



## **Announcement of Opportunity (AO)/Call for Proposals (CFP)**

### **Sustainable Gas Futures**

**Call Published: September 2015**

**Application Deadline: 16:00 (GMT) 10 November 2015**

#### **1. Summary**

The Natural Environment Research Council (NERC) and the São Paulo Research Foundation (FAPESP) are inviting research proposals under this 'Sustainable Gas Futures' call. This call is supported by the UK through the Newton Fund, which forms part of the UK government's Official Development Assistance (ODA) commitment. The AO/CFP is only open to joint UK-Brazil applications. NERC will provide up to £1,000,000.00 of funding (80% FEC) to eligible UK-based researchers and São Paulo partner organisations will match this with equivalent research effort to eligible researchers associated to research institutions in the State of São Paulo.

Due to the available budget it is expected that one consortium project with a duration of three years will be funded. Successful projects will be expected to start no later than 1 April 2016.

#### **2. Background**

##### **2.1 The Newton Fund**

The Newton Fund is an initiative intended to strengthen research and innovation partnerships between the UK and emerging knowledge economies, developing partner countries long-term sustainable growth and welfare through building research and innovation capacity.

The Fund forms part of the UK's Official Development Assistance (ODA) commitment which is monitored by the Organisation for Economic Cooperation and Development (OECD). ODA funded activity focuses on outcomes that promote the long-term sustainable growth of countries on the OECD Development Assistance Committee ([www.oecd.org/dac/stats/dac/directives](http://www.oecd.org/dac/stats/dac/directives)) and is administered with the promotion of economic development and welfare of developing countries as its main objective. Newton Fund countries represent a sub-set of this list.

The Newton Fund requires that the funding be awarded in a manner that fits with ODA guidelines. All applications must therefore be compliant with these guidelines. Note that this applies to UK funding only, and not the partners country, however as these are collaborative projects, it is expected that the project as a whole is ODA compliant and makes clear that its primary purpose is to promote the

economic development and welfare of the partner country. For further information of Newton Fund see <http://www.rcuk.ac.uk/international/newton/>.

Any Newton Fund project must make it clear how the main research outcomes will promote the economic development and welfare of the partner country, rather than merely creating the conditions where development might occur. Applicants should consider how their project will:

- address poverty and development issues
- address the issue identified effectively and efficiently
- use the strengths of the UK to address the issue
- demonstrate that the research component is of an internationally excellent standard.

## **2.2 The Funders**

NERC – the Natural Environment Research Council – is the leading funder of independent research, training and innovation in environmental science in the UK. NERC invests public money in world-leading science, designed to help us sustain and benefit from our natural resources, predict and respond to natural hazards and understand environmental change. We work closely with policymakers and industry to make sure our knowledge can support sustainable economic growth and wellbeing in the UK and around the world. NERC is supported by the Department for Business, Innovation and Skills (BIS).

### **State of São Paulo Funds**

São Paulo Research Foundation (FAPESP) is an independent public foundation with the mission to foster research and the scientific and technological development of the State of São Paulo. The constitution of the State establishes that 1% of all state taxes belong to the foundation and the government transfers these funds monthly.

FAPESP makes available in this AO/CFP funds to complement funding from research institutions in the State of São Paulo, matching funds with NERC.

## **2.3 Science Background**

In the area of energy, Brazil forecasts a 60% growth in the domestic energy demand in the next decade. Currently Brazil has a clean matrix, with 46% of its energy from renewables (mainly relying in large on hydropower and biofuels) and has committed to maintain its percentage of low carbon energy in the matrix. However, to meet society's increasing demand for energy, at the same time as safeguarding the welfare of its people and ensuring Brazil meets its commitment target, the country will need to increase its economic investment in new renewable energy and other low carbon technologies.

This programme of joint research between the UK and Brazil will help promote the long-term economic, social and environmentally sustainable growth for Brazil's future secure energy system. This will be achieved by developing new methodologies to characterise, explore and analyse the role of gas as part of Brazil's future energy options. The programme will explore current and possible future technology options to ensure that the analysis is grounded in engineering options viable to Brazil, particularly to expand their growing industry.

