



Preparing for Future Clean Air Challenges: Interdisciplinary research and innovation consortia

Closing date	15 October 2020 (Outline Proposals) 25 February 2021 (Full Proposals)
Funding available	Up to £10m is available to fund approximately 3 - 4 consortia at £2 – 3.3 m (80% FEC) each. Projects should start on 1 September 2021 and run for four years. The UKRI Clean Air Programme has capital funding available of up to £500k to support the delivery of the Clean Air research programme and to provide an underpinning Clean Air community resource. Applicants to this consortia call are invited to include proposals for a Capital Idea up to £500k which details how the capital would support, and add value to, the consortia proposed programme of work and the wider community. The funders also reserve the right to not administer any capital funding through this opportunity.
Funding mode/stream	SPF
NERC Core or UKRI/Collective Fund budget	UKRI Collective Fund (SPF Clean Air Wave 2)
Project duration	4 years
Funding partners (if applicable)	The Clean Air programme is jointly delivered by the Natural Environment Research Council (NERC) and the Met Office, with the Economic and Social Research Council (ESRC), Engineering and Physical Sciences Research Council (EPSRC), Innovate UK, Medical Research Council (MRC), National Physical Laboratory (NPL), Science & Technology Facilities Council (STFC), Department for Environment, Food and Rural Affairs (Defra), Department for Health and Social Care (DHSC), Department for Transport (DfT), Scottish Government and Welsh Government.
Start date requirements (if applicable)	1 September 2021
Call aims and objectives	Trends expected over the next decade will bring about a different range of air quality challenges to the ones we face today. Decarbonisation and the drive to net zero suggest future scenarios where road traffic pollution from exhaust emissions is reduced, new buildings become increasingly sealed for energy efficiency, and people spend more time indoors as they work and study at home using technology to stay connected. These trends will have an impact across the indoor/outdoor interface by affecting both indoor and outdoor air quality, how indoor air pollution affects outdoor air quality and vice versa, and how people experience air



	<p>quality as they move between indoor and outdoor spaces throughout their day.</p> <p>It is expected that the consortia will deliver new knowledge, insight, capability and technology to enable us to understand and answer the critical emerging air quality challenges and the associated health impacts facing the UK population. It is anticipated that consortia will translate this new knowledge and innovation to support and inform government policy to reduce emissions, improve public health, influence behaviour and develop infrastructure.</p> <p>There are five main objectives that this call seeks to address:</p> <ol style="list-style-type: none">1. Understanding and characterising indoor air pollution and its influence on outdoor air quality.2. Understanding the toxicology and health effects of future exposure and emission scenarios.3. Understanding airborne biological materials and their impacts on health.4. Influencing behaviours and practices related to emissions and exposures.5. Interventions in the built environment. <p>Across the funded portfolio of consortia, the funders anticipate elements of all these 5 objectives will be addressed but individual consortia do not need to address all these objectives within their project.</p>
Eligibility criteria	<p>UKRI eligible research organisations and PSREs with 10 or more researchers with PhDs (or equivalent).</p> <p>Investigators may be involved in no more than two proposals submitted to this call and only one of these may be as the lead Principal Investigator.</p>
Call specific requirements	Must be multi- and inter-disciplinary.
Studentship or Training Opportunities	None
Contact	Boudewijn Dominicus (atmospheric@nerc.ukri.org)



Strategic Priorities Fund: Clean Air Programme

Preparing for Future Clean Air Challenges: Interdisciplinary research and innovation consortia

Announcement of Opportunity

Notification of Intent deadline: 4pm on 3 September 2020

Outline Proposals deadline: 4pm on 15 October 2020

Full Proposals deadline (INVITE ONLY): 4pm on 25 February 2021

1. Summary

UK Research and Innovation (UKRI) invites proposals for interdisciplinary research and innovation consortia under the second wave of the Strategic Priorities Fund (SPF) Clean Air Programme.

The aim of the second wave of funding is to equip the UK to proactively tackle new and emerging air quality challenges related to changing emissions and exposure patterns and health impacts on groups of people most at risk.

The purpose of this call is to fund solution focussed, interdisciplinary consortia in the area of the indoor/outdoor air quality interface which will deliver new knowledge that:

- provides critical foresight on emerging air pollution challenges and associated health risks and impacts; and
- enable an increased understanding and quantification of human behavioural change and practices in order to develop and assess interventions, that limit harmful exposure to mitigate the negative health impacts of individuals most at risk.

Up to £10m is available to fund approximately 3 - 4 consortia at £ 2 – 3.3 m (80% FEC) each. Projects should start on 1 September 2021 and run for four years.

The Clean Air programme is jointly delivered by the Natural Environment Research Council (NERC) and the Met Office, with the Economic and Social Research Council (ESRC), Engineering and Physical Sciences Research Council (EPSRC), Innovate UK, Medical Research Council (MRC), National Physical Laboratory (NPL), Science & Technology Facilities Council (STFC), Department for Environment, Food and Rural Affairs (Defra), Department for Health and Social Care (DHSC), Department for Transport (DfT), Scottish Government and Welsh Government.



