

The Energy and Resources Institute **(Grant Recipient)**

Darbari Seth Block, IHC Complex, Lodhi Road, New Delhi-110003, India

17 June 2025

Attention: Mr K Venkatramana

Dear Mr K Venkatramana,

FPCW-PR01-P017 - Simulating the Effects of Earth Cooling Approaches on the Dynamics and Thermodynamics of Monsoon and Precipitation Extremes– Basic Research Grant Funding Letter

Congratulations, we can't wait to see what you will achieve and very much look forward to working with you and your team.

You recently submitted an application in response to Exploring Climate Cooling and ARIA is pleased to offer you a Grant for the performance of the Basic Research Project Activities up to the Maximum Sum, subject to your agreement to, and compliance with, the terms and conditions set out in this Grant Funding Letter and its Schedules.

This Basic Research Funding Letter is offered to you on the basis the activity being funded is considered experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view.

1. Overview of the Grant

Any reference in this letter to "you" or "your" means the Grant Recipient and any capitalised terms have the meanings given in the ARIA Grant Conditions (Conditions).

The key elements of the Grant are described in the table below:

Project Activities	Simulating the Effects of Earth Cooling Approaches on the Dynamics and Thermodynamics of Monsoon and Precipitation Extremes. A more detailed description of the Project Activities is set out in Schedule 2 (Project Activities).
Maximum Amount of the Grant	£142,024 (inclusive of all taxes where applicable)
Commencement Date	The commencement date is 17 June 2025
Completion Date	The completion is 16 June 2027
Grant Review Intervals	ARIA will review the Grant at quarterly intervals using the process referred to in clause 6 of the Conditions
Adequate Insurance	Employers' liability - At least £5 million (as required by the Employers' Liability (compulsory Insurance Act 1969) Public liability: £5 million (per year in aggregate)
Monitoring and Reporting	The performance reports referred to in clause 7 of the Conditions shall

	be provided by you at the frequency identified in Schedule 2 to the ARIA point of contact as set out in the project kick-off documentation.	
Project Representative	Mr K Venkatramana, Associate Fellow & AC, TERI. [REDACTED] [REDACTED]	
Grant Manager	Mark Symes, Programme Director, [REDACTED]	
Escalation Contacts	ARIA	Grant Recipient
	Chief Product Officer [REDACTED]	[REDACTED], Senior Fellow and Director, TERI. [REDACTED]
Notices	ARIA Contracts [REDACTED]	[REDACTED], Senior Manager-PMU, TERI. [REDACTED] [REDACTED] [REDACTED]

2. Confirmation of Bank Details

- 2.1. You must complete and sign the Confirmation of Bank Details form available [here](#) as part of your acceptance of the Grant and return it to finance@aria.org.uk

3. The Grant Agreement

- 3.1. Once you sign a copy of this Grant Funding Letter in accordance with paragraph 6 (Acceptance) below, it will form a binding "**Grant Agreement**" between you and ARIA that includes and incorporates the following documents:
- 3.1.1. the **Grant Conditions** in Schedule 1;
 - 3.1.2. the **Project Activities, Milestones** and **Grant Application** in Schedule 2;
 - 3.1.3. the **Commercial Exploitation Terms** (including annexes) in Schedule 3 - Although the parties do not envisage any commercial application of the Results, this schedule sets out your obligations if commercial exploitation of the Results does occur, and
 - 3.1.4. the terms relating to **Data Protection** in Schedule 4.
- 3.2. Not used.
- 3.3. The parties confirm that it is their intention to be legally bound by the Grant Agreement.

4. Warranties

- 4.1. By signing this Grant Funding Letter, you warrant and represent that:
- 4.1.1. your obligations under the Grant Agreement are legal, valid, binding and enforceable;

- 4.1.2. all authorisations and consents necessary to enable you to enter into and perform the obligations in the Grant Agreement have been obtained;
- 4.1.3. the person signing the Grant Agreement is duly authorised to sign on your behalf; and
- 4.1.4. your Project Representative referenced in the table above is authorised to make decisions and provide information on your behalf.

5. Amendments to the Grant Conditions

- 5.1. Not used.

6. Acceptance

- 6.1. To accept this Grant Funding Letter, please arrange for an authorised signatory to sign and date the duplicate copy of this Grant Funding Letter as indicated below, and return to ARIA as a complete signed original of the Grant Agreement including its Schedules, accompanied by evidence of the authorised signatory's authority to enter into the Grant Agreement and to bind the Grant Recipient.

- 6.2. The offer of this Grant Funding Letter will expire on 19 June 2025.

Yours sincerely

for and on behalf of ARIA

Name of ARIA signatory:

Position Held:

Date:

I confirm the agreement of The Energy and Resources Institute to the terms and conditions in this Grant Funding Letter and its Schedules.

Signature:

Name:

Position:

Date:

SCHEDULE 1 - GRANT CONDITIONS

1. PRECEDENCE

- 1.1 Where there is any conflict between the documents that make up the Grant Agreement the conflict will be resolved in accordance with the following order of precedence:
- (a) the Grant Funding Letter;
 - (b) these Conditions;
 - (c) the remaining Schedules to the Grant Agreement with the exception of Schedule 2 Part 2 (the Grant Application);
 - (d) Schedule 2 Part 2 (the Grant Application); and
 - (e) any other documents incorporated by reference in, or developed in accordance with, the Grant Agreement.

2. DURATION AND PURPOSE OF THE GRANT

- 2.1 The Grant Agreement will subsist for the duration of the Funding Period unless extended by written agreement signed by a duly authorised representative of the parties or terminated earlier in accordance with its terms. Any provision of the Grant Agreement that expressly or by implication is intended to come into or continue in force on or after termination or expiry of the Grant Agreement shall remain in full force and effect, including clauses 1, 2, 4, 7.4, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22.3, 22.7, 22.8, 22.11, 22.12, 23, 24, 26, 27, 28, and 29.
- 2.2 You may only use the Grant for carrying out the Project Activities. You may not make any changes to the Project Activities without ARIA's prior written agreement.
- 2.3 You may not unreasonably withhold, condition or delay your agreement to any changes requested by ARIA to the Project Activities or the amount of the Grant. Any agreed change will be recorded in a written variation to the Grant Agreement in accordance with clause 26.

3. ENVIRONMENTAL AND SAFETY REQUIREMENTS

- 3.1 In performing the Project Activities, you shall meet the requirements of all applicable Laws regarding the environment and safety, including laboratory safety requirements, in all material respects.

4. PAYMENT OF GRANT

- 4.1 Subject to the remainder of this clause 4 ARIA will pay the Grant to you:
- (a) up to the Maximum Sum;
 - (b) in pounds sterling (GBP) by wire transfer into your bank account details of which you provided in the Confirmation of Bank Details form attached to the Grant Funding Letter; and
 - (c) if a tax is chargeable in respect of the Grant, all payments will be deemed to be inclusive of all such taxes and ARIA will not be obliged to pay any additional amount.
- 4.2 The bank account of which you provided details in your Confirmation of Bank Details form (and any alternative bank details nominated subsequently by you) must be an ordinary business bank account with appropriate segregation of duties and control. During the Funding Period, you must notify ARIA of any change of bank account details as soon as reasonably practicable on the same form and signed by an approved signatory. You must notify ARIA of any change of signatory for approval, as soon as known.

- 4.3 You will be the sole recipient of the Grant and you will be responsible for managing the Grant as between you and any Third Parties involved in performing the Project Activities. This includes securing the repayment of the Grant if requested by ARIA in accordance with the Grant Conditions, including where the Grant has already been distributed to Third Parties.
- 4.4 You must promptly notify ARIA if any money is incorrectly paid to you for any reason, and must repay it as soon as reasonably practicable. Any amount not immediately repaid will be recoverable as a civil debt.
- 4.5 ARIA reserves the right not to pay any Grant Claims that are not submitted within the period set out in the Grant Funding Letter or that are incomplete, incorrect or not accompanied by full supporting documentation (including any documentation that ARIA reasonably requests).
- 4.6 You may not apply for or obtain Duplicate Funding for any Project Activities.
- 4.7 You may not retain any Unspent Monies and must repay them to ARIA within 30 days after ARIA's request for repayment.
- 4.8 You acknowledge the critical importance of cash flow for Sub-Contractors (including startups and small businesses) and commit to paying all valid and undisputed invoices relating to the Project within a maximum of 30 days from the date of receipt.
- 4.9 Where required, you will work with Sub-Contractors to arrange more frequent payment schedules (e.g., same day, weekly or milestone-based payments) to better support their cash flow needs.

5. ELIGIBLE AND INELIGIBLE EXPENDITURE

- 5.1 ARIA will only pay the Grant for Eligible Expenditure incurred by you in carrying out the Project Activities. You must provide ARIA with any evidence reasonably requested by ARIA (including receipts, invoices and other documentary evidence) that all Grant Claims relate to costs that are Eligible Expenditure.
- 5.2 You may not in any circumstance claim as Eligible Expenditure paid-for lobbying, which means using the Grant to fund lobbying (via an external firm or in-house staff) in order to undertake activities intended to influence or attempt to influence Parliament, government or political activity; or attempting to influence legislative or regulatory action.

6. GRANT REVIEW

- 6.1 ARIA will review the Grant at the intervals specified in the Grant Funding Letter. The review will take into account your carrying out of the Project Activities against the Milestones. As part of the ARIA review process, ARIA will review the reports produced by you in accordance with clause 7.3.
- 6.2 Following the review carried out under clause 6.1, ARIA may choose to do any of the following, taking into account any representations made by you in the course of the review:
 - (a) consent to the Project Activities and the Grant Agreement continuing in line with existing plans;
 - (b) increase or decrease the Grant for the remainder of the Funding Period, as applicable;
 - (c) redefine the Milestones;
 - (d) require you to carry out remedial activity with the aim of improving delivery of the Project Activities; and/or
 - (e) terminate the Grant Agreement in accordance with clause 22.

- 6.3 Any change to these Grant Terms, the Project Activities, or the Grant pursuant to clause 6.2(a), 6.2(c) or 6.2(d) will be recorded in a written variation to the Grant Agreement in accordance with clause 26.

