INTERVIEW PANEL GUIDANCE FOR THE CONSIDERATION OF DISCOVERY SCIENCE PUSHING THE FRONTIERS PROPOSALS

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1. Introduction

The Pushing the Frontiers call invites proposals from outstanding individual researchers in the environmental science domain to submit proposals that will push the frontiers of knowledge and lead to ground-breaking, risky, innovative scientific discovery. Up to £10 million is available to fund up to 5 awards for a period of up to 4 years.

This scheme will support researchers’ curiosity and imagination to enable discoveries that unlock new knowledge with a degree of adventure previously unrealised. We are seeking to invest in our best environmental scientists to be truly adventurous and ambitious and we will enable them to pursue curiosity-driven, high-risk, high-reward projects.

The research proposed must address a significant environmental science question but NERC welcomes applications from applicants that can demonstrate capability to collaborate with experts from other disciplines to generate innovative research. Such disciplines may be, but are not limited to, physical, biological, social, and medical sciences, and engineering, law, business and economics.

This call has a different structure to the long-standing NERC Discovery Science call, with which you may be familiar. NERC are piloting using a streamlined application process, as part of the UKRI-wide approach to support less bureaucratic demands of the research community. Thus, the proposed transformational research description is shorter (5 pages), we ask for information about only the skills and track record of the individual who will lead the research (2 pages), and a detailed costing is not required until the applicant is being considered for funding. As such panel members should understand that some detail typical of a longer application may not be included and look beyond this, focusing on whether the proposed research will push the frontiers of knowledge, and draw on the track record to assess if the skills exist, or can be developed, for the research programme to be successful.

The call is also using a different peer review form to standard NERC calls. Following external peer review, and the initial panel stage which involved two assessment panels: one for Early Career Researchers (ECRs) and one for established Principal Investigators (PIs), the final interview stage will involve one assessment panel. Reviewers are not asked to comment upon applicant’s eligibility as either an ECR or established PI as this is checked by NERC staff, but they should be assessing expectations of ‘Track Record and Capability to Deliver’ in the context of being an ECR or established PI.

The PI will be the only applicant and is expected to commit a minimum of 40% FTE (average of 2-days per week) over the duration of the award. However, the funding can be used to pay for other investigator and researcher time (within NERC eligibility rules). The applicant does not have to identify these collaborators in the proposal,
giving flexibility as the research progresses for the PI to involve new collaborators as required. Thus, the focus of the assessment process will be on the PI and the reviewer should not place emphasis on how widely (or not) the applicant has identified their team, nor who they are.

2. Conflicts of Interest

NERC maintains a conflicts of interest policy, available at Annex A. We ask that you make yourself familiar with the policy and let us know as soon as possible if you have – or are unsure whether you have - any conflicts of interest with the proposals to be discussed that have not already been identified in the documentation. Pushing the Frontiers proposals only have a named PI, not any named Co-Investigators. However, the PI may mention potential collaborators within the case for support and the NERC office will try to take those into account when determining conflicts.

Please make these known to the Panel Secretary (PushingFrontiers@nerc.ukri.org) as soon as possible, particularly if you are an introducer or reader so that the proposal can be reassigned to an alternative panel member.

For any proposal where panel members have been identified to have a conflict of interest they can stay in the virtual room for the presentation and questions, but must not ask any questions. They will then be required to leave the (virtual) room whilst discussions are taking place. Panel members may remain in the room for the ranking but must not make any comments during discussions for proposals where they have a conflict of interest.

If there is doubt as to whether the member should be asked to leave, the Chair may discuss this with the rest of the panel and the NERC executive. The NERC executive have the final decision in any case where there is debate about whether a conflict of interest exists at all stages of the peer review process.

3. Panel Confidentiality

Research grant proposals are submitted to NERC in confidence and may contain confidential information and personal data belonging to the applicant. NERC undertakes to the applicants to keep proposals confidential and not to use or disclose them except as required for the peer review/funding decision process or as is required under the Data Protection Act 1998 or the Freedom of Information Act 2000 (or any other law or regulation to which NERC is or may become subject).