The programme has developed as a result of the synergies and differences between the UK and Brazil in gas. The UK once had a major resource and now is a major user in power, buildings and industry; it

has a mature and extensive gas infrastructure; and the potential for capacity building in Brazil in alternative technologies, such as CCS and shale gas to come on stream. Comparatively Brazil has relatively untapped major gas resources; has limited gas infrastructure; and very different demand and natural resource characteristics.

The research will draw upon knowledge in both countries to deliver alternative views of the future of gas in low carbon energy systems, and to identify key sustainable technologies within those futures to enable Brazil to meet its environmental and welfare commitments. Through this research and development Brazil will build capacity and thereby drive economic development. As new high-tech gas industries are being explored through this programme it will provide an opportunity to train, develop and provide potential exportable skills for the Brazilian people allowing for greater employment opportunities for the population.

The whole systems(<http://www.rcuk.ac.uk/research/xrcprogrammes/energy/EnergyResearch/whole/>) approach is required to examine the social, environmental (including Ecosystem Services - See for example the UK National Ecosystem Assessment (UK NEA): <http://uknea.unep-wcmc.org/EcosystemAssessmentConcepts/EcosystemServices/tabid/103/Default.aspx>) and economic impacts of energy pathways and choices, as well as the challenges across energy technologies associated with the development of a sustainable gas future in Brazil. The following definition has been suggested for a whole systems approach: 'whole-systems energy research aims at a better understanding of the energy landscape, incorporating socio-economic, physical, natural, environmental and biological systems, at all spatial and temporal scales. It addresses complexities, interactions and interdependencies within the landscape, and other systems. Whole-systems energy research necessarily draws upon a wide range of disciplines and methodologies, but it does not demand comprehensive coverage at the level of individual projects.

This is a UK strength and as such this initiative will strengthen partnerships between UK and Brazilian researchers in this field. It is vital, and recognized by Brazil, that the rapid development of gas resources must be carried out sustainably using environmental science to take a whole energy systems approach and that sustainable technologies are an integral part of this approach.

The Sustainable Gas Futures programme will pay particular attention to improving science and innovation expertise ('capacity building') and implementing a research and development collaboration to enable sustainable and environmentally acceptable economic growth in Brazil.

#### **2.4 Sustainable Gas Futures programme goals:**

- 1) Develop new methodologies to characterise, explore, analyse and assess the role of gas in current and future energy systems, considering both economic and environmental sustainability indicators.
- 2) Deliver alternative views of the future of gas in low carbon energy systems, and to identify key sustainable technologies within those futures.
- 3) Engage with current and possible future technology options throughout the gas value chain and across competing and synergistic energy vectors and technologies, to ensure that the analysis is grounded in engineering options in particular the synergies and differences between the UK and Brazil in gas.

- 4) Capacity building through a whole systems energy approach to address Ecosystem Services<sup>1</sup> across energy technologies associated with the development of a sustainable gas future
- 5) Develop common learning and understanding of the future of gas in both countries and worldwide supported by the Newton Fund, with a focus on research contributing to the economic development and welfare of Brazil as part of the Sustainable Gas Futures programme.

### **3. Scope of programme and requirements**

#### **3.1 *Scientific objectives***

**Applicants should read the Science plan and workshop report available on the Sustainable Gas Futures webpage (<http://www.nerc.ac.uk/research/funded/programmes/gasfutures/>) for full details of the science plan for this call.**

The workshop identified eight science theme priorities that will help enable Brazil to maintain its desired percentage of low carbon energy in anticipation of a significant growth in domestic energy demand.

Eight priority science themes (in no ranked order) were identified at the workshop to help ensure the future sustainability of the developing energy system in Brazil:

1. Gas and Environmental Sustainability
2. Novel Gas Processing
3. Innovative Technologies for Natural Gas Production
4. Infrastructure
5. Carbon Capture and Storage
6. Assessment and Evaluation
7. Bioenergy and Gas
8. Social License

Projects should build capacity by addressing at least three of the eight themes in order to promote the economic development and welfare of Brazil as the main objectives of the research. As examples, the workshop identified synergies between themes as follows:

1. Assessment and Evaluation + Bioenergy and Gas + Gas and Environmental Sustainability
2. Assessment and Evaluation + CCS + Infrastructure
3. Assessment and Evaluation + CCS + Novel Gas Processing
4. CCS + Innovative Technologies for Natural Gas Production + Infrastructure

#### **3.2 *Non-scientific objectives***

The Newton Fund requires that the funding be awarded in a manner that fits with ODA guidelines (<http://www.rcuk.ac.uk/international/newton/>). All applications must therefore be compliant with these guidelines. In order to qualify for Newton funds, projects must demonstrate how the projects main research outcomes will promote the long-term economic development and welfare of the partner country, rather than merely creating the conditions where development might occur.