7. MONITORING AND REPORTING

- 7.1 You must closely monitor the carrying out of the Project Activities throughout the Funding Period and must notify ARIA as soon as reasonably practicable of any actual or potential failure to comply with any of your obligations under the Grant Agreement.
- 7.2 ARIA does not limit its engagement with you to purely administrative activities and will require details of all Results and all material Foreground IP, so you must allow ARIA personnel to visit your premises at a reasonable frequency and at dates and times agreed with you to liaise with your applicable researchers for the purpose of identifying Foreground IP, evaluating Milestones and assessing progress with the Project Activities. ARIA will treat the Results and Foreground IP, and other information it learns from such visits, as your Confidential Information under clause 11.
- 7.3 You must provide ARIA with:
- (a) the Milestones and a report on your performance against the Milestones at the intervals and for the periods of time specified in the Grant Funding Letter. ARIA may copy and adapt the contents of any of the Milestones and those reports for ARIA's internal use to review, develop and shape ARIA's funded research programmes, but ARIA will treat those contents as your Confidential Information under clause 11;
 - (b) any assistance and information reasonably requested by ARIA to establish whether you have used the Grant in accordance with the Grant Agreement; and
 - (c) a quarterly report on your use of the Maximum Sum, with details broken down in accordance with ARIA's prescribed form.
- 7.4 ARIA is built for long-term impact and needs to be kept informed of the impact of its funding activities and compliance with the terms of the Grant Agreement. ARIA will therefore have the right to make reasonable requests for information from you from time to time after the end of the Funding Period about the dissemination of the Results and how this has benefited the United Kingdom. You must respond and provide the information requested within one month (unless ARIA specifies otherwise). If requested, ARIA will treat the information provided as your Confidential Information under clause 11. Nothing in this Grant Agreement will be deemed to limit ARIA's ability to use, share or publish such information as part of aggregated and anonymised reporting. This clause 7.4 shall survive termination or expiry of this Grant Agreement.

8. AUDITING AND ASSURANCE

- 8.1 For Grants between £100k and £500k: At the end of the Funding Period you must provide ARIA with independent assurance that the Grant has been used for carrying out the Project Activities. To satisfy this requirement you must provide a statement showing that the use of the Grant has been certified by an independent and appropriately qualified auditor or accountant.
- 8.2 Subject to clause 11, ARIA and/or its authorised representative may, at any time during the Funding Period and for up to 7 years after the end of the Funding Period, conduct audits in relation to your use of the Grant and your compliance with the Grant Agreement. You must act

reasonably in cooperating with any such audit, including by granting access to relevant documentation, premises and personnel.

8.3 You must:

- (a) maintain an appropriate system of financial management and controls, maintain detailed records in relation to those controls, and provide copies of those records to ARIA on request; and
- (b) retain, and procure that your Sub-Contractors retain and will provide to you on request, all relevant documentation relating to the Eligible Expenditure (including invoices, receipts and accounting records) during the Funding Period and for a period of 7 years thereafter.

9. FINANCIAL MANAGEMENT

9.1 You must:

- (a) maintain a sound administration and audit process, including internal financial controls, to safeguard against fraud and theft, money laundering, terrorist financing or any other impropriety, or mismanagement in connection with the administration of the Grant; and
- (b) notify ARIA of any actual or suspected cases of fraud, theft or financial irregularity relating to the Project Activities as soon as they are identified, and keep ARIA informed of your remedial actions.

9.2 In the event of any actual or suspected fraud, theft or other financial irregularity (which includes use of the Grant for any purpose other than that envisaged by the Grant Agreement), ARIA may, at its absolute discretion:

- (a) require you to take any remedial steps that ARIA may reasonably specify; and/or
- (b) suspend the Project Activities and future payment of the Grant to you,

and in all cases you must explain to ARIA what steps are being taken to investigate the fraud, theft, or irregularity (as applicable) and must keep ARIA informed about the progress of any such investigation. You must, if required by ARIA, refer the matter to an external auditor or any other relevant Third Party.

10. CONFLICTS OF INTEREST

10.1 You must inform ARIA promptly of any actual, perceived or potential conflicts between your and your Representatives' obligations under the Grant Agreement and your and their personal, business or professional interests. You must have adequate procedures to manage and monitor any actual or potential conflicts of interest, whether identified in the application process or notified to ARIA during the Funding Period.

10.2 If ARIA is not satisfied that you are adequately managing any actual or potential conflicts of interest, or that these conflicts are not capable of such management, the parties will discuss the issues raised and try to agree a resolution. If this is not possible, ARIA may request you or your Representative to cease the conflicting activity and if that is not acceptable to you or your Representative, either party may terminate the Grant Agreement on at least 30 days' notice in writing.

11. CONFIDENTIALITY

11.1 Except to the extent set out in this clause 11 or where disclosure is expressly permitted by the other party, each party must treat all Confidential Information belonging to or disclosed by the other

party as confidential and will not disclose any such Confidential Information to any other person without the prior written consent of the other party, except to any persons who are directly involved in the provision of the Project Activities, who need to know the information and who are subject to binding obligations of confidentiality to the disclosing party.

- 11.2 ARIA may publish a summary of the Grant Agreement in any medium (having redacted both parties' Confidential Information), including a summary of any changes to the Grant Agreement agreed from time to time. Additionally, ARIA may publish a copy of the Milestones (in whole or in part) in any medium (provided that, where such Milestones contain or constitute your Confidential Information, ARIA has given you a reasonable opportunity to make representations in respect of any redactions or amendments you wish to be applied). For the avoidance of doubt, ARIA's publication rights under this clause 11.2 are exercisable at ARIA's sole discretion.
- 11.3 Nothing in this clause 11 will prevent either party disclosing any Confidential Information of the other party:
- (a) for the purpose of the examination and certification of its accounts and/or pursuant to section 6(1) of the National Audit Act 1983;
 - (b) to any government department, consultant, contractor or other person engaged by that party, provided that such party only discloses information necessary for the purpose concerned and obtains appropriate confidentiality undertakings in relation to such information;
 - (c) where disclosure is required by Law, including under the Information Acts to the extent they apply to that party and where no exception to disclosure under them is applicable; or
 - (d) where that party (acting reasonably) considers disclosure necessary or appropriate for the carrying out of its public functions.
- 11.4 Nothing in this clause 11 will prevent either party from using any techniques, ideas or know-how gained during the performance of its obligations under the Grant Agreement in the course of its normal business or activities, to the extent that this does not result in a disclosure of the other party's Confidential Information or an infringement of the other party's Intellectual Property Rights.

12. STATUTORY DUTIES

- 12.1 Each party must comply with its obligations under the Law, including where applicable the Information Acts, the EA and the HRA and you shall notify ARIA immediately of any investigation of or proceedings against you under the EA.
- 12.2 You acknowledge that ARIA is subject to requirements under the Information Acts (other than the FOIA) and you will provide reasonable assistance and cooperation to ARIA to assist ARIA's compliance with its information disclosure obligations.
- 12.3 You acknowledge that ARIA, acting in accordance with the Information Acts (other than the FOIA), may disclose information concerning you and the Grant Agreement without consulting you. ARIA must notify you of any request for information to the extent permissible and reasonably practical and will give you adequate opportunity to make representations before ARIA discloses any information relating to such matters. ARIA will be responsible for determining in its absolute discretion whether any information is exempt from disclosure in accordance with the Information Acts.
- 12.4 Where you are subject to the Information Acts and receive a request for disclosure that relates to ARIA or the Grant Agreement you will notify ARIA and give ARIA adequate opportunity to make representations to you before you disclose any information relating to such matters.

- 12.5 You must take account of the requirements of the National Security and Investment Act 2021 before assigning or licensing Results or Foreground IP. You are encouraged to give a voluntary notice to the Secretary of State under the Act in advance of any such assignment or licence if the assignment or licence is likely to meet the requirements of section 18 of the Act and inform ARIA if any mandatory or voluntary notification is made.
- 12.6 You must take account of the Secure Innovation and Trusted Research Guidance. You must also consider any risks to the physical safety and security of the public and implement any appropriate mitigations and measures where the Project Activities you carry out have the potential to interact with the public.

13. DATA PROTECTION

- 13.1 Each party must comply at all times with its obligations under the Data Protection Legislation. At ARIA's request you must provide ARIA with all relevant documents and information relating to your data protection policies and procedures that ARIA may reasonably request.
- 13.2 The parties do not envisage that either party will process any Personal Data for or on behalf of the other party under or in connection with the Grant Agreement. If either party anticipates that the other will process any Personal Data on its behalf under the Grant Agreement it must notify the other party and the parties must agree a variation to the Grant Agreement under clause 26 to incorporate appropriate provisions (such as those set out in Schedule 4) in accordance with, or as otherwise required by, the Data Protection Legislation.

14. SUBSIDY CONTROL AND STATE AID

- 14.1 ARIA intends that the Grant complies with the Subsidy Control Act 2022 on the basis that the Project Activities constitute basic research and have no commercial application in view, notwithstanding that they may be carried out with the intention of contributing to a knowledge base which may form the basis of a solution to a recognised or expected problem. If during the Funding Period you plan to take any concrete action regarding any current or future commercial application of the Results, you must promptly inform ARIA. You must assist ARIA to comply with the requirements of the Act and must cooperate with any investigations under the Act.
- 14.2 Where the EU state aid laws apply to the Grant (where the Project Activities will affect trade between Northern Ireland and the EU), you acknowledge that the Project Activities are designed and performed so they are compatible with state aid laws. You will take all reasonable steps to assist ARIA to comply with state aid law requirements and cooperate with any investigations by the European Commission into the Project Activities.
- 14.3 ARIA will immediately stop future payments of the Grant and may require repayment of some or all of the Grant if subsidy control or state aid laws so require for the funding to be compliant.

15. INTELLECTUAL PROPERTY RIGHTS

- 15.1 You must act in good faith and comply with the spirit of clauses 15 and 16 and where applicable, the terms of Schedule 3, and not seek to avoid their application by artificial means.

Background IP

- 15.2 The Grant Agreement does not affect the ownership of your Background IP. You must notify ARIA during the Funding Period if any additional Background IP is required to carry out the Project Activities.

Foreground IP ownership and dissemination

- 15.3 You will own all Foreground IP and, subject to clauses 15.5 and 15.7, you must publish or report publicly on the outcomes of the Project Activities within 18 months after the end of the Funding Period unless:
- (a) a delay in publication is reasonably necessary to protect any Confidential Information or Foreground IP; or
 - (b) there is some other substantial reason to delay or suspend publication and you have obtained ARIA's written consent to do so.
- 15.4 Where you assign any Foreground IP to a Third Party you must impose on the assignee the obligations relating to Foreground IP and Results contained in clauses 15 and 16.
- 15.5 You must submit all (i) all patents within or covering the Foreground IP and (ii) data generated from any activities or experiments identified in the Project Activities to the Future Proofing our Climate and Weather Intellectual Property Pledge promptly following creation or filing (as applicable) of such patents and/or data (unless otherwise agreed in writing with, or instructed by, ARIA). For clarity, your rights to use and commercialise Foreground IP set out in clauses 15 and 16 are subject to the terms of the Future Proofing our Climate and Weather Intellectual Property Pledge. You hereby agree to comply and uphold the terms of the Future Proofing our Climate and Weather Intellectual Property Pledge.