Key Dates

Activity	Date
Call announced	July 2020
Call opens on Je-S	23 July 2020
Notification of Intent deadline	16:00, 3 September 2020
Outline Proposal deadline	16:00, 15 October 2020
Outline Panel	November 2020
Full Proposal deadline (Invite only)	16:00, 25 February 2021
Panel	June 2021
Decision communicated	June 2021
Grant start date	1 September 2021

2. Background

The Clean Air programme is a £42.5 million research and innovation investment supported through the UK Research and Innovation Strategic Priorities Fund. The aim is to bring together the UK's world-class research base and support high quality multi- and inter- disciplinary research and innovation to develop practical solutions for today's air quality issues and equip the UK to proactively tackle future air quality challenges, in order to protect health and support clean growth.

The programme is delivered through two waves; the first (£20.5 m) has supported multidisciplinary research and innovation on near-term outdoor air pollution issues and the funded projects will develop short-term policy relevant outputs, support commercialisation of near-market solutions for non-exhaust transport emissions and deliver a pilot systems framework for clean air analysis.

The second wave of investment (£22 m) will support new interdisciplinary research and innovation that will equip the UK to proactively tackle new and emerging air quality challenges related to changes in the types of air pollutants emitted and their importance across the indoor/outdoor interface, with regards to exposure patterns and impacts on those most at risk.

Funding for the Clean Air programme is provided through the UKRI Strategic Priorities Fund (SPF), which has been set up to build upon the vision of a 'common research fund' set out in Sir Paul Nurse's independent review of the Research Councils. The fund will drive an increase in high-quality multi- and interdisciplinary research and innovation, ensure that UKRI's investment links up effectively with Government departments' research priorities and opportunities, and ensure that the system is able to respond to strategic priorities and opportunities.



3. Scope

3.1 Clean Air Programme: Second Wave of Investment

The overarching aim of the second wave of investment (£22m) is to support new interdisciplinary research and innovation that will equip the UK to tackle emerging and future air quality challenges in a proactive way. The knowledge and solutions generated will allow us to act now to secure clean air and protect health by avoiding locking in potential future issues and unintended consequences such as increases in VOCs, fine particulate matter and ozone that are projected to occur as other types of air pollution fall.

The second wave of the Clean Air programme is expected to:

- Build a new UK interdisciplinary community to address research challenges across the interface of indoor/outdoor air quality through collaboration between wider disciplines and stakeholders including: environmental, social and medical sciences, engineering, economics, and health.
- Deliver new knowledge that:
 - provides critical foresight on emerging air pollution challenges and associated health risks and impacts; and
 - enable an increased understanding and quantification of human behavioural change and practices in order to develop and assess interventions, that limit harmful exposure to mitigate the negative health impacts of individuals most at risk.
- Provide consistent, evidence-based advice for stakeholders through open data and tools in order to stimulate policy and regulatory innovation.
- Stimulate business-led innovation for sustainable products and services to protect health across the indoor/outdoor air quality interface and grow UK businesses.

The programme will be delivered through a portfolio of activities including through the recently commissioned [Networks to build the interdisciplinary community](#) and business-led innovation. In addition to this call for research and innovation consortia, there will be investments led by the Met Office for the delivery of further research related to outdoor and indoor air quality health impacts and the continued development and extension of the Clean Air Framework. There will also be future calls for business-led innovation and translation activities to deliver new knowledge, evidence-based advice and new products and services.

3.2 Preparing for Future Clean Air Challenges: Interdisciplinary research and innovation consortia Call Scope

Trends expected over the next decade will bring about a different range of air quality challenges to the ones we face today. Decarbonisation and the drive to net zero suggest future scenarios where road traffic pollution from exhaust emissions is reduced, new buildings become increasingly sealed for energy efficiency, and people spend more time indoors as they work and study at home using technology to stay connected. These trends will have an impact across the indoor/outdoor interface



by affecting both indoor and outdoor air quality, how indoor air pollution affects outdoor air quality and vice versa, and how people experience air quality as they move between indoor and outdoor spaces throughout their day. This interface can be observed in a range of settings such as at home, school, work, public spaces as well as public transport.

The emergency public health measures to contain the COVID-19 pandemic have offered a glimpse of this low carbon future, with flights from European airports down by 90% from a year ago¹ and overall reductions in road traffic of between 50 and 75% across the country² including in London, Leeds, Newcastle, East & West Sussex, and Manchester, since lockdown began. This has led to a varying effect on pollutants with a sharp drop in NO₂ pollution, which in some UK cities fell by as much as 60% two weeks after the UK lockdown (23 March), compared to the same period in 2019². However, no consistent reduction was seen in fine particulate matter (PM_{2.5}) over the same period,² with these results echoed across European cities.³ In the UK, PM_{2.5} levels were higher in many areas during the UK lockdown than at any other time in 2020 to date. The traffic component of PM_{2.5} would have reduced so an understanding of the relative toxicity of different particle components remains crucial to understanding public health impacts of future particle levels.