Applicants should consider how their project will:

- Address poverty and development issues
- Address the issue identified effectively and efficiently

- Use the strengths of the UK to address the issue
- Demonstrate that the research component is of an internationally excellent standard.

It is expected that through collaboration the projects should seek to increase the skills and knowledge base at partner institutions in this area, improving their ability to undertake and disseminate research in order to maximise the countries impact on issues of poverty and economic growth.

Any benefit to the UK has to be the secondary consideration and should not lead to a project being funded if it doesn't primarily deliver the development objective.

Applicants should demonstrate how their proposal addresses ODA guidelines, both in the JeS summary and then more fully, in the case for support.

#### **4. Data Management (UK applicants)**

NERC believes that datasets collected as a result of projects are an important resource that must be adequately managed. Investigators should therefore make sure that a NERC Environmental Data Centre is aware of any significant datasets to be compiled as a result of their projects, so that the long-term future of these data can be planned.

A mandatory, single page, Outline Data Management Plan (ODMP) is required for all proposals. The ODMP will identify data sets likely to be made available to NERC Data Centres for archiving and reuse at the end of the grant. From April 2014, the ODMP is a separate, mandatory attachment, on all grant schemes. The ODMP and Case for Support for successful proposals will be made available to the NERC Environmental Data Centres (see <http://www.nerc.ac.uk/research/sites/data/>) and where appropriate, used by them to draft, in collaboration with the Principal Investigator, a full Data Management Plan (DMP).

This full DMP should be mutually agreed between the Data Centre and the Principal Investigator within three to six months of the start date of the grant. At the end of an award Investigators are required to offer the appropriate Data Centre a copy of any dataset generated, so that the data can be made available for other researchers to use.

#### **5. Knowledge Exchange and Impact**

Knowledge Exchange will facilitate the communication of the science delivered from this initiative to a variety of users including policy makers and industry, and exchange of views and knowledge from these stakeholders.

All research proposals submitted to NERC should be accompanied by a 'Pathways to Impact' document. There will be a requirement to identify the target communities/stakeholders, consider how these various groups/individuals are likely to benefit from (or be affected by) the research, and create a plan to engage with them which is appropriate and goes beyond communication, timely and happens early in the design stage.

Due to recent changes in NERC relating to Pathways to Impact, applicants are advised to read the guidance at: <http://www.nerc.ac.uk/funding/application/howtoapply/pathwaystoimpact/>

In summary, in the Pathways to Impact applicants should consider what will be done during and after the project to increase the likelihood of the research reaching the intended beneficiaries and maximise the likelihood of identified benefits being achieved.

Applicants are expected to request funds to support project-specific activities and these should be included in the grant proposal and fully justified in the Justification of Resources statement.

## **6. Reporting requirements**

As with all NERC grant holders, there will be a requirement to report through the RCUK reporting system; this is required annually and continues for up to five years post grant end.

Additional reporting to the Newton funding may be required. This will be confirmed prior to award.

## **7. Facilities (UK applicants)**

UK applicants can apply for access to any of the NERC services or facilities. Prospective applicants must first seek the advice of the appropriate facility contact before any formal proposal is submitted. For most facilities and schemes, the notional costs of using the facility should be included in the grant proposal. For some facilities the costs will then be removed from the grant and awarded notionally (where NERC provides the funding directly to the facility).

Further details on how to apply to use facilities can be found: <http://www.nerc.ac.uk/research/sites/facilities/apply/>

## **8. Eligibility**

Proposals which do not clearly demonstrate how they meet ODA compliance **will be rejected** before going to peer review.

### **8.1 For UK applicants:**

Applications for NERC funding are open to those organisations eligible to receive Managed Mode funding from NERC, i.e. applicants based in UK HEI's, NERC Research Centres and Independent Research Organisations (IRO's) approved by NERC. Please see the NERC website (<http://www.nerc.ac.uk/funding/application/eligibility/orgeligibility/>) and NERC Research Grants Handbook (<http://www.nerc.ac.uk/funding/application/howtoapply/forms/>) for further details.