Attribution to ARIA

- 15.6 You must ensure that whenever any Results are used with or communicated to Third Parties, ARIA's funding of the Project Activities is suitably accredited in accordance with ARIA's accreditation guidelines in force at the time. When using ARIA's name and logo you will comply with ARIA's branding guidelines in force at the time.

Patenting and publication

- 15.7 You must ensure that all Foreground IP is protected and managed in a professional manner, which may include patenting of any Results that are patentable.
- 15.8 You must notify ARIA where practicable at least 30 days (and in any event at least 48 hours) before publication of any Results by any person. This is intended to give ARIA the opportunity to discuss with you the possibility of filing a patent application before publication, and if appropriate assisting you with that process.
- 15.9 You must give ARIA as much notice as possible, but no less than 30 days' notice, of any decision to abandon or withdraw patent protection for any of the Results for the lifetime of the relevant patents or such shorter period as is agreed with ARIA so that ARIA can consider whether it wishes to fund future prosecution and maintenance and/or request the assignment of the patents to ARIA or its nominee.

16. COMMERCIALISATION

- 16.1 As stated at 14.1 above, the Project Activities will consist of basic research with no commercial application in view. However, if commercial exploitation of the Results does arise, such commercial exploitation shall be carried out in accordance with Schedule 3.

17. ASSETS

- 17.1 You must keep a register during the Funding Period and for up to 7 years after the end of the Funding Period of all Assets, with all relevant details about each Asset. You must use any Assets purchased with Grant monies for the Project Activities.
- 17.2 At the end of the Funding Period all equipment purchased for use on the Project with funds provided by ARIA shall remain your property.

18. INSURANCE

- 18.1 You must maintain Adequate Insurance (including public liability insurance) either as a self-insurance arrangement or with an insurer of good repute to cover all insurable claims and liabilities under or in connection with the Grant Agreement. You must provide evidence of that insurance to ARIA on request.

19. ASSIGNMENT AND SUBCONTRACTING

- 19.1 You may not transfer, assign, novate or otherwise dispose of the whole or any part of the Grant Agreement or any rights under it, to another organisation or individual, without ARIA's prior written consent.
- 19.2 You shall not subcontract any of the Project Activities to a Third Party except to the extent permitted, and to the person or persons identified, in Schedule 2 Part 1. You must seek ARIA's prior consent to appoint any new Sub-Contractors not identified in Schedule 2 Part 1. You shall (i) be responsible for the acts and omissions of any Sub-Contractor as though they were your own, and (ii) enter into a written agreement with each Sub-Contractor on terms that are at least as protective of ARIA's rights and interests as the terms of this Grant Agreement and which contains all other provisions as are necessary to ensure that the Sub-Contractor complies with your obligations under this Grant Agreement.

20. BORROWING, LOSSES, GIFTS, SPECIAL PAYMENTS

- 20.1 You must obtain ARIA's prior written consent before:
- (a) borrowing or lending money from any source in connection with the Grant Agreement;
 - (b) giving any guarantee, indemnity, security over any Asset or letter of comfort in relation to the Grant Agreement;
 - (c) making any gift or writing off any debt or liability in connection with the Grant, and must keep a record of all gifts given and received in connection with the Grant.

21. PUBLICITY

- 21.1 The parties will agree the text of a press release or other announcement to publicise the award of the Grant and all such publicity must comply with ARIA's accreditation and branding guidelines. Neither party may make any other press release or announcement about the Grant or publicise details of the Grant Agreement without the other's consent, except as required by Law.
- 21.2 You must comply with all reasonable requests from ARIA to facilitate visits and provide reports, statistics, photographs (with consent of your personnel if required) and case studies that will assist ARIA in its promotional and impact assessment activities relating to the Project Activities.

22. EVENTS OF DEFAULT AND TERMINATION

Events of Default

22.1 ARIA may exercise its rights set out in clause 22.2 if any of the following events occur:

- (a) you fail to comply with any of your obligations under clauses 2.2, 7.2, 9.1, 11, 12, 13 or 25, or commit a material breach of any other term of the Grant Agreement in the reasonable opinion of ARIA;
- (b) you do not commence the Project Activities within 30 days after the Commencement Date unless an extension is agreed with ARIA;
- (c) you fail to improve the performance of the Project Activities, notwithstanding you having undertaken the remedial activity agreed with ARIA in the remedial plan under clause 6.2(d);
- (d) you obtain any funding from a Third Party that, in the opinion of ARIA, undertakes activities that are likely to bring the reputation of the Project Activities or ARIA into disrepute;
- (e) you provide ARIA with any materially misleading or inaccurate information in your grant application or in subsequent related correspondence;
- (f) you commit a Prohibited Act or fail to report a Prohibited Act to ARIA, whether committed by you or a Third Party, immediately upon becoming aware of it;
- (g) you are subject to an Insolvency Event;
- (h) the Grant or any part of it is held by a court or competent authority to be a prohibited subsidy under the Subsidy Control Act 2022 or an illegal state aid;
- (i) you undergo a Change of Control which will, in the reasonable opinion of ARIA:
 - (i) be materially detrimental to, or result in fundamental changes to, the Project Activities;
 - (ii) result in your being unable to receive the Grant; and/or
 - (iii) raises national security concerns.

Rights reserved for ARIA in relation to an Event of Default

22.2 If an Event of Default has occurred, ARIA may by written notice to you take any one or more of the following actions:

- (a) suspend the Project Activities and payment of the whole or any part of the Grant for such period as ARIA may determine, acting reasonably;
- (b) reduce the Maximum Sum, in which case the payment of Grant will thereafter be made in accordance with the reduction and notified to you; and/or
- (c) subject to clause 22.4, terminate the Grant Agreement with immediate effect as from the date of service of the notice of that termination.

22.3 Where this Grant Agreement is terminated for an Event of Default described in clause 22.1(f) or 22.1(h), ARIA may require you to repay the entire amount of the Grant previously paid to you.

Opportunity for you to remedy an Event of Default

22.4 If ARIA wishes to exercise any right under clause 22.2 in connection with an Event of Default which is capable of remedy:

- (a) ARIA will provide reasonable notice to you specifying particulars of the Event of Default, how it must be remedied and the timescales for its remedy; and
- (b) following receipt of a notification under clause 22.4(a), you will be given a reasonable opportunity to remedy the Event of Default before ARIA exercises the relevant right under clause 22.2.

- 22.5 Without prejudice to any other provision of the Grant Agreement, you may terminate the Grant Agreement immediately on written notice to ARIA if ARIA commits a material breach of the Grant Agreement which is either not capable of being remedied or, if the breach is capable of being remedied, ARIA fails to remedy such breach within 30 (thirty) days of receiving written notice requiring it to do so.

General Termination Rights

- 22.6 Notwithstanding ARIA's right to terminate the Grant Agreement under clause 22.2(c), either party may terminate the Grant Agreement (in whole or in part) at any time by giving at least 60 days' prior written notice to the other party.
- 22.7 You must promptly notify ARIA in writing if at any time the principal investigator or any key researcher(s) named in Schedule 2 working on the Project Activities is unable or unwilling to continue to be involved in the Project Activities or is moving to a new organisation without the desire to continue the research. Within 60 days after the date of that notice, you must either:
- (a) nominate one or more successors, subject to ARIA's approval; or
 - (b) agree that the Grant is transferred to another organisation subject to your and the new organisation's agreement in writing and ARIA's approval of the transfer.

If ARIA is unwilling to accept the nominated successor(s) or does not approve a request for transfer, it may terminate the Grant Agreement by at least 30 days' written notice to you.

Consequences of Termination

- 22.8 If the Grant Agreement is terminated you must return any Unspent Monies to ARIA within 30 days after the date of the termination notice, save where ARIA gives written consent to their retention.
- 22.9 Where ARIA terminates the Grant Agreement in accordance with clause 22.6, ARIA will be liable to pay any Unavoidable Costs subject to:
- (a) you taking all reasonable steps to mitigate such loss; and
 - (b) the Unavoidable Costs being:
 - (i) proven, reasonable, and not capable of avoidance or recovery;
 - (ii) incurred under arrangements or agreements that are directly associated with this Grant Agreement;
 - (iii) supported by full particulars, including a fully itemised and costed list of such costs, with supporting evidence and copies of any relevant Sub-Contracts, and such information has been provided to the reasonable satisfaction of ARIA;
 - (iv) costs not relating to Sub-Contracts with an entity which directly or indirectly controls you, is controlled by you, or is under direct or indirect common control with you; and
 - (v) costs that would not have been incurred had this Grant Agreement continued until the end of the Funding Period as set out in the Grant Funding Letter (or, if it has been extended, the expiry of such additional period).
- 22.10 You shall ensure that any Sub-Contract, or the part of the Sub-Contract which relates to the Project Activities, over £250,000 will terminate automatically and immediately upon termination of this Grant Agreement.

- 22.11 If requested by ARIA from time-to-time, you must (acting in good faith) provide ARIA with a reasonable estimate of the Unavoidable Costs which would be payable under this Agreement in the event that the Grant Agreement was terminated (calculated on the basis described in clause 22.8).
- 22.12 ARIA's total liability under clause 22.9 shall be limited to the Maximum Sum under the Grant Agreement (or relevant part), including any sums paid, due or becoming due to you at the date of termination.
- 22.13 If the Grant Agreement is terminated or expires ARIA will not be liable to pay any of your costs or those of any of your contractors or suppliers related to any transfer or termination of employment of any employees engaged in the provision of the Project Activities, unless they have been hired for the purpose of the Project Activities, are specified personnel in the Grant Funding Letter and are normal statutory or contractual requirements. You must at ARIA's request promptly prepare a written exit plan to provide for the cessation or seamless transfer to a Third Party of the Project Activities following expiry or termination of the Grant Agreement.

23. DISPUTE RESOLUTION

- 23.1 The parties must use all reasonable endeavours to resolve in good faith any dispute that arises during the term of the Grant Agreement.
- 23.2 All disputes and complaints must be referred in the first instance to the Grant Manager and the Project Representative.
- 23.3 If the dispute cannot be resolved between the Grant Manager and the Project Representative within a maximum of 15 Working Days, then the matter will be escalated to a formal meeting between the parties' Escalation Contacts.