Additionally, public health measures have changed the way we travel with higher levels of active transport i.e. walking and cycling being reported. The UK government have announced a £250 m 'emergency active travel fund' investment for councils to reallocate road space to accommodate increased numbers of cyclists and pedestrians,⁴ and an updated Cycling and Walking Investment strategy expected to be launched summer 2020.⁵ Cities across the world,⁶ and the UK are also exploring longer term infrastructure for a post-pandemic world, such as Bristol which is accelerating long-term transport ambitions to increase pedestrianisation of parts of the city, increase sustainable travel and widen city pavements to enable social distancing.⁷

Furthermore, there is increased focus on a green recovery from COVID-19, with City mayors around the world, including London,⁸ Liverpool and Manchester,⁹ declaring their intention to shape a green recovery from the coronavirus crisis and the World Health Organisation advocating for healthy, liveable cities as part of a green and healthy recovery. A green recovery is likely to include health

¹ <https://www.theguardian.com/world/video/2020/apr/19/air-traffic-before-after-europe-coronavirus-lockdowns-video>

² Defra, 2020, 'Report: Estimation of changes in air pollution emissions, concentrations and exposure during the COVID-19 outbreak in the UK', https://uk-air.defra.gov.uk/library/reports.php?report_id=1005

³ <https://www.eea.europa.eu/themes/air/air-quality-and-covid19/air-quality-and-covid19>

⁴ <https://www.localgov.co.uk/Government-announces-250m-emergency-active-travel-fund/50445>

⁵ <https://www.gov.uk/government/news/2-billion-package-to-create-new-era-for-cycling-and-walking>

⁶ <https://www.theguardian.com/environment/2020/jun/07/blue-sky-thinking-how-cities-can-keep-air-clean-after-coronavirus>

⁷ <https://news.bristol.gov.uk/news/pandemic-accelerates-revamp-of-bristols-transport-network>

⁸ <https://www.c40.org/other/covid-task-force>

⁹ <https://www.greatermanchester-ca.gov.uk/coronavirus/weekly-mayoral-covid19-press-conference/>



benefits, for example, 1 in 6 people living with lung conditions in the UK noticed their symptoms improved as a result of the fall in air pollution levels since lockdown.¹

In future scenarios looking at the 2020s-30s and beyond, measures to improve outdoor air quality will take effect and concentrations of larger primary particles may decline. Consequently, managing human exposure to the very smallest airborne particulate matter and the complex mixes of volatile organic compounds are likely to grow in health significance. Epidemiological studies, whilst having shown important health impacts of fine particles, have shed little light on the relative toxicity of indoor or outdoor particle components. Domestic chemicals including household cleaning and domestic care products are an important source of VOCs², and the proportion of VOC emissions derived from consumer products is growing.^{3,4} This trend, together with the trend towards more energy efficient sealed buildings, will increase importance of indoor exposures and it will no longer be effective to attempt to manage public health impacts solely through controlling outdoor sources. Indoor environments are very heterogeneous and hard to regulate, meaning many reductions in emissions and exposure indoors will largely need to be delivered through changes in behaviour, product standards, and better urban planning and design of our indoor spaces. The scientific, technical, behavioural and policy approaches used to assess and manage exposure to air pollution need radical change to reflect this indoor/outdoor continuum of exposure and avoid unintended consequences of these drivers for change.

There are five main objectives that this call seeks to address:

1. Understanding and characterising indoor air pollution and its influence on outdoor air quality.

To deliver new knowledge and understanding of the air pollution that occurs in differing types of indoor environments which are likely as our society decarbonises, and how this influences outdoor air pollution and vice versa. This may result in the characterisation of a range of indoor microenvironments or super-emitters where pre-emptive action to reduce emissions could be targeted such as behavioural changes and product standards. This new knowledge will take account of practices and inequalities across socio-demographic groups, for example, poor-quality housing stock or impact of fuel use through cooking, cleaning, wood burning etc.

2. Understanding the toxicology and health effects of future exposure and emission scenarios.

¹ <https://www.blf.org.uk/media-centre/press-releases/nearly-2-million-people-with-lung-conditions-notice-improved-symptoms-as>

² Defra, 2019, 'Clean Air Strategy 2019', https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf

³ McDonald et al, 2018. Volatile chemical products emerging as largest petrochemical source of urban organic emissions. *Science*, 359(6377), pp.760-764.

⁴ Lewis, A., 2018. The changing face of urban air pollution. *Science*, 359(6377), pp.744-745.



Beyond identifying pollutant hazards, to deliver new knowledge and understanding of the relative toxicological properties including the formation and toxicity of secondary pollutants, biomarkers, and potential health impacts of emissions and exposures across the indoor/outdoor interface in the context of future scenarios, such as future new mixes of air pollution. Achieving this could include hypothesis driven, mechanistic and molecular studies and the use of appropriate model systems (*in vivo/in vitro/in silico*). Developing any plan will take into account the varying real-world exposures at the individual level through exploring differences in behaviour, variability of the inter-individual response, interactions, and practices in different settings, and explore how this can be integrated in exposure models, while identifying individuals and groups who are most vulnerable to exposure.