Individuals are limited to involvement in no more than two proposals submitted to this call; only one of these may be as lead Principal Investigator.

### **8.2 For FAPESP:**

Applicants in the State of São Paulo, Brazil, must note that the requirements for eligibility are those applied to each Program above described:

**a. FAPESP Thematic Grants**, described at [www.fapesp.br/176](http://www.fapesp.br/176), item 3.3.

**b. FAPESP Young Investigator Award** program, described at [www.fapesp.br/en/6251](http://www.fapesp.br/en/6251), item 3.3 .

c. **São Paulo Excellence Chair (SPEC) Awards**, foreign researchers associated to a higher education or research institution in the State of São Paulo, Brazil, with a commitment to spend at least 12 weeks per year for at least 3 years at the host institution. Please see FAPESP recommends that applicants considering using this mechanism should contact FAPESP and NERC before submitting a SPEC award.

**8.2.1 Researchers interested in using any of FAPESP's programs must necessarily consult (call\_nerc\_gasfutures@fapesp.br) regarding their eligibility before initiating the preparation of a joint proposal. Consultations will be accepted up to October 26, 2015.**

**Failure to observe this procedure will result in the rejection of the proposal, without review.**

8.2.2 FAPESP calls the special attention to the **PI eligibility for Thematic Grants**

<http://www.fapesp.br/176>, as transcript below:

- Have a Ph.D. or equivalent qualification;
- Have a formal contract with a Research Institution in the State of São Paulo;
- Have significant scientific or technological production;
- Have proven experience and expertise in the area of the project, demonstrated by:
  - Quality, regularity and impact of scientific and technological production.
  - Supervision of researchers at the postgraduate level; this is defined as supervision of at least 2 PhD students and 2 Post-Doctoral researchers.
  - Experience in scientific exchange and execution of research projects in collaboration with researchers from institutions in Brazil and other countries; this is defined as having joint publications with international colleagues.
  - Ability to form research groups with known results in the area; this is defined as proven leadership of a research team in the project area.

FAPESP's norms do not allow a researcher to be a PI in more than one Thematic Grant simultaneously, except for brief periods as one grant is being finished. If you have an ongoing Thematic Grant and want to prepare a collaborative proposal for this call you must contact FAPESP at the address mentioned in section 8.2.1 to make sure your proposal will be accepted for review.

## **9. Spend profiles**

The projects are expected to be 3 years in duration and start on 1 April 2016. Extensions to the awards will not be accepted as the programme of research activity must be concluded within the three-year period.

## **10. Application process**

**Closing date: 10 November 2015**

### **10.1 For UK applicants**

Grant proposals must be submitted using the Research Councils' Joint electronic-Submission system (Je-S). To use this system, the applicant's research organisation must be Je-S registered, see <http://www.nerc.ac.uk/funding/application/> for further details.

Applicants should leave enough time for their proposal to pass through their organisation's Je-S submission route before this date. Any proposal that is received after the closing date, is incomplete, or does not meet the eligibility criteria of this call, will be returned to the applicant and will not be considered.

The call will be listed under Scheme 'Directed International' and Call 'SGF Brazil (Newton) NOV15' and will utilise the standard Je-S pro forma. Guidance on the application process, including details of eligible costs, is available in the [NERC Research Grants Handbook](#).

NERC's normal grant terms and conditions will apply, and these are also outlined in the handbook. Additional conditions related to Newton Fund support will also be applied to these awards. This will be confirmed prior to award.

Please note that on submission to council ALL non PDF documents are converted to PDF, the use of non-standard fonts may result in errors or font conversion, which could affect the overall length of the document.

Additionally where non-standard fonts are present, and even if the converted PDF document may look unaffected in the Je-S System, when it is imported into the Research Councils Grants System some information may be removed. We therefore recommend that where a document contains any non-standard fonts (scientific notation, diagrams etc), the document should be converted to PDF prior to attaching it to the proposal.

All documents should be completed in single-spaced typescript of minimum font size 11 point Arial font, with margins of at least 2 cm including references. Applicants referring to websites should note that referees may choose not to use them.

