

Announcement of Opportunity

Centre for Doctoral Training (CDT) in Oil and Gas

Expressions of Interest Deadline: 16:00 Monday 9 September

Full Proposal Deadline: 16:00 Wednesday 16 October

Summary

1. The Natural Environment Research Council (NERC) invites proposals from consortia of research organisations interested in hosting a new Centre for Doctoral Training (CDT) specialising in the doctoral research training of highly skilled people to support the oil and gas sector in collaboration with partners from the industry.

2. Full proposals will be invited for this opportunity following an initial expression of interest to confirm fit to call. We therefore invite all interested consortia to submit an initial Expression of Interest (EoI) form in order to be able to participate in this funding opportunity at the full proposal stage. All EoIs received will be checked by NERC against fit to call and those identified as unsuitable will not be invited to proceed to the full proposal stage.

Background

3. In today's knowledge-based economy, economic success relies on the availability of a highly skilled workforce. In particular, the future prosperity of the UK earth and environmental sciences sector depends on a healthy supply of people with the right skills to tackle the diverse and dynamic challenges we face.

4. Oil and gas play a major role in meeting the UK's energy demands and currently provides 75 per cent of the UK's primary energy source¹. Over the last five decades no other industrial sector has created more prosperity for the UK.²

5. Alongside the move to decarbonise the economy, the oil and gas sector will continue to be of great importance to the UK. This has been recognized by the Government in its

¹ DECC: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65751/3939-energy-trends-section-1-total-energy.pdf

² UK Oil and Gas Industrial Strategy, March 2013: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/175480/bis-13-748-uk-oil-and-gas-industrial-strategy.pdf

recently published Oil and Gas Industrial Sector strategy³. NERC is committed to working with BIS to implement relevant elements of this strategy.

6. The UK Oil and Gas Industry currently employs over 400,000 workers but high levels of activity and global competition means that there is a significant skills shortage, most notably in engineering and geoscience. With global demand for oil forecast to rise by 28 per cent between now and 2053, the industry expects that it will require an additional 15,000 staff over the next four to five years across a range of disciplines including geoscience³.

7. The Oil and Gas CDT aims to fill some of the recognised existing skills gaps in this area and create a highly skilled workforce with skills transferable across the energy sector and wider environment sector. The CDT will form part of the NERC focused training portfolio. Focused training is postgraduate training that ensures we provide individuals with particular, specialist skills that are linked to our strategic priorities or to priority skills needs. Whilst the training topic may be chosen by the student/supervisor, it will reflect a specific training objective which will have been identified by the senior management body within their strategic needs framework. Focused training is not required to link to other areas of the NERC training portfolio e.g. Doctoral Training Partnerships.

8. Further announcements of opportunities for NERC CDTs are expected in 2014.

Remit of the call

9. Proposals must be within the NERC science remit⁴ and include training under each of the following four challenges:

i. Effective production of unconventional hydrocarbons

Unconventional oil and gas (i.e. shale oil and gas resource plays, tight gas sandstones, heavy oil reservoirs etc.) are playing an increasingly important part of the energy mix. Producing these resources effectively and with minimal environmental impact requires innovative science and technology.

ii. Extending the life of mature basins

Mature basins such as the UK's North Sea contain very significant amounts of unrecovered hydrocarbons. Identifying and producing this resource in a cost-effective way and environmentally sensitive way is technically challenging but will extend field life and help reduce UK reliance on imported energy in the medium term.

³ UK Oil and Gas Industrial Strategy, March 2013:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/175480/bis-13-748-uk-oil-and-gas-industrial-strategy.pdf

⁴ NERC Science Remit: <http://www.nerc.ac.uk/research/portfolio/remit/>

iii. Exploitation in Challenging Environments

The petroleum industry has successfully extracted a large proportion of the “easy to get” oil and gas. Large resources are still present in environments in which exploration, appraisal and production are difficult and where conventional technologies are inadequate (e.g. ultra high temperature-high pressure reservoirs, subsalt, polar regions).

iv. Environmental Impact and Regulation

Reducing the environmental impact of oil and gas extraction is a key priority for the Oil and Gas sector. Improvements in the scientific understanding and technology used during hydrocarbon resource extraction will result in lower levels of environmental impact and will directly influence UK oil and gas industry regulations.