3. Understanding airborne biological materials and their impacts on health.

To deliver new knowledge and understanding of the role that airborne biological materials, e.g. fungi, bacteria, viruses, and pollens, and their interactions with particulate and gaseous air pollutants play in exacerbating negative health outcomes in individuals and groups most at risk, considering inequalities across socio-demographic groups. There remain broad questions around the role of airborne microbes and allergens in affecting air quality and the role of air pollution in increasing airborne microbes and allergen related health impacts.

4. Influencing behaviours and practices related to emissions and exposures.

To deliver new impact driven knowledge through understanding and quantifying the human behaviours and practices that lead to emissions and exposures to air pollution across the indoor/outdoor interface. To understand how these human behaviours may be influenced at the individual and population level to reduce emissions and exposures to therefore improve health outcomes. This may include prevention-related research, exploring awareness and attitudes to indoor and outdoor air quality, analysis of economic and health benefits of new and existing interventions. This new knowledge will influence behaviour and practices that can protect those most at risk from exposure.

5. Interventions in the built environment.

To identify and test new technology and interventions for future scenarios of the urban and built environment which reduce indoor/outdoor air pollution to prevent the negative health impacts, whilst also identifying opportunities for these solutions to have co-benefits such as reducing greenhouse gas emissions and promoting active travel. Furthermore, to conduct economic analysis and work with city planners, manufacturers of furnishings and fittings, and the construction industry to embed these new technologies and interventions; and make strong arguments for change during the post-pandemic economic recovery and into the future.

Across the funded portfolio of consortia, the funders anticipate elements of all these 5 objectives will be addressed but individual consortia do not need to address all these objectives within their project.



It is expected that the consortia will deliver new knowledge, insight, capability and technology to enable us to understand and answer the critical emerging air quality challenges and the associated health impacts facing the UK population. It is anticipated that consortia will translate this new knowledge and innovation to support and inform government policy to reduce emissions, improve public health, influence behaviour and develop infrastructure.

Proposals focussing on issues relating solely on indoor or outdoor air pollution alone are out of scope. The intention with this call is to consider the continuum of exposures to air pollution that individuals and groups experience as they move indoors and outdoors throughout their day, through private and public spaces e.g. homes, schools, hospitals, work and transport.

Consortia proposals are expected to justify individuals or groups that are most at risk which their proposal focusses on. Those most at risk may include, but are not exclusive to, individuals and groups at vulnerable stages of the life course, with established disease and/or those disadvantaged by inequalities.

This call is focussed on air quality issues of relevance to the UK, international perspectives can be included where they add useful insight to UK issues, but research focussing exclusively on air quality issues in other countries is out of scope.

The funders have identified the relative toxicological properties, including the formation and toxicity of secondary pollutants, of emissions and exposures across the indoor/outdoor interface in the context of future scenarios, as a gap (objective 2) and therefore, expect to fund at least one consortia with a major toxicology element.

UKRI held two events at the start of the 2020 to facilitate the scoping of this call. A report from these events may be found [here](#).

3.3 Proposal requirements

This call will support 3 to 4 large interdisciplinary consortia to deliver a step-change in knowledge and understanding of future air quality challenges and health risks across the indoor/outdoor interface and develop solutions; to achieve clean air in order to improve and protect health.

It is anticipated that successful consortia will define an interdisciplinary challenge aligned with the objectives set out in the call scope and propose a consortia and programme of work that:

- i) demonstrates how it will achieve a step-change in our levels of knowledge and understanding of the subject;
- ii) articulates how the new knowledge and solutions will protect and improve human health through the provision of clean air across the indoor/outdoor interface;
- iii) proposes interdisciplinary approaches and draws appropriate expertise from across diverse academic disciplines and wider stakeholders;



- iv) demonstrates co-design between academic research and users, such as those from across healthcare, policy, practice, industry, 3rd sector and the public, as appropriate, and leverages in-kind support to deliver transformational change;
- v) demonstrates commitment to delivering impact, with clearly described mechanisms for influencing policy and practice, which are responsive to the challenges of a rapidly changing landscape.

The UKRI Clean Air Programme has capital funding available of up to £500k to support the delivery of the Clean Air research programme and to provide an underpinning Clean Air community resource. Applicants to this consortia call are invited to include proposals for a Capital Idea up to £500k as an additional document to their consortia application, (herein referred to as a Capital Idea Proposal). This should detail how the Capital Idea proposal would support, and add value to, the consortia proposed programme of work and the wider community, but the consortia proposal should not be reliant on successful Capital Idea proposal funding. Capital Idea proposals should be scalable and indicate what could be achieved with variable funding amounts. Applicants should be aware that their Capital Idea proposal may be successful, but the funding amount may be lower than £500k. The funders also reserve the right to not administer any capital funding through this opportunity.