Panel members may not disclose the fact that any of the enclosed grant proposals have been submitted to NERC or any of the information contained in any of the proposals to any person outside the Panel or otherwise involved in the peer review/funding decision process. Nor may they disclose or use the information in the grant proposals for any purpose other than as part of NERC peer review/funding decision process.

The Panel’s comments on and scoring of these proposals will be recorded by NERC staff at the meeting at which they will be discussed. NERC will not use these minutes or scores, nor disclose them to any person or body except:

- as is necessary to record the decisions of the Panel and to inform any other person or body within NERC or any other body that may be co-funding the proposals as part of the funding decision process;
• to the applicant as part of NERC feedback to successful and unsuccessful applicants; or
• as may be required under the Data Protection Act 1998 or the Freedom of Information Act 2000 (or any other law or regulation to which NERC is or may become subject).

NERC will not attribute any comments that are disclosed under the Data Protection Act 1998 or the Freedom of Information Act 2000 to any individual panel member, but the fact that you are a member of one of the Panels is publicly available information.

All personal data collected by NERC will be handled in accordance with the UK Data Protection Legislation and as set out in the UKRI Privacy Notice.

4. Initial Office Sift and Shortlisting Panels

All proposals submitted to the Pushing the Frontiers pilot call have been subject to peer review. An initial office sift removed those proposals that received consistently low scores (ones and twos) from the reviewers. The proposals with high scores (mostly threes) were moved on to the PI response stage, where the PI had the opportunity to respond to the reviewers’ comments received.

The two shortlisting panels (one for ECRs and one for Established PIs) allowed only top ranked proposals which were considered competitive to be taken forward from the shortlisting panel assessment to the interview panel assessment.

5. Role of the Panel

The role of the interview panel is to review the applicants that passed the shortlisting stage and that are assigned to it by NERC. The interview panel membership is a subset of both shortlisting panels and members were selected based on availability, minimising conflicts and maximising subject coverage and diversity. The interview panel will receive the full proposal documents, reviewers’ comments, applicant’s responses to reviewers’ comments, and host organisation letter of support as appropriate. Note, the host organisation letter of support was requested after the shortlisting panel and was not available at the shortlisting stage. The panel will also be provided with brief feedback from the shortlisting panel, which might help inform useful questions to ask the applicant. Using this information for reference, the interview panel is responsible for:

• providing scores for each proposal presented to them for the two criteria: i) Research excellence; ii) Applicant track record and capability to deliver;
• producing a final ranked list of these proposals with the highest overall scores;
• providing a summary of the panel’s discussion of the proposal which will be used as feedback to the applicant and the submitting research organisation administration office, and as a record of the justification for the panel scores and decisions.

6. The Panel Meeting

6.1 Before the Panel

It is the responsibility of all panel members to:
• identify any possible conflicts of interest with proposals not identified by NERC, please notify the Panel Secretary as soon as possible so the proposal can be reassigned to another panel member if needed;
• consider all the proposal material including the proposal, the reviewers’ comments, the PI response and the host organisation letter of support.

We are committed to the San Francisco Declaration on Research Assessment. You should not use journal-based metrics, conference rankings and metrics such as the H-index or i10-index when assessing UKRI grants. The content of a paper is more important than publication metrics, or the identity of the journal, in which it was published, especially for early-career investigators.

Please consider the value and impact of all research outputs (including datasets, software, inventions, patents, preprints, other commercial activities, etc.) in addition to research publications. You should consider a broad range of impact measures including qualitative indicators of research impact, such as influence on policy and practice.

We encourage you to challenge research assessment practices that rely inappropriately on journal impact factors or conference rankings and promote and teach best practice that focuses on the value and influence of specific research outputs. If you are unsure about DORA, please speak to the panel convener or the Panel Chair.

UKRI acknowledges that it is a challenge for applicants to determine the future impacts of COVID-19 while the pandemic continues to evolve. Applicants have been advised that their applications should be based on the information available at the point of submission and, if applicable, the known application specific impacts of COVID-19 should be accounted for. Where known impacts have occurred, these should have been highlighted in the application, including the assumptions/information at the point of submission. Applicants were not required to include contingency plans for the potential impacts of COVID-19.