24. LIMITATION OF LIABILITY

- 24.1 Neither party's liability for any of the following shall be subject to the limitations or exclusions of liability otherwise provided for in this clause:
- (a) fraudulent misrepresentation or any other fraudulent act or omission;
 - (b) payment of sums properly due and owing to the other in the normal course of performance of this Grant Agreement;
 - (c) a breach of clause 13;
 - (d) liability arising under any indemnity in this Grant Agreement; or
 - (e) liability which may not lawfully be excluded or limited.
- 24.2 Subject to clause 24.1, ARIA accepts no liability for any consequences or Losses (except, for clarity, as set out in this Grant Agreement or for ARIA's breach of this Grant Agreement), whether arising directly or indirectly, that may arise in connection with:
- (a) your carrying out the Project Activities;
 - (b) the use of the Grant by any person;
 - (c) any reduction, suspension, withdrawal or request for repayment of the Grant in accordance with this Grant Agreement; or
 - (d) termination of the Grant Agreement in accordance with this Grant Agreement.
- 24.3 Subject to clause 24.1, neither party will be liable to the other party, whether for breach of contract, tort (including negligence) or otherwise, for:

- (a) loss of profit, sales or turnover;
- (b) loss of contracts or business opportunities;
- (c) loss of anticipated savings;
- (d) loss of goodwill or damage to reputation; or
- (e) any indirect, special or consequential loss or damage;

in each case arising out of or relating to the Grant Agreement, whether or not such loss or damage was foreseeable or the other party was advised of its possibility.

- 24.4 Subject to clause 24.1, each party's total aggregate liability arising out of or relating to the Grant Agreement or its subject matter or anything which it has done or not done in connection with the Grant Agreement or its subject matter (whether for breach of contract, tort, including negligence, or otherwise), will not exceed the amount of the Maximum Sum.
- 24.5 You shall under no circumstances in connection with this Grant Agreement be entitled to recover damages, or obtain payment, reimbursement, restitution or indemnity more than once in respect of the same loss, shortfall, damage, deficiency, breach or other event or circumstance.
- 24.6 ARIA shall be entitled to set off any of your outstanding liabilities against any amounts that are payable by it pursuant to this Grant Agreement.

25. RESEARCH ETHICS AND CODE OF CONDUCT

- 25.1 Recipients who are research institutions must operate in accordance with the Concordat.
- 25.2 All research data:
 - (a) must be generated using sound scientific techniques and processes;
 - (b) must be accurately recorded in accordance with good scientific practices by the people conducting the research; and
 - (c) must be analysed appropriately, without bias and in accordance with good scientific practices.
- 25.3 The Results must be stored securely and be easily retrievable with document trails that allow reconstruction of key decisions and conclusions of the Project.
- 25.4 You must comply with the Code of Conduct and ensure that your Representatives undertake their duties in a manner consistent with the principles set out in the Code of Conduct. You must immediately notify ARIA if you become aware of any actual or suspected breaches of the principles contained in the Code of Conduct.

26. VARIATIONS

- 26.1 Any variation to the Grant Agreement will only be valid if it is agreed in writing and signed by an authorised representative of each party.

27. GENERAL

- 27.1 Notices: All notices and other communications in relation to this Grant Agreement must be in writing and will be deemed to have been duly given if personally delivered, e-mailed, or mailed (first class postage prepaid) to the address of the relevant party as stated in clause 2.1 of the Offer Letter. If personally delivered or if e-mailed all such communications will be deemed to have been given when received (except that if received on a non-working day or after 5.00 pm on any Working Day they will be deemed received on the next Working Day) and if mailed all such

communications will be deemed to have been given and received on the third Working Day following such mailing.

- 27.2 Change of control: You must notify ARIA as soon as practicable in writing of any arrangements that are in progress or in contemplation that if completed will result in a Change of Control, and must provide to ARIA sufficient details about the circumstances surrounding the proposed Change of Control and the identity of the proposed acquiror to allow ARIA to assess whether clause 22.1(i) is likely to apply.

28. GOVERNING LAW

- 28.1 This Grant Agreement (including any non-contractual disputes or claims arising in connection with this Grant Agreement) will be governed by and construed in accordance with the laws of England and Wales and the parties irrevocably submit to the exclusive jurisdiction of the courts of England and Wales.

29. NOT USED

30. DEFINITIONS AND INTERPRETATION

- 30.1 Where they appear in these Conditions or the Grant Agreement:

Adequate Insurance means the insurance requirements and amounts set out in the Grant Funding Letter.

Asset means any asset that is purchased, improved or developed using the Grant including equipment and fixed assets;

Background IP means IP that is:

- (a) owned by or licensed to a party prior to the Commencement Date; or
- (b) developed by or on behalf of a party during the Funding Period but not in connection with the Project Activities;

and is in either case used in connection with the Project Activities;

Bribery Act means the Bribery Act 2010 and any subordinate legislation made under that Act from time to time together with any guidance or codes of practice issued by the relevant government department concerning this legislation;

Change of Control means the sale of all or substantially all your assets; any merger, consolidation or acquisition of you with, by or into another person, or any change in the ownership of more than fifty percent (50%) of your voting capital in one or more related transactions;

Code of Conduct means the Code of Conduct for Recipients of Government General Grants published by the Cabinet Office in November 2018 which is available (at the Commencement Date) at

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/754555/2018-11-06_Code_of_Conduct_for_Grant_Recipients.pdf

including any subsequent updates from time to time;

Commencement Date means the date set out in the Grant Funding Letter;

Concordat means the Concordat to Support Research Integrity which can be found at <https://ukrio.org/about-us/the-concordat-to-support-research-integrity/>

Conditions means these ARIA Grant Conditions;

Confidential Information means any information (however conveyed, recorded or preserved) disclosed by or on behalf of a party to the other party, whether before or after the date of the Grant

Agreement that ought reasonably to be considered to be confidential (whether or not it is so marked), including:

- (a) any information relating to:
 - (i) the business, affairs, customers, clients, suppliers or plans of the disclosing party; or
 - (ii) the operations, processes, product information, know-how, designs, trade secrets or software of the disclosing party;
 - (b) any information developed by the parties in the course of carrying out the Project Activities;
 - (c) Personal Data supplied by either party to the other for the purposes of, or in connection with, the Grant Agreement; and
 - (d) any information derived from any of the above,
- but not including:
- (e) information which:
 - (i) was public knowledge at the time of disclosure (otherwise than by breach of clause 11);
 - (ii) was in the possession of the receiving party, without restriction as to its disclosure, before receiving it from the disclosing party;
 - (iii) is received from a Third Party (who lawfully acquired it) without restriction as to its disclosure; or
 - (iv) is independently developed without access to the Confidential Information; and
 - (f) the content of this specific version of the Grant Agreement, save in respect of any information which is exempt from disclosure under the Information Acts as they apply to the relevant party;

Crown Body means the government of the United Kingdom (including the Northern Ireland Assembly and Executive Committee, the Scottish Executive and the National Assembly for Wales), including, but not limited to, government ministers and government departments and particular bodies, persons, commissions or agencies from time to time carrying out functions on its behalf;

Data Protection Legislation means all applicable laws from time to time in force in England and Wales on data protection, including but not limited to, the Data Protection Act 2018, the retained EU law version of the GDPR and the Privacy and Electronic Communications (EC Directive) Regulations 2003, SI 2003/2426, and any national laws or regulations implementing Directive 2002/58/EC (as updated by Directive 2009/136/EC) and any judicial or administrative interpretation of any of the above, and any guidance, guidelines, codes of practice, approved codes of conduct and approved certification mechanisms issued by any relevant supervisory authority as applicable;

Duplicate Funding means funding provided to you by a Third Party which is to fund the same activities as the Project Activities;

EA means the Equality Act 2000 and any subordinate legislation made under that Act from time to time together with any guidance or codes of practice issued by the relevant government department concerning the legislation;

EIR means the Environmental Information Regulations 2004 or Environmental Information (Scotland) Regulations 2004;

Eligible Expenditure means the payments made by you during the Funding Period for the purposes of carrying out the Project Activities which comply with clause 5 and ARIA's published eligibility rules (which provide for full economic cost reimbursement) and as agreed in the Grant Funding Letter;

Escalation Contact means the escalation contact appointed by ARIA or by you (as the case may be), which at the Commencement Date will be the individuals listed as such in the Grant Funding Letter;

Event of Default means any of the events or circumstances set out in clause 22.1;

Financial Year means 1 April to 31 March;

FOIA means the Freedom of Information Act 2000 and the Freedom of Information (Scotland) Act 2002, any subordinate legislation made under those Acts from time to time together with any guidance or codes of practice issued by the relevant government department concerning the legislation;

Foreground IP means any IP in the Results;

Funding Period means the period for which the Grant is awarded as set out in the Grant Funding Letter;

Future Proofing our Climate and Weather Intellectual Property Pledge means the pledging system for patents relating to approaches for actively cooling the earth operated by ARIA/a third party in the form at Annex A;

GDPR means Regulation (EU) 2016/679;

Grant means the sum or sums ARIA will pay to you up to the amount set out in the Grant Funding Letter, in accordance with clause 4 and subject to the provisions set out at clause 22.

Grant Agreement has the meaning given in the Grant Funding Letter;

Grant Claim means a request submitted by you to ARIA for payment of the Grant;

Grant Funding Letter means the letter from ARIA to you to which these Conditions are annexed;

Grant Manager means the individual who has been nominated by ARIA to be your day-to-day point of contact in relation to the Grant;

Grant Review means the process for reviewing the grant outlined in clause 6;

HRA means the Human Rights Act 1998 and any subordinate legislation made under that Act from time to time together with any guidance or codes of practice issued by the relevant government department concerning the legislation;

Ineligible Expenditure means expenditure incurred by you which is not Eligible Expenditure as set out in clause 5 and ARIA's published eligibility rules;

Information Acts means the Data Protection Legislation, FOIA and the EIR, as amended from time to time;

Insolvency Event means:

(i) where you pass a resolution, or the court makes an order that you be wound up (otherwise than for the purpose of a bona fide and solvent reconstruction or amalgamation); or (ii) a receiver, manager or administrator on behalf of a creditor is appointed in respect of all or part of your business or assets; or (iii) circumstances arise which entitle a court or creditor to appoint a receiver, manager or administrator or which entitle the court (otherwise than for the purpose of a solvent and bona fide reconstruction or amalgamation) to make a winding up order; or (iv) you cease to trade or are unable to pay your debts within the meaning of the Insolvency Act 1986 or any similar event occurs under the law of any other jurisdiction;

Intellectual Property Rights or IP means copyright, rights related to or affording protection similar to copyright, rights in databases, patents and rights in inventions semi-conductor topography rights, trade marks, rights in internet domain names and website addresses and other rights in trade names, designs, know-how, trade secrets and any modifications, amendments, updates and new releases of the same and all similar or equivalent rights or forms of protection which subsist or will subsist now or in the future in any part of the world;