4. Programme requirements

4.1 Programme funding

Up to £10m is available to fund approximately 3 - 4 consortia at £ 2 – 3.3 m (80% FEC) each.

Proposals should include funding to attend one UK based Clean Air programme event per year. Costs should include travel for a 1-day event within the UK for core Consortia team members.

The UKRI Clean Air Programme has capital funding available of up to £500k to support the delivery of the Clean Air research programme and to provide an underpinning Clean Air community resource. The funders also reserve the right to not administer any of this £500k capital funding through this opportunity. Please see section 7. Capital Ideal Proposal.

4.2 Implementation and delivery

Projects should start on 1 September 2021 and run for four years. Successful consortia are expected to work with the funders and participate in cross-programme activities with other Clean Air investments facilitated by the Clean Air Champions.

4.3 Knowledge Exchange and Impact

Knowledge exchange (KE) is vital to ensure that environmental research has wide benefits for society and should be an integral part of any research.



A separate Pathways to Impact statement is not required, but applicants should still consider how they will or might achieve impact outside the scientific community and include this as part of their Case for Support. Impact activities do not have to be cost-incurring, but relevant costs can be included and must be fully justified within the Justification of Resources statement.

All funded projects may also be required to engage with programme-wide KE activities and work with the Clean Air Champions, e.g. partaking in a Clean Air programme conference and other programme-wide events, as such, Consortia should include funding to support travel to attend one UK based programme event per year.

4.4 Data Management

The [NERC Data Policy](#) must be adhered to, and an [outline data management plan](#) produced as part of proposal development. **If environmental data will be produced** NERC will pay the NERC data centre directly on behalf of the programme for archival and curation services, but applicants must ensure they request sufficient resource to cover preparation of data for archiving by the research team. Appropriate costs for the archival and curation of **non-environmental data** should be included within the application.

If other data is produced, please see Research Council specific policies:

- ESRC: <https://esrc.ukri.org/funding/guidance-for-grant-holders/research-data-policy/>
- MRC: <https://mrc.ukri.org/research/policies-and-guidance-for-researchers/data-sharing/>
- EPSRC: <https://epsrc.ukri.org/about/standards/researchdata/>
- STFC: <https://stfc.ukri.org/about-us/our-purpose-and-priorities/requesting-information-from-uk-research-and-innovation/scientific-data-policy/>

The Data Management Plan should be used as an opportunity to describe how the data are going to be managed - starting from planning for research and through the life-cycle of the grant until data is accepted for archiving by an appropriate data repository.

4.5 UKRI Facilities

Prior to submitting a proposal, applicants wishing to use a UKRI service or facility must contact the facility to seek agreement that they could provide the service required. Applicants wishing to use most UKRI facilities will need to submit a mandatory 'technical assessment' with their proposal. This technical assessment is required for aircraft but not for NERC marine facilities and HPC. For NERC, this means a quote for the work which the facility will provide. A [full list](#) of the NERC Facilities requiring this quote can be found on the NERC website. The costs for the NERC service or facility (excluding marine facilities and HPC costs) and other council facilities that require funding from the grant must be included within the Directly Incurred Other Costs section of the Je-S form and also within the facilities section of the Je-S form.

For further information about facilities, and how to access them, please see Research Council specific information:



- NERC: <https://nerc.ukri.org/research/sites/facilities/>
- MRC: <https://mrc.ukri.org/research/facilities-and-resources-for-researchers/>
- EPSRC: <https://epsrc.ukri.org/research/facilities/>
- STFC: <https://stfc.ukri.org/funding/access-to-facilities/>
- ESRC¹: <https://ukdataservice.ac.uk/>

4.6 Programme management

The Programme is managed and overseen by the SPF Clean Air Programme Board, which is advised by the SPF Clean Air Steering Committee.

4.7 Reporting requirements

Applicants are required to include a project plan within the proposal, which details deliverables and key milestones across the lifetime of the project. This should be confirmed with NERC within the first six months of the award as plans develop, and progress reports will be requested every three months to enable the SPF Clean Air Programme Board to track the progress of each investment.

Successful applicants will be required to report research outcomes on Researchfish in line with standard [UKRI Terms and Conditions](#). This is required annually and continues for up to five years post grant end.

UKRI may also require funded projects to respond to specific and other ad hoc queries for information, including information to support programme evaluation.

5. Application process

5.1 How to apply

5.1.1 Notification of Intent

A notification of intent to submit must be submitted by 3 September 16:00. Tell us the focus of your proposed research project, the institutions, investigators and project partners that are expected to be involved and include a title and brief abstract of your planned work. The abstract will not be assessed, but NERC will use the information to plan the proposal assessment. **Notification of intent should be submitted via the NOI form which can be found on the NERC webpage for this Announcement of Opportunity. Outline Je-S proposals submitted without a prior notification of intent will be rejected.**

5.1.2 Outline Proposals

Closing date 4pm 15 October 2020

¹ For access to UK Surveys, Longitudinal Data, and Administrative Data.