When undertaking your assessment of the research project you should assess the project as written, noting that any changes that the project might require in the future, which arise from the COVID-19 pandemic, will be resolved as a post-award issue by UKRI if the project is successful. Potential complications related to COVID-19 should not affect your assessment or the score you give the project, and you should disregard any comments made by reviewers that go against the guidance supplied by UKRI.

6.2 At the Panel

Before the first interview, the Chair will remind the panel of the aim of the meeting and panel procedure, the NERC Conflict of Interest policy, and the need for confidentiality.

The panel Chair will welcome each applicant and outline the structure of the interview.

For each proposal, two panel members are nominated in advance as introducers and their role is to lead the questioning of that applicant. The introducers assigned for each interview panel proposal are included within the interview panel running order.

As well as the proposals that have been allocated to an introducer, panel members should read all other proposals where they are not conflicted and be willing to participate in the questioning of each applicant and subsequent scoring/ranking.
Each applicant is given 5 minutes to give a presentation, followed by 20 minutes of questions. Once the candidate has left the room following questions, there will be 20 minutes for panel reflection and discussion to agree the score.

Interview structure:

<table>
<thead>
<tr>
<th>Item</th>
<th>Duration (Minutes)</th>
</tr>
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<tbody>
<tr>
<td>(Introducers agree research questions)</td>
<td>&lt;5</td>
</tr>
<tr>
<td>Presentation</td>
<td>5</td>
</tr>
<tr>
<td>Questions</td>
<td>20</td>
</tr>
<tr>
<td>Panel discussion</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>≤50</strong></td>
</tr>
</tbody>
</table>

6.3 Panel Feedback

Panel feedback will be provided for every proposal discussed at the interview panel meeting (regardless of whether an award is offered). It is the responsibility of the first introducer to provide a summary of the panel’s discussion of the proposal as feedback to the applicant and as a record of the justification for the panel scores and decisions. The same feedback will also be copied to the applicant’s Research Organisation Administration Office.

The first introducer should record the key points using the template document provided in Annex B. Second introducers and other panel members should be prepared to provide the first introducer with inputs if requested.

Care should be taken to present the feedback constructively. It should not be a list of strengths and weaknesses as in a review. It should give context to the key factors that led to the proposal receiving the scores awarded and where needed should explain how the applicant could have achieved a higher score or position in the ranking. Comments should not be made that could reveal reviewer identities. Any comments not based on reviews should be clearly linked back to the documentation or interview (and not be based on any prior knowledge of the applicant). Introducers should ensure that the feedback provided is of a sufficient length so that it provides an appropriate level of detail to enable the applicant to understand why their proposal received the score awarded and how it could be improved.

The first introducer should email the feedback to the Panel Secretary as soon as possible and within one week of the meeting date, if possible.

7. Proposal Scoring

Taking into consideration the referee comments, PI response, host organisation letter of support and the interview, the panel must assign each applicant a score out of 6, which is made up from consideration of the draft score for Research Excellence (primary criterion; 1-3) and Applicant Track Record and Capability to Deliver (primary criterion; 1-3). For example, an applicant who is clearly at the top end of the 3 score for both criteria may get a score of 6, but another who is on the 2/3 boundary for one or both criterion may get a final score of 5 or 4.

At this stage, the panel can also assign a score qualifier of high, medium or low to aid the panel discussion and the prioritisation of similarly scored proposals at the end of the meeting.
All the shortlisted applicants have scored very highly at the previous stage and it is important that they are further differentiated at the interview stage, so panel members should consider whether each applicant and/or their proposed research is truly outstanding rather than excellent, what is truly ground-breaking about the research proposed and what truly outstanding contribution has the applicant made? This should relate to career stage, and one outstanding contribution by an ECR should rate more highly than someone who has had a long career gradually moving the field forward.

Additionally, this is an opportunity for the panel to ensure that the applicant ‘owns’ the research proposal, and that they understand the important role they will play in leading research of significant ambition on behalf of a wider research team. Thus their capacity to support and develop a research culture for their team that supports the advancement of others is also a consideration under capability to deliver - recognising again this should be considered in light of what is excellent for their career stage.