Law means any law, statute, bye-law, regulation, order, regulatory policy, guidance or industry code, judgement of a relevant court of law, or directives or requirements of any regulatory body, delegated or subordinate legislation;

Losses means all losses, liabilities, damages, costs, expenses (including legal fees), disbursements, costs of investigation, litigation, settlement, judgement, interest and penalties whether arising in contract, tort (including negligence), breach of statutory duty, misrepresentation or otherwise;

Maximum Sum means the maximum amount of the Grant stated in the Grant Funding Letter;

Milestones means the outputs of the Project Activities described in paragraph 3.2 of Schedule 2;

Personal Data has the meaning given to it in the Data Protection Legislation as amended from time to time;

Prohibited Act means:

- (a) directly or indirectly offering, giving or agreeing to give to any servant of ARIA or the Crown any gift or consideration of any kind as an inducement or reward for:
 - (i) doing or not doing (or for having done or not having done) any act in relation to the obtaining or performance of the Grant Agreement; and/or
 - (ii) showing or not showing favour or disfavour to any person in relation to the Grant Agreement;
- (b) committing any offence:
 - (i) under the Bribery Act;
 - (ii) under legislation creating offences in respect of fraudulent acts; and/or
 - (iii) at common law in respect of fraudulent acts in relation to the Grant Agreement; and/or
- (c) defrauding or attempting to defraud or conspiring to defraud ARIA or the Crown;

Project means the Project Activities together with the Results;

Project Activities means the activities to be carried out by you that are described in the Grant Funding Letter and in Schedule 2 Part 1;

Project Representative means the representative appointed by you, who at the Commencement Date will be the individual listed as such in the Grant Funding Letter;

Representative means any of the parties' duly authorised directors, employees, officers, agents, professional advisors and consultants;

Results means all information, data, techniques, inventions, discoveries, works, software and materials generated in the course of the Project Activities;

Secure Innovation and Trusted Research Guidance means the best practice for the implementation of basic protective security measures guidance provided by NCSC and NPSA which can be found on ARIA's website;

Sub-Contract means any contract or agreement or proposed contract or agreement between you and any Third Party whereby that Third Party agrees to provide to you the Project Activities or any part thereof or facilities or services necessary for the performance of the Project Activities or any part thereof or necessary for the management, direction or control of the Project Activities or any part thereof, and **Sub-Contractor** shall be construed accordingly;

Third Party means any person or organisation other than you or ARIA;

Unavoidable Costs means the amounts paid or payable by you to your Sub-Contractors or other third parties in respect of the termination of Sub-Contracts as a direct result of the early termination of this Grant Agreement and which are not capable of recovery;

Unspent Monies means any monies paid to you which remain unspent at the end of the Funding Period because of termination or breach of the Grant Agreement. Unspent Monies do not include non-cancellable costs incurred prior to termination;

Working Day means any day other than a Saturday, Sunday or public holiday in England and Wales.

30.2 In these Conditions and the Grant Agreement, unless the context otherwise requires:

- (a) references to "party" and "parties" are to the parties to the Grant Agreement;
- (b) the singular includes the plural and vice versa;
- (c) references to a person include an individual, company, body corporate, corporation, unincorporated association, firm, partnership or other legal entity or Crown Body;
- (d) references to clauses and Schedules are to the clauses of these Conditions and to the Schedules to the Grant Agreement;

- (e) a reference to any Law includes a reference to that Law as amended, extended, consolidated or re-enacted from time to time;
- (f) the words "including", "other", "in particular", "for example" and similar words will not limit the generality of the preceding words and will be construed as if they were immediately followed by the words "without limitation"; and
- (g) the headings in the Grant Agreement are for ease of reference only and will not affect the interpretation or construction of the Grant Agreement.

SCHEDULE 2

PART 1 - PROJECT ACTIVITIES

1. Background

The ongoing warming of the planet significantly influences precipitation patterns and extremes, which is a critical consideration when evaluating SRM strategies aimed at cooling the Earth. Climate change could exacerbate these patterns, leading to a scenario where wet regions could become wetter and dry areas could experience increased aridity. Specifically, numerical models suggest that under the Shared Socioeconomic Pathway (SSP) 5-8.5 scenario (high-emission), many regions will experience more intense monsoon precipitation compared to the SSP2-4.5 scenario (middle of the road). This trend is attributed to an increase in the frequency and intensity of extreme daily events associated with climate change.

A critical factor in these extreme precipitation events is the enhanced vertical moisture ascent, often referred to as the dynamic component. This vertical motion, linked to local convection and low-level convergence, elevates atmospheric moisture, triggering latent heating and subsequent heavy rainfall. While thermodynamic factors contribute to overall precipitation increases, dynamic processes play a pivotal role in local-scale intensification, particularly in monsoon regions. Similar findings have emerged from studies in the UK, where an extreme winter event in 2014 was linked to stronger vertical motions that increased atmospheric moisture and promoted convection. Recent research, including your own work (Byju et al., 2024), highlights the dominance of this dynamic component (>70%) in driving extreme precipitation during monsoon seasons. However, projections suggest a potential decline of its contribution (10-35%) under future high-emission scenarios, possibly due to increased tropospheric stability resulting from warming.

In response to the growing impacts of climate change, SRM strategies have been proposed as potential method to mitigate these effects and cool the planet. Current research indicates that while SRM strategies may effectively cool the planet, they could also present significant drawbacks by disrupting the planet's energy balance and potentially affecting the climate system. Additionally, uncontrolled termination of SRM interventions could lead to rapid climatic changes. The nature and magnitude of these drawbacks are contingent upon specific SRM approaches.

Climate modelling studies available in this area are mainly focused on stratospheric aerosol injection (SAI), which is a proposed method to inject reflecting aerosols into the stratosphere, which can lead to a reduction in global and tropical precipitation. Several recent studies indicate that planned simultaneous injections at multiple locations can effectively help maintain large-scale temperature metrics in a nearly stable state. Climate modelling studies such as the Geoengineering Large Ensemble (GLENS) experiment involved injection of sulphur dioxide (SO₂) at various latitudes with an adaptive feedback-control algorithm, revealing that such injections suppress tropical precipitation, particularly affecting monsoon regions in India and the Americas. In contrast, Arctic aerosol injection is thought to have a lesser impact on tropical climates due to its shorter aerosol lifespan and smaller coverage area. Studies have also indicated that both tropical and Arctic injections could decrease precipitation over monsoon regions in Asia and Africa. Specifically, research has shown that Arctic SAI and the resulting inter-hemispheric temperature difference can shift the Intertropical Convergence Zone southward, altering precipitation patterns in the Northern and Southern

Hemispheres. However, differences in injection intensities between tropical and Arctic SAI experiments complicate the assessment of their respective contributions to climate changes. While thermodynamic and nonlinear terms contribute to a decrease in global mean precipitation under Arctic SAI, dynamic terms may counteract this effect.

The Indian Summer Monsoon (ISM), a critical system for regional sustenance, is particularly sensitive to SAI. Research indicates that the location and intensity of aerosol injections can significantly impact ISM precipitation, potentially leading to substantial reductions. Even when large-scale temperature metrics are stabilized, factors such as upper tropospheric warming and circulation changes can lead to a weakening of the monsoon precipitation. Given the complexity of the Asian monsoon system and its numerous feedback mechanisms, establishing clear cause-and-effect relationships remains challenging. Nevertheless, considering that a significant portion of the population depends on the ISM for sustenance, these studies carry substantial regional implications—not only for SRM outcomes but also for intermediate climatic conditions during its implementation.

Although proposed SRM methods may lead to planetary cooling, their impacts on the pattern of precipitation will vary. SAI, for instance, has been shown to reduce extreme precipitation in tropical areas, while GeoMIP solar dimming scenario may be more effective in extra-tropical regions. Further, SRM could significantly compensate for the change in seasonality, peak precipitation timing and duration associated with enhanced warming. Several such studies also show that regional variability of precipitation responses to SRM is significant, but it is not uniform. Moreover, at the termination of climate interventions, climatic conditions such as temperature, precipitation, winds, and moisture would abruptly revert to what they would have been under a global warming scenario. This potential shift must also be considered when evaluating methods aimed at cooling the planet.

Overall, while the proposed methods of SRM could cool the planet, SRM carries complex implications for global and regional precipitation and requires careful consideration of the undesirable side effects, even after the termination. The impacts of SRM on extreme precipitation can be multifaceted and can lead to both reductions and increases in precipitation extremes depending on the method used and the regional climatic conditions. Further, the relationship between warming/cooling and extreme precipitation is complex due to the interplay between dynamic and thermodynamic factors.

This project aims to leverage moisture budget decomposition methodologies, building upon your previous research, to explore the impacts of SRM methods on regional precipitation, particularly focusing on the dynamic and thermodynamic drivers of extreme events. The proposed project will offer valuable insights into regional variations and potential climate extremes and thereby provide policymakers, researchers, and stakeholders with meaningful information for decision-making processes on the impacts of SRM.

2. Aims and objectives of the Project Activities

Precipitation is a critical component of the Earth's climate system, essential for sustaining ecosystems and supporting agricultural productivity. However, climate change is projected to significantly alter global precipitation patterns. Additionally, alterations in atmospheric circulation patterns driven by warming will further modulate the intensity and distribution of extreme precipitation events.

SRM has gained attention as a potential approach for mitigating climate change impacts. Although the existing SRM methods, such as Stratospheric Aerosol Injection (SAI), Marine Cloud Brightening (MCB), and Cirrus Cloud Thinning (CCT), may lead to planetary cooling, their impacts on the processes controlling precipitation will vary. People are very much concerned about the changes in precipitation that SRM would bring because of their broader societal implications, particularly concerning agriculture and thus on the economy.

A moisture budget decomposition of precipitation would help you to identify the different factors, such as dynamic, thermodynamic, evaporation and nonlinear processes, that impacts the total rainfall as well as extremes. Warming would alter the contribution of those factors in shaping the precipitation patterns. In this project you aim to explore through modelling how the cooling of the planet with the existing SRM methods could alter the factors that drive precipitation and extreme weather events. You aim to gain valuable insights into regional variations and potential climate extremes in this study, thereby providing policymakers, researchers, and stakeholders with meaningful information for decision-making processes on SRM.

The main objectives of this project are to:

1. Conduct a comprehensive assessment of SRM's impact on monsoon and precipitation extremes across India and the UK—factors directly influencing agricultural practices and food production and economy.
2. Elucidate how the factors influencing precipitation frequency, intensity and seasonality such as atmospheric dynamics, thermodynamics, evaporation processes, and nonlinear physics are altered due to climate interventions.
3. Investigate how these changes manifest in the precipitation and moisture budget terms following the termination of such interventions

3. Project Activities

Your primary objective of this proposal is to understand how the changes in different factors contribute to changes in precipitation patterns. To address this, you will decompose the anomalous precipitation into different moisture budget components into dynamic, thermodynamic and nonlinear components. Analysing the results would provide insights into the physical components that are most sensitive to climate intervention methods resulting in anomalous precipitation. Furthermore, analysing changes across different regions and distinct geographical contexts, while utilising various climate model data for different SRM approaches, will enhance your understanding of the sensitivity of these interventions regionally.

