

Appendix 1 – Scope of call

A VISTA-center should have as its primary objective to deliver science at the highest international level and develop an academic environment encompassing various disciplines and hosting scientists from academic institutions and industry. Broad international contact is required to strengthen competitiveness and innovation capacity.

A VISTA-center in any of the three thematic areas should have an interdisciplinary approach to the planned research. VISTA-centers must be located at one of the eligible institutions listed in appendix 3. VISTA funding should be seen as a contribution towards the realization of goals set by the host institutions themselves and proposals must be in line with their overall strategy and desired academic development. Therefore, the commitment and full support of the host institution is highly relevant in the selection process.

The aim of the program is to support science that provides fundamental insight in three areas.

- 1) Basin analysis and efficient resource identification and utilization
- 2) Future development solutions
- 3) Sustainability, environment and low carbon solutions.

An application should be interdisciplinary and focus on one of these areas. It should adhere to a responsible research and innovation (RRI) approach, which is an anticipation and assessment of potential implications and societal expectations of the proposed project. Therefore, integration of perspectives from the humanities and social sciences (for instance economic perspectives, sociological aspects or other relevant perspectives) is encouraged.

For guidance and exemplification, the three areas/topics are outlined in more detail below.

Basin analysis and efficient resource identification and utilization

Fundamental insight in rock properties, their chemical and physical interaction with various substances (e.g. hydrocarbons, CO₂, S-, N-, acid-/base-containing compounds), cracking patterns and pore flow characteristics are essential for efficient exploration and production of existing hydrocarbons resources, as well as for CO₂ injection that could be linked to an enhanced recovery (EOR) or CCS/CCUS scheme. Such insight builds on a combination and integration of geology, geophysics, geochemistry, petrophysics, geomechanics, production engineering, reservoir engineering, and information technology expertise.

Fundamental studies in these areas could respond to:

- the aspect of exploration for hydrocarbons (geology, geochemistry, geophysics, geomechanics)
- improved production of existing discoveries (geology and geophysics, reservoir engineering, production engineering)
- near field resources (detailed migration and filling patterns combined with trap identification)
- Identification, description and production of tight and unconventional reservoirs (geology, geophysics, petrophysics, geomechanics, geochemistry, production engineering, reservoir engineering)
- efficient drilling and new well solutions

- new completion design and downhole equipment

Future development solutions

Fundamental insight in process chemistry and physics, combined with electronics and information technology, is required to optimize energy efficiency of field operation processes. Big data processing, augmented reality, smart machines and robots, robotic software and automation are rapidly evolving fields of research that are key to secure efficient, safe operation of remote installations and factories.

Fundamental studies in these areas could respond to:

- all facility and digital elements that supports production from the seafloor to the market
- cost efficient development solutions that are able to comply with future environmental regulations for oil and gas production
- energy efficient production
- technical facility solutions that through automation and digitalization is able to produce with low manpower
- technical facility solutions that optimize the production
- technical production solutions that are modular
- technical production solutions that can be reused

Sustainability, environment and low carbon solutions

Combined fundamental insight in chemistry, electrochemistry and materials science, as well as process engineering, is required to develop new, largely improved gas separation solutions in a CCS/CCUS (and EOR with CO₂ injection) process scheme. Fundamental insight in the chemistry, electrochemistry and physics of different options is required to develop new, largely improved solutions for long-term storage of energy.

Fundamental insight in the combined effects of chemicals and drilling/seabed processing equipment on marine life, as well as the effect of offshore wind turbines on marine life and bird migration is key to the development of next generation technologies with lower environmental footprint in a current, 2020-2050 and >2050 perspective. It is particularly important to understand the dynamic and long-term effects of exploration and energy production on the food web. A combination of biology, chemistry, physics, climate, electronics and information technology expertise is required to meet these challenges.

Fundamental studies in these areas could respond to:

- handling of CO₂ from well stream
- handling of CO₂ from energy generation at the production facilities
- new and cost effective solutions for lowering carbon footprint in production
- more environmental friendly production
- lower footprint on environment
- managing intermittent power through energy storage

Appendix 2 – Funding and grant agreement

A VISTA- center may be granted a maximum of 5 MNOK a year for a 5 year period. The overall budget of each center should allow for the critical mass/level of research activity necessary to push research a significant step forward. Any VISTA contribution should be matched by resources from the research institutions covering at least 40% of the total budget.

Vista funding may be used for salary, direct and indirect costs.

In the event a grant application is successful, VISTA and the host institution will enter into a project grant agreement in which their respective responsibilities will be detailed in full.

Appendix 3 – Eligibility and how to apply

Eligibility

In addition to meet the technical requirements outlined in this call, proposals must meet all of the following criteria:

1. One dedicated principal investigator (PI) of high academic standing with proven leadership experience must lead each center (minimum 30% of his/her working hours).
2. The institution where the PI is employed must be the formal applicant and – in case of a successful application – host the new VISTA Centre.
3. Eligible applicant institutions are as follows: University of Oslo (UiO), University of Bergen (UiB), Norwegian University of Science and Technology (NTNU), The Arctic University of Norway (UiT), University of Stavanger (UiS), Norwegian University of Life Sciences (NMBU) and University of Agder (UiA).
4. The number of applications should not exceed the following: UiO 3, UiB 3, NTNU 3, Uit 2, UiS 2, NMBU 1, UiA 1.
5. Resources at minimum the same level from the host institution and collaborating institutions must make up at least 40% of the total budget.