**A score cannot be changed once assigned so the panel should consider this process carefully.**

Panel members should base their assessment and scores (1-3) on the following criteria:

### 7.1 Research Excellence Criterion

Panel members should assess research excellence by considering the following:

- To what extent does the proposed research address an important environmental challenge, and involve objectives that are ambitious and beyond the state-of-the-art in the science area addressed?
- To what extent does the proposal push the frontiers of knowledge and lead to ground-breaking, high-risk, high-reward, innovative scientific discovery that will have a lasting impact on the science area addressed?
- To what extent is the outlined scientific approach feasible, bearing in mind that the proposed research is high risk/high gain?

<table>
<thead>
<tr>
<th>Score</th>
<th>Research Excellence (Primary Criterion)</th>
</tr>
</thead>
</table>
| 3     | **Outstanding**  
      | The proposed work meets outstanding standards in terms of ground-breaking, high-risk, high-reward, innovative scientific discovery and addresses an important environmental challenge |
| 2     | **Excellent**  
      | The proposed work meets high standards (possibly with aspects of excellence) in terms of ground-breaking, high-risk, high-reward, innovative scientific discovery and addresses an important environmental challenge |
| 1     | **Interesting/non-competitive**  
      | The proposed work has insufficient merit to be considered ground-breaking and innovative and/or is not addressing an important environmental challenge |

Proposals do not need to be hypotheses driven and may instead focus on an exploratory approach or the development of a new technology. Pushing the Frontiers may require risky research and so we would not consider risk to undermine a
proposal if it is in pursuit of ground-breaking new discovery. The streamlined application process may limit detailed process description, and this too should not undermine a proposal.

When considering multidisciplinary proposals (those which cross disciplines both within and between council remits), please be aware that reviewers may have only been able to comment on particular areas of the proposal. Reviewers will have been selected to try and cover all the proposed research between them. Do not be tempted to lower your score because you do not think that the research fits fully within the NERC remit as Discovery Science funding can cross funder responsibilities.

Panel members should not be looking at the funding requested in any detail. The limit for projects is £2M at 100% FEC, but there is a mechanism by which a case can be made to exceed this limit. All proposals being considered by the panel which are requesting funding in excess of the £2M limit have agreement from NERC.

7.2 Applicant Track Record and Capability to Deliver Criterion

Panel members should assess applicant track record and capability to deliver by considering the following:

- To what extent has the PI made an outstanding contribution to the generation of ground-breaking, new ideas and hypotheses and demonstrated the key skills required to do this?
- To what extent does the PI provide evidence of visionary independent thinking?
- To what extent has the PI demonstrated outstanding expertise and capability to successfully execute a project as an individual, and through supporting the advancement of colleagues?

<table>
<thead>
<tr>
<th>Score</th>
<th>Applicant Track Record and Capability to Deliver (Primary Criterion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td><strong>Outstanding</strong></td>
</tr>
<tr>
<td></td>
<td>The PI has made an outstanding contribution to the generation of ground-breaking new ideas, demonstrates visionary independent thinking and has an outstanding capability to deliver further ground-breaking research through this project.</td>
</tr>
<tr>
<td>2</td>
<td><strong>Excellent</strong></td>
</tr>
<tr>
<td></td>
<td>The PI has provided some evidence of contributing to the generation of ground-breaking new ideas and/or visionary independent thinking and demonstrates some capability to deliver further ground-breaking research through this project.</td>
</tr>
<tr>
<td>1</td>
<td><strong>Interesting/non-competitive</strong></td>
</tr>
<tr>
<td></td>
<td>The PI has shown insufficient evidence of contributing to the generation of ground-breaking new ideas and visionary independent thinking and/or demonstrated insufficient capability to deliver ground-breaking research through this project.</td>
</tr>
</tbody>
</table>

NERC recognises that the most outstanding researchers do not work alone, and successful applicants will be able to work with academic collaborators and other partners to achieve the transformational research they are proposing. However, this is a single PI led proposal. Prospective collaborators cannot be named as co-applicants or project partners, and so the applicant track record review is of the PI, their capacity for transformative research, and their capacity to execute this project, including supporting development of their collaborators.
Panel members should consider the career stage of the applicant when commenting on track record and capability to deliver and identify if the candidate is outstanding / excellent / non-competitive for that career stage.