Further, the project also aims to understand whether the warming or cooling of the planet will lead to changes in seasonality, which is crucial, as these changes can significantly influence local ecological and social dynamics. Seasonality changes can be assessed using matrices that include dimensionless relative

entropy, dimensionless seasonality index, timing of the peak rainy season, and duration of the peak rainy season (Feng et al., 2013).

You will use data from models participating in the Coupled Model Intercomparison Project phase-6 (CMIP6) under historical, intermediate (SSP2-4.5), and high-emission (SSP5-8.5) scenarios to investigate characteristic changes in precipitation, extremes and seasonality in global warming scenarios. A comprehensive analysis of the characteristic changes in precipitation under climate interventions to cool the planet is proposed here by analysing existing GeoMIP model simulations. A wide range of climate models, including global climate models and Earth system models, participate in GeoMIP. This diversity helps capture a range of potential climate responses to SRM. It explores a variety of SRM scenarios, such as different implementation strategies, intensities, and durations. This allows for a comprehensive understanding of the potential range of outcomes.

3.1 A detailed timeframe of the project activity is given below as Work Packages (WP).

Work Packages and detailed plan of implementation with month wise timelines and targets time

WP1: Assess precipitation pattern over India and the UK

Objective: Understand the changes in precipitation patterns and moisture budget components over India and the UK.

Month 1-3: WP1.1 Project Setup, Data Acquisition and Quality Analysis

Establish project team and communication protocols.

Plan and acquire available CMIP6 (historical, SSP2-4.5, SSP5-8.5) model data and ERA5 reanalysis data for India and the UK.

Set up data processing and analysis environments. Complete Quality check of the data and understand the biases.

Deliverable: Project setup complete, data acquisition initiated and ready for analysis.

Month 4-9: WP1.2 Historical analysis of precipitation changes over India and United Kingdom

Analyse precipitation patterns and calculate the moisture budget components (dynamic, thermodynamic, nonlinear) using CMIP6 historical data and ERA5 over India and the United Kingdom.

Investigate regional (tropical vs. midlatitude) responses in a planet warming situation.

Focus on extreme precipitation and its moisture budget. How is it changing spatially and temporally?

Deliverable: Completion of historical precipitation and moisture budget analysis for India and the UK. Understand the pattern changes under the current warming phase.

Month 7-12: WP1.3 Changes under different climate change scenarios

Analyse future precipitation patterns and moisture budget components using CMIP6 SSP2-4.5 and SSP5-8.5 scenarios.

Assess sensitivity of extreme precipitation to different emission scenarios.

Compare tropical and midlatitude impacts.

Deliverable: Completion of precipitation analysis under SSP2-4.5 and SSP5-8.5 scenarios, and comparative study to historical data.

Month 11-14: WP1.4 Presentation and Initial Reporting

Prepare and present preliminary findings from WP1.

Draft initial report on historical and future climate change impacts on precipitation. Publish the findings in a peer reviewed journal.

Milestone 1 (Month 11 –14): Achieve a comprehensive understanding of how global warming influences precipitation patterns, moisture budget components (dynamic, thermodynamic, nonlinear), and extremes in India and the UK. Disseminate initial findings through scientific publication.

WP2: Assess the impact of climate interventions on moisture budget

Objective: To quantify the impact of various SRM methods on precipitation and large excess precipitation events. How does the cooling of planet Earth modulate the dynamics and thermodynamics of precipitation? What are the precipitation responses following the termination of different SRM interventions?

Month 1-3: WP2.1 Data Acquisition and Quality Analysis

Acquire available GeoMIP simulation data. Primary focus will be for the variants of G4 simulations. Data of G3, G6sulfur and G7cirrus simulations could also be acquired if available.

Conduct feasibility of the data for analysis and processing it.

A thorough literature review about the impact of SRM on precipitation.

Deliverable: Acquisition of GeoMIP model data for the analysis.

Month 6-18: WP2.2 SRM Impacts

Analyse precipitation changes across various SRM scenarios. Comparative analysis of SRM techniques will pinpoint impact hotspots and inform optimised intervention strategies.

Decompose and analyse anomalies in precipitation and extremes to dynamic, thermodynamic and nonlinear components. This would reveal the sensitivity of each component to different SRM techniques.

Study the changes after the termination of the interventions.

Compare and contrast results from WP1 and WP2 to identify climate response to climate warming and SRM induced cooling of the planet.

Deliverable: A comprehensive understanding of the impacts and sensitivities of various SRM techniques on precipitation, extreme events, and moisture budget components, including a comparative analysis of SRM's effectiveness versus continued warming and an assessment of termination risks.

Month 17–20: WP2.3 Presentation and Publishing the results

Present the findings in a conference or draft it for peer review publication.

Milestone 2 (Month 17 –20): Develop a comprehensive scientific understanding of the mechanisms by which SRM techniques influence precipitation patterns, moisture budget components, and extreme events, including post-termination effects. A comprehensive understanding of the factors contributing to the precipitation changes in global warming and SRM scenarios. Disseminate these findings through scientific publications.

WP3: Analyse the changes in precipitation seasonality

Objective: Analyse the changes in seasonality, timing and duration of precipitation due to SRM interventions and after their termination.

Month 13-22: WP3.1 Seasonality Analysis

Analyse changes in precipitation seasonality using metrics like dimensionless relative entropy, seasonality index, peak rainy season timing, and duration.

Compare seasonality changes under SRM scenarios with historical and warming scenarios.

Analyse seasonality changes at the termination of climate interventions.

Deliverable: Completion of seasonality analysis under climate change and SRM scenarios, including termination effects.

Month 20-24: WP3.2 Publish the findings

Prepare a manuscript detailing the findings of the seasonality analysis for submission to peer-reviewed journal.

Milestone 3 (Month 22 –24): This project will deliver a comprehensive analysis of how SRM impacts precipitation patterns over India and the United Kingdom. By decomposing moisture budgets and analyzing seasonality changes using climate model data, you will quantify the effectiveness and risks of various SRM techniques. The project will produce peer-reviewed publications and inform policy makers, ultimately contributing to a better understanding of SRM's potential and limitations in mitigating climate change impacts on regional climate.

3.2 The following Milestones will be used to monitor your delivery of the Project. The costs associated with completing these Milestones are estimated in the cost breakdown sheet [REDACTED]

ID	Milestones	Measure	Date
1	Data Acquisition and Quality Analysis of CMIP and ERA5	Plan and acquire available CMIP6 (historical, SSP2-4.5, SSP5-8.5) model data and ERA5 reanalysis data for India and the UK. Set up data processing and analysis environments. Complete Quality check of the data and understand the biases.	Commencement Date + 3 months
2	Data Acquisition and Quality Analysis of geoMIP data	Acquire available GeoMIP simulation data. Primary focus will be for the variants of G4 simulations. Data of G3, G6sulfur and G7cirrus simulations could also be acquired if available. Conduct feasibility of the data for analysis and processing it.	Commencement Date + 6 months
3	Completion of data analysis for historical precipitation for India and the UK.	Completion of historical precipitation and moisture budget analysis for India and the UK. Understand the pattern changes under the current warming phase.	Commencement Date + 12
4	Submission to scientific journal	Achieve a comprehensive understanding of how global warming influences precipitation patterns, moisture budget components and extremes in India and the UK. Improved understanding of how the warming impacts dynamics and thermodynamics of regional precipitation.	Commencement Date + 15 months

ID	Milestones	Measure	Date
5	Submission to scientific journal	<p>Develop a comprehensive scientific understanding of the mechanisms by which SRM techniques influence precipitation patterns, moisture budget components, and extreme events, including post-termination effects. A comprehensive understanding of the factors contributing to the precipitation changes in global warming and SRM scenarios.</p> <p>An improved understanding of the sensitivity of different moisture budget components to SRM induced cooling using GeoMIP scenarios.</p>	Commencement Date + 21 months
6	Submission to scientific journal	<p>A comprehensive understanding of how SRM affects the seasonality of precipitation and a final report.</p> <p>Output data for publications are made available in ARIA public repository.</p>	Commencement Date + 24 months

In addition to the above Milestones, the following project plan will be used to track progress throughout the project and may be updated from time to time:



3.3 The intended long-term outcomes are summarised below:

By pinpointing the sensitivities of moisture budget components and seasonality to SRM techniques, this project will allow for a more nuanced debate on intervention strategies, minimizing disruptions to natural climate processes and ensuring that the benefits of any intervention are realized with minimal adverse impacts on precipitation and regional water cycles. The long-term outcomes aim to translate the project's scientific findings into actionable knowledge that can inform climate debate, enhance climate resilience, and guide responsible research and implementation. In a nutshell, the outcomes stemming from the findings contribute to:

- **Enhanced Understanding of Climate Dynamics:** A deeper understanding of the complex interactions between dynamic and thermodynamic processes in the climate system, particularly in

relation to precipitation extremes and seasonality, under both global warming and intervention scenarios.

- **Refined Theoretical Frameworks:** Contribution to the development of refined theoretical frameworks for understanding the impacts of SRM on the hydrological cycle, incorporating dynamic, thermodynamic, and seasonality considerations.
- **Evidence-Based Information for Policy Makers:** Provision of critical scientific evidence to inform policy makers regarding climate change mitigation and potential intervention strategies, minimizing unintended consequences.
- **Optimized intervention Strategies:** Development of optimized strategies that minimize negative impacts on regional precipitation and seasonality, while maximizing climate cooling benefits.

4. Project Reporting requirements

You will complete, submit and attend the following reporting/meeting requirements at the frequency set out below:

Frequency	Requirement
Kick off	Roles and responsibilities External communications Project details
Quarterly	Reporting: Technical status - Red/Amber/Green Delivery status - Red/Amber/Green The latest progress against milestone(s) from last quarter Invoicing and cost reporting Optional: Key Learning, discoveries and decisions Stories to highlight Priorities for the next quarter Challenges Changes to team and new collaborations technical evidence saved to drive e.g. report or presentation as requested by PD review meeting slide deck saved to drive as requested by PD Review meeting with ARIA Programme Team
Annual	ARIA impact metrics Attendance at annual ARIA event

Frequency	Requirement
Ad hoc	As required, Programme Director/ Programme Team may request additional information and evidence Workshops - potential to be invited to ARIA workshops
Project closure	Project closure report

5. Payment

5.1 Subject to your compliance with the terms of this Grant Agreement, ARIA will make Grant payments quarterly in arrears based on actual costs incurred.