The outline proposal stage will be used to identify projects that will be invited to submit a full proposal. The outline proposals will be assessed by an expert panel. The funders anticipate taking 9 outline proposals through to the full proposal stage. Any sift of proposals will be made on the basis of potential for excellence and the likely fit of proposals to requirements of the call. The panel will provide brief feedback to applicants summarising why their proposal was successful/unsuccessful. No further feedback will be available. The funders may require modifications to the outline proposals to improve the fit to the call as a condition of any invitation to submit a full proposal.

One outline proposal submission is required for each proposed project; this should be submitted by the lead Principal Investigator and cover all consortium components.

For all proposals, the Principal Investigator must submit a completed outline proposal form together with a Case for Support. The Outline proposal form should include the expected Co-Investigators and their Research Organisations. If successful, some of the Co-Investigators would then become the Principal or Co- Investigators on the component grant proposals and not be named on the lead grant proposal.

The Case for Support should not exceed 4 sides of A4 and should include the following summary information:

- Objectives and anticipated outputs
- Outline of the proposed Consortia programme of work
- Composition and experience of the research team.
- Role of Project Partners and co-funding (proposed and secured).
- Outline of project management plan
- Outline of data management plan. *Please briefly identify data sets likely to be made available for archiving.*
- Proposed use of any UKRI Facilities, please see section 4.5 UKRI Facilities of this document.
- Equipment to be requested and the expected NERC % contribution required.
- References
- Additionally, if applicants wish to include a proposal for a Capital Idea up to £500k, this proposal should be included (0.5 side of A4) as a separate attachment. Please see section 7 Capital Idea Proposal for further information.

Outline proposals must be submitted using the Research Councils' Joint Electronic Submission system (Je-S). For all proposals please select Proposal Type - 'Outline Proposal' and then select Scheme - 'NERC Outline' and the Call - 'UK Clean Air Consortia Outline 2020'.

Named project partners may include UK or overseas Research or User Organisation, but an organisation should only be named as a Project Partner if it is providing specific contributions (either in cash or kind) to the project. Please note, Defra are a committed partner to the programme and so applications do not need to seek project letters of support from Defra, or membership of Defra as part of a project's proposed governance structure, for this call.



UK Research
and Innovation



The 'UK Clean Air Consortia Outline 2020' call will close on Je-S at **4pm on 15 October** and it will not be possible to submit to the call after this time. 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 incomplete or does not meet the eligibility criteria of this call for proposals, will be office rejected and will not be considered.

For all proposals the Principal Investigator must submit a completed Je-S Outline proforma together with a Case for Support. All documents should be completed in single-spaced typescript of minimum font size 11 point Arial font or other sans serif typeface of equivalent size to Arial 11, with margins of at least 2 cm. Please note that Arial narrow and Calibri are not allowable font types as they are smaller and any proposal which has used either of these font types within their submission will be rejected. References and footnotes must also be presented in minimum font size 11 point and should be in the same font type as the rest of the document. Headers and footers should not be used for references or information relating to the scientific case. Applicants referring to websites should note that referees may choose not to use them.

Applicants should ensure that their proposal conforms to all eligibility and submission rules, otherwise their proposal may be rejected without peer review. More details on NERC's submission rules can be found in the [NERC research grant and fellowships handbook](#) and in the [submission rules](#) on the NERC website.

It is the responsibility of applicants to undertake sufficient planning at the outline proposal stage to determine that the full costs of research proposed (including any facility costs) can be accommodated within the fixed financial limits of the scheme. The Resources indicated at the outline proposal stage are considered as estimates only and may be amended in a subsequent full proposal, within the financial limits of the scheme. No CVs or project partner letters should be submitted at the outline proposal stage.

Applicants should be informed by December 2020 if they are to be invited to proceed to the full proposal stage.

5.1.3 Full Proposals

Closing Date: 4pm 25 February 2021

Only Full proposals which have been invited by the Funders following the Outline stage will be accepted. Full proposal must be submitted using the Research Councils' Joint Electronic Submission system (Je-S). Applicants should select Proposal Type - 'Standard Proposal' and then select the Scheme – 'Directed' and the Call – 'UK Clean Air Consortia Full Proposal 2020'.

The 'UK Clean Air Consortia Full Proposal 2020' call will close on Je-S at 4pm on 25 February 2021 and it will not be possible to submit to the call after this time. 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 incomplete, or does not meet NERC's eligibility criteria or follow NERC's submission rules (see [NERC Grants Handbook](#)), will be office rejected and will not be considered.



Where the proposed research involves work with humans and/or animals, applicants **must read** the [“Policies and guidance for researchers”](#) including [MRC Guidance for applicants: Ethics and approvals](#) and [Guidance for proposals involving animal use](#), and **must submit** the template form in Annex A as part of their proposal.

Proposals for this call should be submitted in large grant format following the requirements outlined in Section F of the [NERC research grant and fellowships handbook](#) and specific requirements set out in this AO should be included.