Please have regard to the Equality Act and be careful to avoid any bias in your assessment on the grounds of a protected characteristic such as age, disability, gender reassignment, marriage/civil partnership, pregnancy/maternity, race, religion/belief, sex or sexual orientation. Also, base your review on the proposal and not on your previous knowledge of, or the reputations of, the applicants or their host organisations.

8. Proposal Prioritisation

Once all the applicants have been interviewed and had scores assigned, the panel will be asked to place the proposals in funding priority order, starting with those proposals that have scored six high, then six medium, and six low. The score qualifier of low, medium or high will be used in forming an initial ranking to aid the comparison of similarly scored proposals. The score qualifiers can be discounted during the ranking if the panel conclude that they do not accurately reflect the comparative excellence of the proposal. Applicants will receive the final score and ranking, which will also be published on the NERC outcomes webpage, anonymised for those who are not awarded funding.

All proposals with the maximum score of 6 will be considered outstanding (under the criteria definition) so it will be difficult to clearly differentiate and rank. In considering which proposals to recommend for award, the panel should aim for a diverse range of applicants. The NERC executive will use the ranking to inform the final outcomes, but will have the final decision on who will be funded.
Annex A

Handling Conflicts of Interest in Peer Review - Guidance for NERC Reviewers and Panel Members

A conflict of interest occurs when an individual involved in the assessment of a proposal for funding has a personal, professional or organisational relationship with the applicants, affecting their ability to undertake their role in an objective and unbiased way. If you are asked to take part in NERC peer review, either to review a NERC proposal or be a member of a NERC moderating or assessment panel then you need to be aware of the NERC policy on conflicts of interest for members of NERC boards, advisory groups and peer review panels.

The NERC policy defines a conflict of interest as being associated or involved in any way with:

- An institution, department or individual that has submitted a funding proposal or would otherwise benefit from a decision and/or
- the development or implementation of proposals seeking NERC/UKRI funds or in the evaluation of research investments

You will have connections and collaborations both formal and informal with a range of organisations and individuals. In order to help you interpret the broad definitions above, this advice aims to set clear expectations of the specific situations considered to represent a material conflict of interest, and when conflicts of interest need to be declared to NERC so that appropriate action can be taken. Definitions of the individuals that may be involved in a proposal (investigators, project partners etc) can be found in the NERC Grants Handbook.

NERC will try to avoid asking you to review or introduce proposals where you have conflicts that can be identified from our own records, but many will not be obvious to us. The final responsibility for identifying and reporting conflicts of interest must therefore rest with the individual. Timing is very important as late notification is much more difficult to manage. A conflict for a panel member identified when the panel is being set up is straightforward to manage, the same conflict identified on the day of the meeting can create major problems, so please check the proposals assigned to you carefully as soon as you receive them.

What Constitutes a Conflict of Interest?

Due to the complexities of relationships between researchers it is challenging to provide definitive and exclusive definitions. Some cases will be clear cut, others will be less so and will require a judgement call. We expect researchers who work in the same field to know each other, and this doesn't bar you from commenting on their proposals. The test should be 'will a neutral observer have confidence in the impartiality of any advice provided' and in any case where there is significant doubt the relationship should be treated as a conflict. The NERC Executive have the final decision in any case where there is debate about whether a conflict of interest exists. The following are examples of conflicts of interest considered material by NERC for a proposal you have been asked to review or introduce:

