approach (may include a Gantt chart)
- A few references to state of the art
- Budget
- Market potential beyond state of the art if successful (companies and/or industrial sector)

The application should not be more than 2 pages.

### 3.2 Stage 2: Evaluation

The evaluation team (HighEFF NEIC Evaluation Committee) should preferentially consist of 6 persons, three permanent members from the research organisations to assure fair and consistent evaluation of applications and three externally appointed members to assure a professional technology evaluation of the concept. The appointed external members should preferentially be recruited from the industrial sector.

#### The HighEFF NEIC Committee

Permanent members:

- Arne Petter Ratvik, SINTEF Industri
- Jens Røyrvik, NTNU Samfunnsforskning
- Petter Nekså, SINTEF Energi

Substitute and observer:

- Ingrid Camilla Clausen, SINTEF Energi

Three external (industrial) members

- Rune Holmen, ENOVA
- Nancy Jorunn Holt, Hydro

The evaluation is to be based on a ranking from 1 to 5, higher score is better, for each of the following criteria:

- Relevance to support the HighEFF objectives
- Novelty (is this beyond state of the art)
- Innovation impact (compared to resources needed and innovation potential if successful)
- Research needs (what is the benefits beyond present knowledge)

- Realistic (is it likely to pave the ground for significant industrial innovations, now or in a reasonable timeframe, e.g., industrial implementations or new products)
- Feasible (is the proposed plan feasible within the financial means asked for)

Proposals that are covered by other funded activities in the Centre or outside the scope of the HighEFF consortium will, in general, be rejected, unless strongly promoted by the actual RA in HighEFF. The evaluation team should also consider if other financial means are more appropriate.

Applications to be supported should reach an average of 4 points or better, preferentially with no single score below 3. The evaluation team should give special justifications in case they promote support for proposals not satisfying the above criteria. If none of the applications within the present year fulfils the above-mentioned criteria, the budget will be transferred to the next year's budget.

### 3.3 Stage 3: Plan and Budget

For those proposals worth supporting, the evaluation team will arrange a meeting with the proposer(s) to go through detailed plans and the budgeting. If appropriate, persons in the evaluation team can be replaced by persons with more hands-on competence for the actual concept. The team takes the role as both project customer and advisory committee (HighEFF NEIC Committee). A schedule for follow-up towards the team is to be included in the project plan. One or more resource persons to the project leader may also be appointed if appropriate.

The meeting shall agree on progress plan and reporting and make sure the allocation is realistic for reaching the proposed concept conclusions. The project plan may include:

- Deliveries
- Decision points – go/no go decisions
- Reasonable number of tasks
- Activities related to continuation after the project period
- Follow-up towards the HighEFF committee

### 3.4 Stage 4: Project Execution

The appointed Project Leader (PL) will be responsible for executing the project and report to the HighEFF NEIC Committee appointed for the project. The committee has the mandate to decide whether the project should be continued or not at agreed decision points, or if other information mandates a cancellation. In case a project is terminated, adequate communication with the project leader must be assured so the cancellation reflects relevant considerations.

The PL is responsible for allocating necessary resources, including use of experimental facilities and necessary Health, Safety and Environmental (HSE) issues in line with the HighEFF requirements. The following list is included as a reminder for the PL, however, established procedures for research and development at the actual partner the work is being conducted at must be followed.

- Establish project team, including quality controller
- Get approval from the responsible manager (including resource allocations)
- Provide for necessary contracts and/or confidentiality agreements if the HighEFF consortium agreement is not adequate
- Assure that HSE requirements are satisfied and approved (if necessary)
- Prepare presentations and reporting at decision points
- Follow up on dissemination agreements and write final report

- Prepare for next step (marketing, continuation, etc)

### 3.5 Stage 5: Post Project

If the result of the project is successful, and if appropriate, HighEFF will seek to appoint mentor(s) or support team to bring the Novel Emerging and Innovative Concept through the next implementation stage. This may include proposals for further work, either at the Centre or as a standalone project, application for market implementation, technology transfer, etc.