Therefore, Full proposals for this call should include:

- Proposal Form
- Case for support
- Outline Data Management Plan
- Justification of resources
- C.V.
- Project Partner Letter of Support
- Letter of support (where prior permission is sought from researchgrants@nerc.ukri.org)
- Facility Form
- Technical Assessment
- Equipment Section attachments
- Proposal Cover letter
- Ethics forms. *Using the “Annex A: Use of animals and/or human participants – template form” found on the NERC webpage for this Announcement of Opportunity, please submit this as an additional document on Je-S, selecting document type “Other Attachment”.*
- Additionally, if applicants wish to include a proposal for a Capital Idea up to £500k, this proposal should be included as a separate attachment. Please see section 7 Capital Idea Proposal for further information.

All attachments, with the exception of letters of support and services/facilities/equipment quotes, submitted through the Je-S system must be completed in single-spaced typescript of minimum font size 11 point (Arial or other sans serif typeface of equivalent size to Arial 11), with margins of at least 2cm. Please note that Arial narrow, Calibri and Times New Roman are not allowable font types and any proposal which has used either of these font types within their submission will be rejected. References and footnotes should also be at least 11 point font and should be in the same font type as the rest of the document. Headers and footers should not be used for references or information relating to the scientific case. Applicants referring to websites should note that referees may choose not to use them.

Applicants should ensure that their proposal conforms to all eligibility and submission rules, otherwise their proposal may be rejected without peer review. More details on NERC’s submission rules can be found in the [NERC research grant and fellowships handbook](#) and in the [submission rules](#) on the NERC website.



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Research Organisations are required to make a contribution towards the cost of any equipment, and this is expected to be at least 50% of the full economic cost. Proposals should cite the full cost of the equipment, confirm the % being requested from the funders and provide confirmation that the remaining funds have been secured. Please see the [NERC Research Grants and Fellowships Handbook](#) regarding Equipment for further details.

No associated studentships can be requested under this call.

The expected start date for projects funded under this Announcement of Opportunity is 1 September 2021.

5.2 Eligibility

This call is open to [UKRI eligible](#) research organisations and PSREs fitting the criteria below. UKRI grants may be held at approved UK Higher Education Institutions (HEIs), approved Research Council Institutes (RCIs) and approved Independent Research Organisations (IROs). PSREs with 10 or more researchers with PhDs (or equivalent) are eligible to apply. If PSREs wishing to apply have not previously applied for UKRI funding and are not currently designated PSRE status they will be required to complete an [eligibility form](#) to ensure they have the required research capacity, systems and controls in place to manage the research and grant funding. PSRE applicants should contact avril.allman@nerc.ukri.org at the earliest opportunity to discuss their interests in applying.

For this call, standard NERC individual eligibility rules apply, however it should be noted that both PIs and Co-Is from **all disciplines supported by UKRI** are welcomed and encouraged to apply.

Investigators may be involved in no more than two proposals submitted to this call and only one of these may be as the lead Principal Investigator. Any Met Office or NPL collaborations should be recorded as Project Partners and individuals from these organisations will use their own funds to participate in Consortia activities.



6. Assessment Process

6.1 Notification of Intent

Notification of Intent submissions will not be assessed, but NERC will use the information for planning purposes.

6.2 Outline Proposals

Outlines received prior to the deadline which fit the basic requirements of the call will be assessed by an Assessment Panel who will shortlist those that will be invited to submit Full Proposals.

Outline Proposals will be assessed on:

- *Likely Fit to Scheme*
- *Potential for Excellence*

The funders will consider the overall balance of science needed to deliver the programme in making decisions about which Outline Proposals are progressed to the Full Proposal stage. Funders may require modifications to the proposed programme of work as a condition of progression to the full stage.

Applicants will be given brief feedback from the Panel summarising the reasons why the Outline was successful/unsuccessful. No further feedback will be available.

Outline Je-S proposals submitted without a prior notification of intent will be rejected.

6.3 Full Proposals (Invite only)

All proposals invited to be taken forward from the outline stage which meet the eligibility criteria will be peer reviewed and this will include an expert interdisciplinary panel.

Proposals will be assessed on:

- Fit to Scheme
- Excellence

The expert panel will consider the appropriateness of the requested resources and the effectiveness of the proposed management structure and plans for those proposals that are considered fundable.

Applicants will be invited to the expert panel to give a presentation and answer questions from the panel to assist the assessment process. NERC will try to provide early notice of an invitation to attend, but applicants should note the timeline for this call, and the expert interdisciplinary panel is likely to be held in early-June 2021.

Applicants will be given feedback from the Panel summarising why their proposal was successful/unsuccessful. No further feedback will be available.



The funding recommendations made by the expert panel will be made to the SPF Clean Air programme board. A portfolio approach will be used to ensure the breadth of the scope is addressed. The funders will use the recommendations of the expert panel along with the overall call requirements and the available budget in making the final funding decisions.