10. These challenges are truly global in scale so should allow the CDT to grow on an international scale by developing world-wide collaborations, gaining additional investment and attracting the very best students. Success in meeting these challenges will also require a highly skilled workforce whose training gives them the breadth of knowledge to communicate effectively in a multidisciplinary team. Successful applicants should demonstrate that they are able to provide training covering the full range of petroleum-related disciplines such as geology, geophysics, petrophysics, petroleum engineering, reservoir engineering and geomechanics. Availability of state-of-the-art laboratory facilities and software will be key to delivering this training.

Partnerships

11. An expected key outcome of the CDT will be to create a concentrated national focus for doctoral training to support the oil and gas sector. A minimum of three eligible Research Organisations should be involved in each bid. We would not expect to see more than seven eligible Research Organisations involved in a bid but where a proposal justifies a higher number of organisations being involved, e.g. due to certain organisations being able to offer specific expertise, then this will be considered on its merits.

12. Another expected key outcome of the CDT will be that the NERC funding will be used to leverage an investment from project partners e.g. stakeholders in industry, governments and universities. Following the announcement of the award, NERC will work with the CDT to facilitate the involvement of project partners. Funding will also be provided to the CDT for staff time to broker partnerships, collaborations and to secure leveraged funding.

13. We do not require commitment from project partners at the Expression of Interest or Full Proposal stage. Applicants therefore do not need to identify or approach potential partners. However, strong proposals should evidence a track record of

collaborative working, particularly with industry, and should outline a strategy for engaging with partners to nurture additional investments.

14. NERC will award ten notional studentships per annum for three years (at a set cost, as described below). Each notional studentship will be four years in duration; it is expected that individual students will undertake training over a variety of time frames (between three and four years as appropriate, depending on the discipline and the student's experience/knowledge).

15. In addition to the ten NERC-funded studentships, CDT applicants must commit funding for at least a further ten studentships per annum. The funding for these studentships could be via direct investment by the Research Organisation or industry partner, or could be via students associated with, for example, Joint Industry Projects.

16. It is anticipated that the CDT will use the NERC funding to leverage additional funds from other sources that will overall provide around four times the NERC investment. These funds could be used for providing additional studentships or to provide in-kind support such as access to facilities or time in industry.

17. There is a required minimum cohort of 20 students per annum.

Funding

18. Indicative funding total per notional doctoral studentship:

Student Stipend	£54,360
Fees	£15,312
RTSG	£20,000
Management Costs	£1,500
Total	£91,172

19. **Funding of c. £40,000 per annum for a minimum of three years** will also be available to employ a high-level champion.

20. Growing the CDT significantly beyond the initial investment will require strong management with high level connections in industry, government and academia. So in addition to the funding provided for notional studentships an additional contribution towards management costs of the centre and additional funding will be provided by NERC to the CDT to enable the centre to employ a high-level champion who could broker partnerships and collaborations and secure leveraged investment for the CDT.

21. The CDT will have flexibility in how they use the funding (subject to the normal training grant terms and conditions), as long as the minimum notional numbers of

students are supported. All students should be funded at the minimum stipend level, and for at least three years. Students must receive the minimum research council stipend⁵ but we would encourage this figure to be increased from other funding sources. The funding is for the training of PhD studentships.

22. A key aim of the CDT is to provide training for doctoral students within focused research areas to allow them to take advantage of the large and diverse number of employment opportunities offered by the oil and gas industry. However, to increase overseas collaborations and bring benefits to the NERC funded student cohort, the CDT should aim to have a moderate intake of externally funded international students reflecting the ambitions identified by the UK Government in its recently published strategy, International Education: Global Growth and Prosperity⁶. The aim is to build on existing partnerships and initiatives such as Science without Borders⁷

CASE Studentships:

23. Given the expected high level of industrial involvement in the CDT there are no additional or minimal CASE studentship requirements.

Management

24. The CDT will need to have strong leadership and management. The CDT should have a lead operational manager and steering committee. The steering committee should be comprised of all the CDT partners (both academic and non-academic), have overall responsibility for the effective governance of the CDT and its relationship with NERC and to provide a strategic needs framework to aid the prioritisation and development of PhD projects.

25. The CDT will be able to demonstrate that robust and transparent governance arrangements are in place, which may include formal partnership agreements, communication plans and systems for monitoring the CDT's overall progress and success. Students should have the opportunity to be involved in the management/running of activities of the CDT.