## 10.2 For FAPESP - NERC and FAPESP Joint applications

The Research Councils UK (RCUK), which includes NERC, has signed a Memorandum of Understanding (MoU) with FAPESP. This MoU provides for a Lead Agency Agreement whereby for this programme NERC will receive and assess collaborative proposals from eligible applicants from both countries on behalf on both organisations. FAPESP nominated experts will be involved with the peer review and decision-making process throughout.

UK-Brazil applications should, therefore, submit a **joint Case for Support** through the Je-S system. The Brazilian applicants should be included as Project Partners on the JeS form and their role should be described in the Case for Support. The Case for Support must:

- state that the RCUK-FAPESP Lead Agency Agreement is being applied by the applicants;
- mention the Principle Investigator in São Paulo and other members of the research team affiliated to research and higher education institutions in São Paulo. CVs of the participants should be uploaded to Je-S as CV documents.
- identify the number of the on-going FAPESP Thematic Grant led by the PI in the State of São Paulo;
- clearly define the budget requested to FAPESP, within the limits set out above

Costs for UK-based researchers should be included in the Je-S form. São Paulo based researchers should submit a **FAPESP-RCUK Research Proposal Form** and **Consolidated Budget Spreadsheet** ([www.fapesp.br/en/5339](http://www.fapesp.br/en/5339)) as other attachments in the application. **The FAPESP-RCUK Proposal Form**



and **Consolidated Budget Spreadsheet** must both be attached to the application as supporting documents. A summary budget statement including all costs for the project, i.e. both UK and Brazilian costs is also required.

Applicants and Co-Applicants do not need to request equal amounts from both sides. It is envisaged that applications will be for a balanced partnership, not specifically in monetary terms but with equivalent research commitment and efforts from both partners.

Further documentation may be requested by FAPESP to enable the processing of proposals, following the usual procedures for the respective award. If additional information is required FAPESP will liaise directly with the researchers concerned.

## 11. Proposal Components

In addition to the standard Je-S pro forma, the **lead** component of each proposal should include the following documents:

### 11.1 A joint **Case for Support** comprising:

**a)** a common **Previous Track Record** incorporating all UK and Brazilian Research organisations involved, (up to 3 sides of A4)

**b)** a common **Description of the Proposed Project** (up to 16 sides of A4 including all necessary tables, references and figures) to include:

- Underlying rationale and scientific issues to be addressed.
- Specific objectives of the project, including their relevance to objectives of the call.
- Methodology and approach.
- Risks and mitigation strategies.
- Programme and/or plan of research.
- How the proposal addresses Official Development Assistance (ODA) guidelines, including a justification for the gains to be obtained by working in research collaboration between the UK and Brazil

**c) Management Plan** (up to 2 sides of A4). The management plan should include a description of the proposed management structures and plans, participant responsibilities and a scheduling chart.

**11.2 Outline Data Management Plan** (up to 1 side of A4). (See Data Management section above; to include any relevant costings. Note that the Outline plan should now be submitted as a separate document of the type 'Data Management Plan', rather than as part of the case for support.)

**11.3 Justification of Resources** (up to 4 sides of A4 for all Research Organisations in the proposed grant) submitted as a separate attachment in the Je-S system and should explain why the requested costs from NERC and FAPESP are required. This should include justification for all Directly Incurred Costs, Investigator effort, use of pool staff resources, any access to shared facilities and equipment and for capital costs. No justification for Directly Allocated Estates and Indirect Costs is required.

All costs requested from FAPESP should be eligible under the general rules and procedures for the type of award/grant applied for. Applicants should contact FAPESP for further guidance.

### *Equipment costs*

Requests for capital will only be considered if the proposed equipment is to remain in the partner country for use after the project is completed. If equipment is returned to the UK after the project this cannot be funded through Newton and an alternative source of funding should be sought.

The threshold for individual items to be classed as equipment is £10,000 (inclusive of VAT). For items of equipment costing between £10,000 and the OJEU threshold value additional information is required in the justification of resources, including evidence of an evaluation of the use of existing relevant capital assets. Proposals requesting single items of equipment costing more than the OJEU threshold value must be accompanied by a business case (up to 2 sides of A4 outlining the strategic need for the equipment).