7. Capital Idea Proposals up to £500k

Applicants to the Consortia call are invited to include a proposal for a Capital Idea as part of their application, up to the value of £500k. Capital is defined as the creation or purchase of an asset that has a useful life exceeding one year and that costs more than £10,000. The definition of Capital can be found [here](#). Research Organisations are required to make a contribution towards the cost of any equipment, and this is expected to be at least 50% of the full economic cost. The funders also reserve the right to not administer any capital funding through this opportunity.

Where Capital Idea Proposals are successfully awarded, the funding should be spent by 31 March 2022.

The Capital proposals are separate to the consortia proposal and the consortia proposal should not be reliant on successful Capital funding. Capital proposals should be scalable and indicate what could be achieved with variable funding amounts. Applicants should be aware that their Capital Idea proposal may be successful, but the funding amount may be lower than £500k. The funders also reserve the right to not administer any capital funding through this opportunity.

7.1 Application process for a Capital Idea Proposal

7.1.1 Capital Idea Proposal - Outline Proposal Stage

Applicants submitting proposals to the Consortia call that wish to include a proposal for Capital up to £500k should include a Capital Idea Proposal Outline. The Capital Idea Proposal Outline comprises a brief summary (max. 0.5 side A4) which details the equipment request at the outline stage, as an additional document to their outline consortia proposal (section 5.1.2). This brief summary should detail how the Capital Idea proposal would support and add value to the consortia proposed programme of work and the wider community. This summary should be submitted in addition to the outline proposal case for support. The summary should include a high-level estimation of the full cost and the % being requested from the funders.

This should be submitted as an additional document on Je-S, selecting document type “Other Attachment”.

The attachment submitted through the Je-S system must be completed in single-spaced typescript of minimum font size 11 point (Arial or other sans serif typeface of equivalent size to Arial 11), with margins of at least 2cm. Please note that Arial narrow, Calibri and Times New Roman are not allowable font types and any proposal which has used either of these font types within their



submission will be rejected. References and footnotes should also be at least 11 point font and should be in the same font type as the rest of the document. Headers and footers should not be used for references or information relating to the scientific case. Applicants referring to websites should note that referees may choose not to use them.

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7.1.2 Capital Idea Proposal - Full Proposal Stage

Applicants who are invited to submit a Full Consortia Proposal and wish to also include a proposal for a Capital Idea up to £500k, should include a Capital Idea Proposal business case (up to 2 sides of A4) at the Full proposal stage as an additional document to their full proposal (section 5.1.3), which details how the Capital Idea Proposal would support, and add value to, the consortia proposed programme of work and the wider community. The case should include the evidence of an evaluation of the use of existing relevant capital assets.

Research Organisations are required to make a contribution towards the cost of any equipment, and this is expected to be at least 50% of the full cost. Proposals should cite the full cost of the equipment, confirm the % being requested from the funders and provide confirmation that the remaining funds have been secured in the business case.

Please see the [NERC Research Grants and Fellowships Handbook](#) regarding Equipment for further details.

This should be submitted as an additional document on Je-S, selecting document type “Other Attachment”.

The attachment submitted through the Je-S system must be completed in single-spaced typescript of minimum font size 11 point (Arial or other sans serif typeface of equivalent size to Arial 11), with margins of at least 2cm. Please note that Arial narrow, Calibri and Times New Roman are not allowable font types and any proposal which has used either of these font types within their submission will be rejected. References and footnotes should also be at least 11 point font and should be in the same font type as the rest of the document. Headers and footers should not be used for references or information relating to the scientific case. Applicants referring to websites should note that referees may choose not to use them.

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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.

7.2 Assessment Process for Capital Idea Proposals up to £500k

Capital Idea proposals will be assessed by the expert panel who will consider the appropriateness of the request, how the equipment proposal would support, and add value to, the consortia proposed programme of work and the wider community.

The expert panel will make recommendations to the SPF Clean Air programme board, who will use these recommendations along with the call requirement and available budget to make a final funding decision. The funders may choose to not support any equipment requests made through the Capital proposals.

7.3 Eligibility for Capital Idea Proposals up to £500K

Eligibility guidance detailed in section 5.2 should be adhered to and Capital Ideas proposals will only be accepted from those who are applicants to the Consortia call.

8. Timetable

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| • Announcement published: | July 2020 |
| • Call opens on Je-S | 23 July 2020 |
| • Notification of intent deadline: | 3 September 2020 |
| • Outline proposal deadline: | 15 October 2020 |
| • Outline assessment panel: | November 2020 |
| • Outline panel outcomes including invite to submit a full proposal: | December 2020 |
| • Deadline for submission of full proposals: | 25 February 2021 |
| • Expert panel meets: | June 2021 |
| • Latest start date for projects: | 1 September 2021 |

9. Contact

For all enquiries, please contact the Clean Air secretariat (atmospheric@nerc.ukri.org).

10. Annexes and accompanying documents

Annex A: Use of animals and/or human participants – template form