Eligibility

26. This opportunity is open to organisations eligible for NERC research grant funding, i.e. applicants based in UK Higher Education Institutions (HEIs), NERC research centres, and independent research organisations (IROs) approved by NERC. Please refer to

⁵ RCUK Postgraduate Training: <http://www.rcuk.ac.uk/skills/postgrad/>

⁶ International Education: Global Growth and Prosperity
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/227033/BIS-13-1081-International_Education-Global_Growth_and_Prosperty-Accessible_2_.pdf

⁷ Science without Borders: <http://www.cienciasemfronteiras.gov.br/web/csf-eng/> & <http://www.bg-brasilfellowships.com/English/Pages/BG-home-Eng.aspx>

<http://www.rcuk.ac.uk/funding/eligibilityforrcs/> for details; this competition is a managed mode scheme.

27. Each CDT must include an accredited higher education PhD award-making body.

28. Applicants must be able to demonstrate within their proposal that they have a track record of working both with industry and internationally, in particular with the eight countries and one region identified by BIS as priorities for international education⁶.

Reporting

29. There will be mandatory annual reporting requirements for the CDT as well as the standard studentships information captured through the Je-S Studentship Details Portal (SDP). NERC reserves the right to discuss, adjust or terminate CDT awards based on the information provided. Indicative headings for the CDT reporting requirements include:

- Collaborations
- Leveraged funding
- Industry and other project partner involvement
- Student experiences with industry and/or overseas
- Issues
- Success stories

Application process

Part 1) Expressions of Interest (EoIs)

30. EoIs should be submitted by email to stag@nerc.ac.uk by 4pm on 9 September 2013.

31. All proposals must be contained within two sides of A4, using the pro forma provided on the NERC website. Applicants should provide a summary of:

- i. The science challenges identified within the AO
- ii. Track record of working with industry
- iii. Track record of working internationally

32. The pro forma must be completed in single-spaced typescript of minimum font size 11 point, Arial font, with margins of at least 2cm. No additional attachments, including letters of support, will be accepted.

33. Applicants will be informed by 16th September if they are invited to proceed to the full proposal stage.

Part 2) Full Proposals

34. Full proposals should be submitted by email to stag@nerc.ac.uk by 4pm on 16 October.

35. All proposals must be contained within 18 sides of A4, using the pro forma provided on the NERC website. Applicants will need to provide details under the following headings:

- i. Research excellence
- ii. Training excellence
- iii. Multidisciplinarity
- iv. Training outcomes
- v. Quality assurance
- vi. Working with industry
- vii. International working

36. No other attachments will be accepted. Wording about links to websites will be ignored.

Assessment process

37. Full proposals will be assessed by a panel consisting of international oil and gas experts supplemented by member(s) of the NERC Training Advisory Group (TAG).

38. Applicants will be invited to make a presentation and answer questions at the assessment panel meeting to assist the assessment process. NERC will try to provide early notice of an invitation to attend, but applicants should note that the panel meeting is currently scheduled for the first week of November 2013.

39. The assessment criteria used to judge proposals will be as follows:

1. Research excellence	The training and training environment must include scientifically excellent and original research within NERC's remit specifically in the area of oil and gas and in the three challenge areas (see paragraph 9)
2. Training excellence	<p>Students are managed as a cohesive group and acquire both research and transferable skills. There is a strong and active community of students that are able – and encouraged – to integrate, work and learn together.</p> <p>Students gain industrial and/or international experience.</p> <p>Students have timely access to appropriate infrastructure, in particular, research facilities and access to industry standard software and data.</p>
3. Multidisciplinarity	Training is embedded in multidisciplinary training environments to enrich the student experience and to encourage the knowledge-sharing and interconnectivity, which benefits research within the oil and gas sector. This does not mean that individual PhD topics are required to

	be multidisciplinary.
4. Training outcomes:	
Skills for the environment sector	Students leave equipped with skills applicable to the environment sector: skills for policy-makers and regulators; industry and business; and NGOs and charities.
AND/OR	AND/OR
Refreshing the research base	The stock and variety of highly skilled researchers and other R&D staff is replenished
5. Quality assurance	The leadership and management of the CDT will enable it to deliver excellent training in line with the Announcement of Opportunity

40. Following the assessment panel meeting, feedback for unsuccessful proposals will be available upon request.

Timetable

41. Overview of the competition timetable:

- 9 September 2013 16.00: Closing date for EOIs
- 16 September 2013: Applicants notified of whether they can submit a full proposal
- 16 October 2013 16.00: Closing date for full proposals
- W/C 4 November 2013: Assessment Panel meeting
- December 2013: Decision communicated to applicants
- October 2014: First Oil and Gas CDT studentships commence

42. For further information please contact David Roberts, Studentship and Training Awards Group – davber51@nerc.ac.uk or 01793 442644.