For quarterly payments, the cadence of payments will align with ARIA's financial year beginning 1st April e.g. Quarter 1 Grant Claims will be for the period of 1st April to 30 June, Quarter 2 Grant Claims will be for the period of 1st July to 30 Sept and so on.

5.2 Before paying any Grant Claim, ARIA must be satisfied that the Project Activities have been carried out during the Funding Period (or that part of the Funding Period to which the claim for Grant relates).

5.3 Grant Claims must be submitted to ARIA by the 15th Working Day of the month following the end of the relevant period.

5.4 Payment of the Grant Claim will be made within 30 days after ARIA approves your Grant Claim.

6. Principle investigator/key researchers

6.1 For the purposes of clause 22.7, the following principle investigators or key researchers have been identified:

Name	Role	Organisation
Dr. Byju Pookkandy	<ul style="list-style-type: none"> Principal Investigator Oversee the overall coordination and execution of the project. Lead WP1 (Assess precipitation patterns over India and the UK) and WP3 (Analyse changes in precipitation seasonality). Contribute significantly to WP2 (Assess the impact of geoengineering methods). 	The Energy and Resources Institute, New Delhi, India
██████████ ██████████	<ul style="list-style-type: none"> SRM Expert Lead/Supervise WP2 (Assess the impact of SRM SRM methods). Contribute to WP1 and WP3 interpretation and discussions. 	The Energy and Resources Institute, New Delhi, India

Name	Role	Organisation
Mr.Kaagita Venkatramana	<ul style="list-style-type: none"> Co-Principal Investigator Contribute to all three research work packages (WP1, WP2, and WP3). Support the PI in project coordination and execution. 	The Energy and Resources Institute, New Delhi, India
██████████ ██████████	<ul style="list-style-type: none"> Provide strategic guidance on climate change impacts and risks. Contribute to the interpretation of results in the context of global climate change. 	The Energy and Resources Institute, New Delhi, India
██████████████████ ██████████	<ul style="list-style-type: none"> Provide expertise on SRM policies and implementation. Contribute to the interpretation of results in the context of environmental policy and governance. 	The Energy and Resources Institute, New Delhi, India

7. Sub-Contractors

7.1 For the purposes of clause 19, the following Sub-Contractors have been agreed:

Name	Description of activity	Location

PART 2 - GRANT APPLICATION

Application titled "The Energy and Resources Institute" submitted 9 December 2024.

SCHEDULE 3: Commercial Exploitation

Although the parties do not envisage any commercial application of the Results, this schedule sets out your obligations if commercial exploitation of the Results does occur.

1. LICENCES and ROYALTIES

1.1. In this Schedule:

Commercialisation Licence means a licence of IP other than a research or evaluation licence and/or subcontract manufacture (and **Commercially License** means to license under a Commercialisation Licence);

First Sale Date means the date on which you (or your affiliate or sublicensee) first bill an amount to a customer in respect of the sale of goods or services (or any other transaction) which use or incorporate Foreground IP;

Gross Sales means total invoiced value of sales made during a specific period, including all amounts billed to customers such as from the sale of goods, services, licence income, royalty income, franchise fees, commissions, subscription fees, before any deductions;

Group means in relation to a company, that company, any subsidiary or holding company from time to time of that company;

Net Sales means Gross Sales after relevant accounting deductions, such as sales tax, packaging, insurance, carriage and freight, trade discounts and credits, returns and allowances, import taxes and similar applicable government levies;

Non-UK Entity means a legal entity that is not a UK Entity; and

UK Entity means a legal entity or group of legal entities that has its headquarters and principal establishment in the United Kingdom.

1.2. If you consider that commercial exploitation of any of the Results has become or may become viable, you are encouraged to discuss the position with ARIA. Under clause 14.1 of the Conditions you are required to inform ARIA if during the Funding Period you plan to take any concrete action regarding any current or future commercial application of the Results.

1.3. You may request that ARIA exploit the Results or assist you with their exploitation. In this case ARIA may request that you assign the relevant Foreground IP to it or its nominee. Any assignment would include a licence back to the relevant Foreground IP for research purposes.

Crown Body customers

1.4. You must ensure under any agreement for Commercial Licensing or assignment of Foreground IP, that any Crown Body is able to procure any products and services that are covered by, use or incorporate the relevant Foreground IP within a reasonable time period, at prices that are no higher than those offered to or agreed with any other customer for equivalent quantities, and in suitable quantities for the Crown Body's requirements.

Non-UK Commercialisation

- 1.5. A royalty of 0.25% of your Net Sales which use or incorporate Foreground IP shall be payable to ARIA if you are incorporated outside of the United Kingdom (the "ARIA Non-UK Fee"). For the avoidance of doubt, the ARIA Non-UK Fee shall be calculated solely in respect of the share of the Net Sales which corresponds to the value resulting directly from the Foreground IP.
- 1.6. The ARIA Non-UK Fee shall be payable within 90 days following the end of each relevant calendar year, for a period of ten (10) years from the First Sale Date, up to an aggregate total equal to 20 times the Maximum Sum.
- 1.7. In the event that:
 - (a) there is a change of control of the Foreground IP, such that you assign or grant an exclusive licence to the Foreground IP to another person; or
 - (b) you extend rights to the Foreground IP within your Group, such that you grant another entity within your Group a licence to the Foreground IP,
then,
 - (c) you must notify ARIA immediately; and
 - (d) include clauses 1.5 and 1.6 in the relevant instrument and ensure that it expressly provides that the provisions are intended to be enforceable by ARIA by virtue of the Contracts (Rights of Third Parties) Act 1999 (or any equivalent in any jurisdiction) and take any other step required to ensure that the ARIA Non-UK Fee is payable by the transferee or licensee (as applicable).
- 1.8. For the avoidance of doubt, in respect of:
 - (a) clause 1.7(a), provided that you have complied with clause 1.7(d), your obligation to pay the ARIA Non-UK Fee shall cease and pass to the transferee or licensee (until, in the case of an exclusive licence, the termination or expiry of such licence); and
 - (b) clause 1.7(d) the transferee or licensee shall only be liable to pay the ARIA Non-UK Fee to ARIA for the remainder of the aggregated total amount and the ten (10) year period specified in clause 1.7 prorated from the date of the relevant instrument.

SCHEDULE 4: Data Protection

1. DEFINITIONS

The following definitions apply in this Schedule.

Controller, Processor, Data Subject, Personal Data, Personal Data Breach and Processing: have the meanings given to them in the Data Protection Legislation.

Data Protection Legislation all applicable data protection and privacy legislation in force from time to time in the UK including the UK GDPR; the Data Protection Act 2018 (DPA 2018) (and regulations made thereunder) and the Privacy and Electronic Communications Regulations 2003 (SI 2003/2426) as amended and all other legislation and regulatory requirements in force from time to time which apply to a party relating to the use of Personal Data (including, without limitation, the privacy of electronic communications); and the guidance and codes of practice issued by the Information Commissioner or other relevant regulatory authority and applicable to a party.

Domestic Law: the law of the United Kingdom or a part of the United Kingdom.

UK GDPR: has the meaning given to it in section 3(10) (as supplemented by section 205(4)) of the Data Protection Act 2018.

2. GENERAL OBLIGATION

- 2.1. Both parties will comply with all applicable requirements of the Data Protection Legislation. This paragraph 2.1 is in addition to, and does not relieve, remove or replace, a party's obligations or rights under the Data Protection Legislation.

3. DATA PROCESSING

- 3.1. The parties acknowledge that for the purposes of the Data Protection Legislation, ARIA is the Controller and you are the Processor when performing its obligations under this Grant Agreement (the scope, nature and purpose of processing by the Provider, the duration of the processing and the types of Personal Data and categories of Data Subject are set out in paragraph 3.7, as updated from time to time).
- 3.2. Without prejudice to the generality of paragraph 2.1, ARIA will ensure that it has all necessary appropriate consents and notices in place to enable lawful transfer of the Personal Data to you [and/or lawful collection of the Personal Data by [the Provider] on behalf of ARIA] for the duration and purposes of Grant Agreement.
- 3.3. Without prejudice to the generality of paragraph 2.1, you shall, in relation to any Personal Data processed in connection with the performance by the Provider of its obligations under Grant Agreement:
- 3.3.1. process that Personal Data only on the documented written instructions of ARIA unless you are required by Domestic Law to otherwise process that Personal Data. Where you are relying on Domestic Law as the basis for processing Personal Data,

you shall promptly notify ARIA of this before performing the processing required by the Domestic Law unless the Domestic Law prohibits you from so notifying ARIA;

- 3.3.2. ensure that it has in place appropriate technical and organisational measures, reviewed and approved by ARIA, to protect against unauthorised or unlawful processing of Personal Data and against accidental loss or destruction of, or damage to, Personal Data, appropriate to the harm that might result from the unauthorised or unlawful processing or accidental loss, destruction or damage and the nature of the data to be protected, having regard to the state of technological development and the cost of implementing any measures (those measures may include, where appropriate, pseudonymising and encrypting Personal Data, ensuring confidentiality, integrity, availability and resilience of its systems and services, ensuring that availability of and access to Personal Data can be restored in a timely manner after an incident, and regularly assessing and evaluating the effectiveness of the technical and organisational measures adopted by it);
- 3.3.3. ensure that all personnel who have access to and/or process Personal Data are obliged to keep the Personal Data confidential; and
- 3.3.4. not transfer any Personal Data outside of the UK unless the prior written consent of ARIA has been obtained and the following conditions are fulfilled:
 - 3.3.4.1. ARIA or you have provided appropriate safeguards in relation to the transfer;
 - 3.3.4.2. the Data Subject has enforceable rights and effective legal remedies;
 - 3.3.4.3. you comply with your obligations under the Data Protection Legislation by providing an adequate level of protection to any Personal Data that is transferred; and
 - 3.3.4.4. you comply with reasonable instructions notified to you in advance by ARIA with respect to the processing of the Personal Data;
- 3.3.5. assist ARIA, at ARIA's cost, in responding to any request from a Data Subject and in ensuring compliance with its obligations under the Data Protection Legislation with respect to security, breach notifications, impact assessments and consultations with supervisory authorities or regulators;
- 3.3.6. notify ARIA without undue delay on, and in event within 24 hours of, becoming aware of a Personal Data Breach;
- 3.3.7. at the written direction of ARIA, delete or return Personal Data and copies thereof to ARIA on termination of Grant Agreement unless required by Domestic Law to store the Personal Data; and
- 3.3.8. maintain complete and accurate records and information to demonstrate its compliance with this Schedule and allow for audits by ARIA or ARIA's designated

auditor and immediately inform ARIA if, in the opinion you, an instruction infringes the Data Protection Legislation.