<table>
<thead>
<tr>
<th>Conflict</th>
<th>Action Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 You are a named investigator, staff member or project partner involved in the proposal or have signed a letter of support</td>
<td>NERC should identify these conflicts please</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>You have a formal affiliation to any Research Organisation or Project Partner organisation involved in the proposal.</td>
</tr>
<tr>
<td></td>
<td>This generally means you are a current member of staff at the organisation. You also have a formal affiliation if you are a Professor Emeritus, Visiting Professor, or have signed a contract of employment or receive personal remuneration in excess of £5,000 per annum from the organisation.</td>
</tr>
<tr>
<td></td>
<td>For Fellowship proposals conflicts apply to both the organisation where the applicant is currently based and the organisation where the fellowship would be held.</td>
</tr>
<tr>
<td></td>
<td>[Association with an organisation that has provided a letter of support but is not a Project Partner is not a conflict]</td>
</tr>
<tr>
<td>3</td>
<td>You are directly involved in the work proposed and would benefit from it being funded and/or have assisted the applicants with their proposal for funding and/or have agreed to be a member of an advisory committee connected with the project.</td>
</tr>
<tr>
<td>4</td>
<td>You have an existing business or professional partnership with any of the investigators or staff named in the proposal</td>
</tr>
<tr>
<td>5</td>
<td>You are a close relative - spouse, child, sibling or parent - of any of the investigators or staff named in the proposal.</td>
</tr>
<tr>
<td>6</td>
<td>You are a close personal friend of any of the investigators or staff named in the proposal and think that might affect your judgement or be seen as doing so by a neutral observer familiar with the relationship.</td>
</tr>
<tr>
<td>7</td>
<td>You are in close regular collaboration with any individuals named in the proposal, including investigators, research staff, collaborators, subcontractors and project partners, to an extent where you feel uncomfortable being involved in the discussion or you feel unable to give an unbiased opinion.</td>
</tr>
<tr>
<td>8</td>
<td>On Fellowship proposals: you have been the applicant’s supervisor within the last eight years.</td>
</tr>
<tr>
<td>9</td>
<td>You have had any involvement in the development of the proposal, at any stage of its preparation, including providing comments or advice to the applicants.</td>
</tr>
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</table>
Managing conflicts

Reviewers - NERC aims to avoid selecting reviewers where a conflict of interest is clear or applicants have requested that specific reviewers are not used. This will include anyone with a personal or organisational association with the proposal identifiable from the information available to NERC. In the peer review of funding calls with a specific research scope NERC will also avoid selecting reviewers that have submitted a proposal to the same call. Anyone asked to provide a review should check to ensure they have no other material conflicts, if so they should decline the request citing 'conflict of interest' as their reason. Please contact NERC quickly for advice if you are unsure. Where a material conflict is identified after a review is submitted that review will be classed as unusable and excluded from the process.

Panels - Panel members are reminded to identify any material conflicts of interest, especially with proposals they have been asked to introduce, as early as possible in advance of the meeting. Where a conflict of interest is identified, panel members’ meeting papers will be edited to remove relevant information regarding the conflicted proposal and the member will be asked to leave the meeting room when it is discussed. The meeting record will note all instances where a conflict of interest was identified and managed at a panel. For some panels, particularly where these are interview panels, the standard practice of members leaving the meeting for a conflicted proposal may not be practical. However, they will never participate in the discussion of that proposal, or be permitted to influence the final ranking of a proposal where such a conflict exists. In the peer review of calls with a specific research scope NERC will avoid appointing anyone to a panel that is a named investigator on any proposal to be considered by that panel. For Discovery Science panels, where the research scope can be broad, NERC will only involve applicants in panels when their expertise is critical, the meeting procedures will prevent them being able to influence or receive immediate information on the score or ranking of their proposal.

NERC staff

NERC staff may also have connections with applicants that constitute a conflict of interest. Although their opportunity to influence outcomes is limited, in such circumstances staff will not be involved in reviewer selection or any decision stage for proposals where a material conflict exists.
Annex B

Panel Feedback Form

This form should be used to provide a description and justification of the panel's assessment of research proposals. Comments included will be used as feedback to the applicant and as a record of the panel's discussion for NERC. The same feedback will also be copied to the applicant's Research Organisation Administration Office.

Please note:
- The first introducer for each proposal is responsible for completing this form and sending it to the Panel Secretary within one week of the meeting date
- Your comments will be fed back verbatim to the applicant and their Research Organisation Administrative Office

<table>
<thead>
<tr>
<th>Proposal details</th>
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<tbody>
<tr>
<td>Introducer Name</td>
</tr>
<tr>
<td>Grant Reference</td>
</tr>
<tr>
<td>PI Name</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Proposal Assessment details and feedback to applicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel final score (combined Research Excellence and Applicant Track Record)</td>
</tr>
</tbody>
</table>

Please detail the panel's comments on both Research excellence and Applicant track record