Applicants are advised to read the [NERC Research Grants Handbook](#) and further guidance can be found on the [RCUK website](#).

#### **11.4 Pathways to Impact (up to 2 sides of A4).**

This should include an outline of:

- those who may benefit or make use of the research;
- how they might benefit and/or make use of the research; and
- methods for disseminating data/knowledge/skills in the most effective and appropriate manner.

#### **11.5 Project Partner Letter(s) of Support (up to 2 sides of A4 each).**

A Letter of Support is required from each named Project Partner. This letter should confirm that the support and facilities required to enable the associated collaborations will be made available. No other letters of support should be attached.

#### **11.6 FAPESP documents** uploaded as 'non-UK components' to include, combined as one pdf:

- a. **FAPESP-RCUK Proposal Form** with basic information regarding the proposal ([www.fapesp.br/en/5339](http://www.fapesp.br/en/5339))
- b. **FAPESP Consolidated Budget**, for the costs being requested from FAPESP ([www.fapesp.br/en/5339](http://www.fapesp.br/en/5339))
- c. **FAPESP Letter of Eligibility**, confirming the previous consultation and approval by FAPESP (sent by email after consultation, Item 8.2.1)

The proposal will be reviewed by NERC only if it is submitted with all FAPESP documents listed above.

#### **11.7 A summary budget statement**

([www.fapesp.br/chamadas/2015/FAPESPRCUK\\_fundingsummary.xlsx](http://www.fapesp.br/chamadas/2015/FAPESPRCUK_fundingsummary.xlsx)) including all costs for the project, i.e. both UK and Brazilian costs, to be uploaded as 'Non-UK component' attachment.

**11.8** An additional **one page** attachment to clearly indicate how the proposal addresses Official Development Assistance (ODA) guidelines (<http://www.rcuk.ac.uk/international/newton/>). Proposals which do not **clearly** demonstrate how they meet ODA compliance **will be rejected** before going to peer review.

**Each UK component** proposal (including the lead) will additionally require the following attachments, where applicable:

- A **CV** of up to two sides of A4 for each named PI, Co-I, research staff post, visiting researchers and the members of the Brazilian research team.
- **Price quotations** for equipment costing more than £25k.

- Where applicable a **Business Case** of up to two sides A4 per item, for items of equipment above the OJEU threshold.
- **Facility forms** (including aircraft).
- PIs wishing to use a **NERC facility** will need to submit a mandatory 'technical assessment' with their proposal (including aircraft but excluding ships and HPC). For NERC, this means a quote for the work which the facility will provide. A full list of the Facilities requiring this quote can be found here <http://www.nerc.ac.uk/research/sites/facilities/apply/facilities-requiring-technical-assessment.pdf>

## 12 Assessment procedure and criteria

Proposals will be subject to international peer review. Final assessment will be made by a Moderating Panel of independent experts. Applicants will be given the opportunity to provide a written response to the peer review comments prior to the Moderating Panel meeting.

All proposals will be assessment against the following criteria:

- Research excellence: a proposal that demonstrates excellence can be characterised by terms such as novel, timely, exciting, at the international forefront, adventurous, elegant or transformative, but need not demonstrate all of these.
- Fit to Call: proposals will be assessed against the extent to which they address the scope and requirements of the call as detailed in this AO. This will include:
  - Fit to scientific objectives
  - Fit to non-scientific objectives; specifically that the proposal meets ODA/Newton Fund criteria and that the projects primary purpose is to promote the economic development and welfare of the partner country.

## 11 Timetable

Scoping workshop (Brazil)	25-27 February 2015
AO/CFP published	September 2015
Eligibility Consultation Deadline (FAPESP)	26 October 2015
Call closing Date	10 November 2015
Peer Review	November 2015-January 2016
Moderating Panel	End January/Beginning February 2016
Awards start	1 April 2016
Grants Finish	31 March 2019

## 12 Contacts

**UK researchers requiring further information should contact:**

Debbie Mason at NERC (Email: [newtonsgf@nerc.ac.uk](mailto:newtonsgf@nerc.ac.uk))

**São Paulo State researchers requiring further information should contact**

Bruna Musa at FAPESP (Email: [call\\_nerc\\_gasfutures@fapesp.br](mailto:call_nerc_gasfutures@fapesp.br))