Redacted under FOI Exemption

Redacted under FOI Exemption

RCloud Tasking Form – Part B: Statement of Requirement (SoR)

Title of Requirement	Redacted under FOI Exemption
Requisition No.	Redacted under FOI Exemption
SoR Version	1.0

1.	Statement of Requirements
1.1	**Summary and Background Information**
	Redacted under FOI Exemption [redacted]
1.2	**Requirement**

Aim

The aim of this work is to understand the chemical and physical parameters required to fabricate a thermal battery based on the sodium nickel chloride electrolyte system and address the challenges posed by the concept.

Scope

The challenges which the project must address are based on the previous chemistries generated Redacted under FOI Exemption [redacted] and structures to address the challenge and allow this novel battery concept to successfully meet the specifications required:

- Wetting of NASICON electrolytes – determining wetting angles as a function of temperature and surface treatment.
- Sodium electrode: examining novel surface treatments to allow better sodium wetting, and electrochemical analyses of sodium electrode cells.
- Sodium aluminium chloride electrode: attain sufficient electronic conductivity in the electrode skeleton.
- Cell testing including on after rapid heating to high temperature.
- To test and demonstrate electrodes and cells so that they are shown to be capable and would have the capacity to meet the following specifications for the complete battery of ~30 cells, i.e a cell at 1.5V can produce 12.5 A, or 1 Acm^{-2}.

Power (W)	500
Voltage (V)	40
Discharge time (s)	12

Energy delivered (Wh)	1.67
Power density (W/l)	12700
Energy density (Wh/l)	42
Temperature (°C)	-40 – 75
Storage temperature range (°C)	-50 – 85
Activation time (ms)	≤ 180
Volume (ml)	≤ 40

The PI and student should propose a plan of research based on the challenges described above and how they would meet them. The plan should be adjusted as research progresses.

Redacted under FOI Exemption

Redacted under FOI Exemption

1.3	**Options or follow on work** *(if none, write 'Not applicable')*
	Not applicable
1.4	**Contract Management Activities**

	Regular progress meetings and reports as per deliverable D1 & D2
1.5	**Health & Safety, Environmental, Social, Ethical, Regulatory or Legislative aspects of the requirement**
	Redacted under FOI Exemption

Redacted under FOI Exemption

1.6	Deliverables & Intellectual Property Rights (IPR)				
Ref.	**Title**	**Due by**	**Format**	**Expected classification (subject to change)**	**What information is r deliverab**
D - 1	Regular progress meetings	At the end of each academic term	Two meetings each year should be face to face, others online.	O	Redacted under FOI Exemption

Redacted under FOI Exemption

D - 2	Regular Progress Reports	At the end of each academic year	Progress Report and Presentation	O	Redacted under FOI Exemption
D - 3	PhD Thesis	End of contract	Thesis	O	Redacted under FOI Exemption
D - 4	Final presentations	End of contract	Presentation	O	Redacted under FOI Exemption

1.7	Deliverable Acceptance Criteria

Specific Acceptance Criteria

1. Redacted under FOI Exemption

Redacted under FOI Exemption

2 Evaluation Criteria

2.1	Method Explanation
	Redacted under FOI Exemption
2.2	Technical Evaluation Criteria
	A clear, robust and concise technical plan detailing how the requirement will be met, demonstrating value for money.
2.3	Commercial Evaluation Criteria
	• No limiting IP issues. Any background IP claims must be specified in the proposal. • Costs do not exceed Redacted under FOI Exemption Pass/Fail • Labour rates and price as per single source rates uploaded to RCloud Pass/Fail • Completion of Research Worker Form's Pass/Fail • Completion of Statement Relating to Good Standing Pass/Fail • Completion of Supplier Assurance Questionnaire (SAQ) Pass/Fail • Confirm acceptance of RCloud Version 4 Terms and Conditions Pass/Fail