3.4. [[ARIA does not consent to you appointing any sub-Processor of Personal Data under this Schedule.] OR [ARIA consents to your use of sub-Processors engaged in the processing of Personal Data by way of general authorisation in respect of all sub-Processors as at the date of this Schedule. You shall make a list available to ARIA upon request. You shall give ARIA not less than 15 days' prior written notice of a change in the list of sub-Processors to give ARIA an opportunity to object to such change. ARIA must notify you in the event that it does not agree to a proposed change within 15 days of receiving a notification from you , specifying its grounds for such objection (acting reasonably). If you receive such an objection, then you may (at its option):

3.4.1. cancel its plans to change the affected sub-Processor;

3.4.2. offer an alternative which is acceptable to ARIA; or

3.4.3. take corrective steps to remove the objection identified by ARIA to ARIA's reasonable satisfaction, after which you may proceed with the appointment of the relevant sub-Processor.

3.5. If none of the above options resolve the objection, then without liability for either party, either party may terminate Grant Agreement by providing written notice of termination with immediate effect where such notice of termination is served within 30] days of you informing ARIA of the proposed change.

3.6. You confirm that it has entered or (as the case may be) will enter with its sub-Processors into written agreements incorporating terms which are substantially similar to those set out in this Schedule and which you confirm reflects and will continue to reflect the requirements of the Data Protection Legislation. As between you and ARIA, you shall remain fully liable for all acts or omissions of any sub-Processor appointed by it pursuant to this paragraph 3.4 to 3.6.]

3.7. Scope, Nature, Purpose of Processing, Types of Personal Data and Categories of Data Subjects.

Scope and purpose of Processing:	Provision of the Project Activities by you under this Grant agreement.
Nature of Processing:	<p>[Here you should describe what the Processor will be doing with the Personal Data, for example collecting it, storing it, retrieving it, consulting it, disseminating it or destroying it, etc.</p> <p>Note the definition of processing in the UK GDPR: <i>"any operation or set of operations which is performed on personal data or on sets of personal data, whether or not by automated means, such as collection, recording, organisation, structuring, storage, adaptation or alteration,</i></p>

Scope and purpose of Processing:	Provision of the Project Activities by you under this Grant agreement.
	<i>retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction”]</i>
Duration of Processing:	Duration of this Grant Agreement (and any post termination processing that is permitted / required).
Types of Personal Data:	<p>[Describe here the types of data relating to the individuals concerned, e.g. names, addresses, email addresses, financial details, date of birth, place of birth, photographs, nationality, gender, signature, health records, work appraisal records, disciplinary processes, references, job applications, CVs, notes of interviews, etc.</p> <p>If so-called “special categories” of personal data (currently known as sensitive data) are being processed describe them here. Note the definition of special categories of personal data in the UK GDPR: “<i>data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, or trade union membership, and the processing of genetic data, biometric data for the purpose of uniquely identifying a natural person, data concerning health or data concerning a natural person’s sex life or sexual orientation</i>”]</p>
Categories of Data Subjects:	[Describe here the individuals whose data will be processed, by reference to their relationship with the company and its business, e.g. employees, directors, clients, prospects, suppliers, sub-contractors, consultants, job applicants, advisors, key opinion leaders, etc.]

4. INDEMNIFICATION

- 4.1. You shall indemnify and keep ARIA indemnified against all losses, claims, damages, liabilities, fines, interest, penalties, costs, charges, sanctions, expenses, compensation paid to Data Subjects (including compensation to protect goodwill and ex gratia payments), demands and legal and other professional costs (calculated on a full indemnity basis and in each case whether or not arising from any investigation by, or imposed by, a supervisory authority) arising out of or in

connection with any failure by you or your employees, subcontractors or agents to comply with any of its obligations under this Schedule or the Data Protection Legislation.

- 4.2. Any limitation of liability set out in this Grant Agreement will not apply to this Schedule's indemnity or reimbursement obligations.

Annex A - Future Proofing our Climate and Weather Intellectual Property Pledge

1. Submission of Pledged Patents and Experimental Data

- 1.1 The Pledgor undertakes to submit relevant details of all Pledged Patents to the operator of the Pledge Repository in accordance with the Submission Guidelines.

- 1.2 The Pledgor undertakes to:
- (a) submit (or provide a link to a publicly available digital copy of) all Experimental Data to the operator of the Pledge Repository in accordance with the Submission Guidelines; and
 - (b) publish such Experimental Data in accordance with the Submission Guidelines.

2. Experimental Data Licence

- 2.1 Subject to Clause 6.1, the Pledgor hereby grants a royalty-free, non-exclusive licence under the Experimental Data to any party that wishes to accept it ("Experimental Data Licensee") solely for the purpose of carrying out research in the Field.
- 2.2 The licence granted under Clause 2.1:
- (a) is non-transferable and non-sublicensable;
 - (b) permits research activities but does not permit development, manufacture, sale or other exploitation of products or services under the Experimental Data.
- 2.3 The Experimental Data Licensee may conduct relevant research activities itself or in collaboration with a third party, provided that the Experimental Data Licensee must ensure that such third party agrees to comply with the terms of Clause 2.4 as if such third party were the Experimental Data Licensee.
- 2.4 The Experimental Data Licensee must:
- (a) at all times when using the Experimental Data comply with all Laws; and
 - (b) to the extent that any data relating to the Field is generated by or on behalf of the Experimental Data Licensee in the course of carrying out research activities based on or using the Experimental Data or the Pledged Patents, make such data available on the terms of this Pledge (and such data shall be deemed to be Experimental Data pursuant to this Pledge).

3. Research Licence

- 3.1 Subject to Clause 6.1, the Pledgor grants a royalty-free, non-exclusive licence under the Pledged Patents to any party that wishes to accept it ("Research Licensee") solely for the purpose of carrying out research in the Field.
- 3.2 The licence granted under Clause 3.1:
- (a) is non-transferable and non-sublicensable; and
 - (b) permits research activities but does not permit development, manufacture, sale or other exploitation of products or services under the Pledged Patents.
- 3.3 Subject to Clause 6.1, the licence granted in accordance with Clause 3.1 shall subsist until the expiry of the final Pledged Patent.
- 3.4 The Research Licensee may conduct relevant research activities itself or in collaboration with a third party, provided that the Research Licensee must ensure that such third party agrees to comply with the terms of Clause 3.5 as if such third party were the Research Licensee.
- 3.5 The Research Licensee must:
- (a) at all times when using the Pledged Patents comply with all Laws; and

- (b) to the extent that any patents relating to the Field are filed by or on behalf of the Research Licensee covering data generated in the course of carrying out research activities based on or using the Pledged Patents or Experimental Data, make such patents available on the terms of this Pledge (and such patents shall be deemed to be Pledged Patents pursuant to this Pledge).

4. Commercial Licence

- 4.1 The Pledgor undertakes to grant a non-exclusive licence on reasonable terms under the Pledged Patents and/or Experimental Data to any Signatory that requests it ("Commercial Licensee") for the purpose of carrying out commercial activities (including development, manufacture, sale or other exploitation of products or services) in the Field.
- 4.2 The Pledgor must grant the licence set out Clause 4.1 in good faith and in a timely fashion following such a licence being requested by the Commercial Licensee.
- 4.3 The Commercial Licensee must at all times when using the Pledged Patents and/or Experimental Data comply with all Laws.

5. Pledgor Know-How

At the request of a Licensee, the Pledgor undertakes to negotiate in good faith with any Licensee regarding a non-exclusive licence in the Field under any Know-how owned by such Pledgor that is necessary for a Licensee to use the technology covered by the Pledgor's Pledged Patents. Such licence may be for research or commercial purposes as agreed between the Pledgor and Licensee.

6. Termination

- 6.1 The Pledgor may terminate any licence it grants to an Experimental Data Licensee and/or Research Licensee under this Pledge in the event that such Licensee:
 - (a) materially breaches the terms of such licence or this Pledge; or
 - (b) breaches any Laws in its use of the Experimental Data or Pledged Patents (as applicable).

7. Transfers of Pledged Patents and/or Experimental Data

The Pledgor undertakes to make any future assignment of the Pledged Patents and/or Experimental Data to any other party (the "Recipient") conditional on the Recipient (and any successor in title) agreeing to be bound by the terms of this Pledge.

8. No Warranty

The Pledgor provides the Pledged Patents and the Experimental Data on an "as is" basis. The Pledgor makes no express or implied warranty or representation concerning the Pledged Patents or Experimental Data including but not limited to non-infringement or to the accuracy or completeness of the Pledged Patents or Experimental Data.

9. Compliance with Laws

For the avoidance of doubt, nothing in this Pledge operates to require a Pledgor, Licensee or Signatory to do any acts or grant any rights that do not comply with Laws.

10. Further Publication or Licensing

For the avoidance of doubt, nothing in this Pledge operates to restrain a Pledgor from publishing or licensing any Experimental Data or Pledged Patents more widely or on more permissive terms than those described herein.

11. Governing law and jurisdiction

This Pledge (including any non-contractual disputes or claims arising in connection with this Pledge) will be governed by and construed in accordance with the laws of England and Wales and the parties irrevocably submit to the exclusive jurisdiction of the courts of England and Wales.

Part 1 of Annex A: Definitions

1. In this Pledge, unless the context otherwise requires, the following definitions shall apply:

Experimental Data	means data generated by or on behalf of the Pledgor relating to the Field and identified by the Pledgor for inclusion in the Pledge pursuant to Clause 1.2;
Field	means approaches for intentionally altering the Earth system through solar radiation modification, modification of ocean circulations, modification of cloud properties, surface engineering works, or weather modification;
Know-how	means the information, methods, formulae, processes and/or applications which may or may not be documented and which enable the use of the technology covered by the Pledged Patents;
Law(s)	means any applicable law, statute, bye-law, regulation, order, regulatory policy, guidance or industry code having the force of law, rule of court, delegated or subordinate legislation in force from time to time;
Licensee	means any Commercial Licensee, Research Licensee or Experimental Data Licensee;
Pledge	means the commitments in relation to patents, know-how and data set out in this pledge document;
Pledge Repository	[TBC]
Pledged Patents	means patents or patent applications owned by the Pledgor relating to the Field and identified by the Pledgor for inclusion in the Pledge pursuant to Clause 1.1;
Signatory	means any party who has agreed to be bound by the terms of this Pledge; and
Submission Guidelines	means the guidelines governing the submission of Experimental Data and details of the Pledged Patents to the Pledge Repository, as amended from time to time.