Proposals must be prepared according to the template provided. In addition, for each proposal, the following must be attached:

- The budget sheet
- A commitment letter from the host institution describing the nature and level of its contribution to the proposed center, especially the possibility of co-localization of the research groups. The letter must be signed at the appropriate institutional level.
- In cases where institutions other than the host institution are expected to contribute with resources to the project, a letter signed at the appropriate level of the contributing institution should be included. The letter should describe the nature of the resources to be committed and confirm institutional support of the proposal and its budget.

How to submit

One copy of the proposal and the required attachments, compiled into one (1) PDF file, should be submitted to “Det Norske Videnskaps-Akademi, Drammensveien 78, 0271 Oslo, ved Pål Pettersen pal.pettersen@dnva.no” by 12:00 on 29.2.2020

Each applicant (PI) will receive an "acknowledgement of receipt" by e-mail shortly after the submission deadline. Please note: The reply to this call involves the recording and processing of personal data (such as name, address and CV). Such data will be processed pursuant to Norwegian law. The questions and any personal data requested are required to evaluate the application in accordance with the specifications of the call for proposal and will be processed solely for that purpose by VISTA. The review process requires that personal information given in the proposal must be made available to external reviewers. All such experts are required to sign and adhere to a declaration of confidentiality in this regard.

Appendix 4 - Selection Process and Evaluation Criteria

Proposals will be examined to check eligibility and adherence to the requirements of this call. Only applications which meet all the conditions set out in this call text is eligible and will be included in the assessment procedure.

The VISTA board will be responsible for the scientific review of proposals that meet the call requirements. The review process will consist of two steps as follows:

Step one: Based upon the evaluation criteria set fourth for this call, the board will select a limited number of proposals for further evaluation. Applicants will be informed of the decision at this point.

Peer review panel: Eligible proposals will be evaluated by an external, international expert panel. The panel will use the assessment criteria as specified in this call.

Step two: External experts of high international standing will be appointed to assess and rank the proposals. The board will receive the expert committee's joint comments, ranking and recommendations. The PIs of each proposal may be invited to attend an interview, and to present their plans for building and leading a VISTA center.

Based upon the information obtained during Step 1 and Step 2, the VISTA board will make the final decision.

Submission deadlines and indicative timetable:

Submission deadline February 29, 2020 at 12:00

Selection of applications that will be sent to international peer review – End of March 2020

Final decision by the VISTA board – End of May 2020

Signing of contracts – September 2020

Evaluation criteria

Assessment of the academic quality and feasibility, including the selected research groups' academic competence and complementary contributions to the center, will form the basis for the expert evaluation to be carried out by VISTA. Proposals must adhere to one of the three research areas of the program. Successful proposals should be clearly interdisciplinary and document competent scientific leadership by the PI. Merit will be given to a clearly rooted international collaboration. The evaluation shall focus on the scientific quality of the proposal including plans for generation and pursuit of novel scientific ideas. The basic reference for the evaluation is:

SCIENTIFIC QUALITY: Novelty and scientific quality of the research proposal including

- expected research results and potential for scientific and applied impact
- ethical considerations and how these are planned to be handled

INTERDISCIPLINARITY: The extent to which the proposed research adds value to both or all scientific domains, as well as to the interdisciplinary space. This also includes the extent to which the principles of Responsible Research and Innovation (RRI) is integrated in the proposed research.

FEASIBILITY: The extent to which the conceptual framework, design, methods, analyses are appropriate for the aims of the proposed research.

ENVIRONMENT: The extent to which the available resources, the institutional commitment (including a minimum contribution of 40% of the total budget), established collaborations and any other unique features, might contribute towards the success of the proposed research. What plans have been made to promote integration within the center and to ensure co-localization of the research groups (this requirement does not preclude a virtual center with collaborating groups located at different institutions if that significantly increases the quality of the team).

INVESTIGATORS: The extent to which the Investigators' experience, track record, training, preliminary data/past progress will contribute towards the success of the center. How does the planned mixture of competencies and career stages commensurate with ambitious research goals? What is the gender balance and/or what are the plans to reach an accepted gender balance.

SCIENTIFIC LEADERSHIP: The extent to which the need for long-term strategic leadership of the center is adequately addressed, including:

- The PIs proven track record as a scientific leader
- The PIs ambitions and plans for bridging competencies and boundaries
- Plans for long-term leadership and funding

The VISTA board will serve as an advisory board and meet regularly with the PI and group leaders of the center.

INTERNATIONALIZATION: How well does the proposal reflect a direction towards internationalization, for example by:

- Plans for obtaining international competitive funding
- Plans for international mobility of researchers
- Plan for international collaboration

INDUSTRIAL COLLABORATION: The extent to which industrial partners are integrated in the planned research.