**APPLICATION FORM FOR EDGE PROGRAMME**

(A Joint Initiative between Energy Market Authority and Singapore Institute of Technology to advance applied R&D to enhance the adoption and exploitation of distributed power generation in Singapore)

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| **This section is strictly for SIT’s completion:** | |
| **a**  **Project ID: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **a Project Start Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **a**  **Project End Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

**All information is treated in confidence. The information is furnished with the understanding that it shall be used or disclosed for evaluation, reference and reporting purposes.**

**SECTION I: PROJECT DETAILS**

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| **Proposal Title** *(specific and not more than 20 words):* | **Duration of Project in years (max 3 years):** |
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| **Problem Statement(s)** *(please indicate)*: |
| Interconnection and Management of Distributed Energy Resources (DERs) with Utility Grid to Provide Non-Homogeneous Power Quality  Asset Management with Computational Intelligence Based Predictive Maintenance that can manage Large Number of DERs including Vehicle-to-Grid (V2G) Technologies. |

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| **Total Budget Requested:** | |
| **(A) Amount Requested For Project**  *\*Please refer to the RFP document for more details.* | **S$** |

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| **Host Institution 1 :** |  | | | | |
|  | **List of Project Team Members** *(Please add/delete rows where necessary)* | | | | |
| **Role** | **Name** | **Designation** | **Department & Organisation** | **Contact details (Email address)** | **% of time committed on project** |
| ***PI 2*** |  |  |  |  |  |
| ***Co-I 3 (1)*** |  |  |  |  |  |
| ***Co-I (2)*** |  |  |  |  |  |
| ***Co-I (3)*** |  |  |  |  |  |
| ***Collaborator 4 (1)*** |  |  |  |  |  |
| ***Collaborator (2)*** |  |  |  |  |  |
| ***Collaborator (3)*** |  |  |  |  |  |

Host Institution refers to a company which is incorporated under the Companies Act and is in the energy and power related industries.

2 Lead PI refers to Lead Principal Investigator who is the person to be named in the Letter of Award as the Principal Investigator for the project.

3 Co-PI refers to Co-Principal Investigator who is the person to be named in the Letter of Award as a Co-Investigator for the project.

4 Collaborator refers to any company, institution, incorporated body or other industry or academic collaborator, which is not the employer organisation of the Principal Investigator or the Co- Investigator but is to be engaged in the project in collaboration with the Host Institution. **A Collaborator is not eligible to receive any part of the funding for the project**.

**SECTION II: PROJECT SUMMARY / ABSTRACT**

In no more than 1,000 words, please provide a succinct description of the proposal. The summary / abstract should include the following: the novelty and significance of the research, the approach and feasibility of the project, such as industrial relevance and impact.

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**SECTION III: DETAILS OF PROJECT PROPOSAL**

Give a description of the intended project in **no more than 10 pages** (Arial, Font Size 10, single line spacing).

The proposal **should** address the following:

1. **Research Objectives**

* Clearly state the problem(s) / challenge(s) and how the proposal addresses them.
* Explain why the proposed research is significant**.**

1. **Preliminary Work / State of Current Research**

* Please describe prior and ongoing work that is related and/or relevant to this proposal and any preliminary results that would help support this proposal.
* Describe the state of current research for the proposed project, how it is done today and what is the state-of-the-art? Who are the leading parties / companies studying the problem, and what are the limitations of their current approaches?

1. **Proposed Approach and Methodology**

* What is your research approach and how it differs from what others are working on?
* Explain why you think your proposal will be successful and describe the novelty of the research.
* Indicate, as project deliverables, the expected intellectual properties (IPs) and technologies that will be developed. The proposal should include a comparison against other existing market solutions and relevant patents in similar domain. Further elaborations can be provided under **Section IV Project Implementation**.
* Highlight the technical challenges and how you plan to overcome them.

1. **Application Potential**

* What are the potential applications of the research outcome(s)?
* Describe how the proposed R&D solutions would be translated to SIT’s Punggol micro-grid and be commercialised beyond the test-bedding phase (e.g. identify current and future market size, trends and growth potential, scalability).
* Please suggest how the collaborator(s) could apply the project’s deliverables.

1. **Team Composition**

* What are the roles and contributions of the Project Team / Personnel?
* Why are you and your team members particularly qualified to do this? Briefly describe the plans for interaction among the team member(s) and with collaborators in achieving the research objectives.
* Relevant track records and capabilities of individual researchers in the team and any unique competitive advantages could be highlighted.
* Detailed CVs for the Project Team shall be attached as **Annex B** in the application.

References cited should be provided at the end of the document. Proposal should be sufficiently self-contained for an assessment without further reference to other materials.

Please attach your research proposal to this application form as a **separate document – Annex A** (page count excludes the references and annexes).

**SECTION IV: PROJECT IMPLEMENTATION**

*The proposed implementation will be used for performance assessment of the project. Satisfactory progress is required for continued disbursements of funds.*

1. **Outcomes & Deliverables:** *What are the possible measurable and tangible outcomes achievable from this research? What are the targets for key performance indicators that can be used to measure success at mid-term review and at completion of the project? If successful, how would this generate value for Singapore (such as enhancing the capabilities in power engineering and micro-grids, as well as potential commercialisation opportunities?*

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1. **Project Implementation Schedule**

*Please shade (in grey) the time periods occupied by work on specific project milestones and deliverables (example below), along with a brief description where possible. In addition, please indicate which partner will be involved for each specific milestones or deliverables. Deliverables refer to the objectives indicated in your project proposal. This is to clearly state what is expected to be achieved and delivered at the end of the project.*

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| **SN** | **Research Milestones / Deliverables** | **Organisation(s) Involved** | **Year 1** | | | | **Year 2** | | | | **Year 3** | | | |
| **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** |
| **1** | *e.g. Milestone 1* |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **2** | *e.g. Deliverable 1* |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **3** | *e.g. Milestone 2* |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **4** | *e.g. Deliverable 2* |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **5** | *e.g. Milestone 3* |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **6** | *e.g. Deliverable 3* |  |  |  |  |  |  |  |  |  |  |  |  |  |
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*Please add more rows if necessary.*

1. **Intellectual Properties (IPs)**

*Applicants shall submit declarations and details such as Background IPs that are required for technology acquisition, payment of licensing fees, and purchase of copyrights/trademarks/patents and explain how they are relevant and required for the proposed development test-bed.*

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**SECTION V: PROPOSED BUDGET AND JUSTIFICATIONS**

Please provide a detailed and itemised breakdown of the proposed budget in the **MS Excel Budget template**.

You are advised to consult your Finance Department / Office of Research (ORE) / Innovation and Enterprise Office (IEO) or equivalent to ensure that the proposed budget is in accordance to your organisation’s Human Resources and Finance guidelines.

Sufficient **details and justifications** should be provided for each request and items in the budget must be directly relevant to the proposed project. Please note that the duration of funding is capped at **three years**.

**SECTION VI: DECLARATION OF OTHER FUNDING SUPPORT**

1. **All grants currently held or being applied**

Please provide the details (all fields mandatory) for all grants currently held or submitted for consideration by the PI, all Co-Is and Collaborators listed in the last three (3) years. These include those supported by and/or applied to universities, other public funding agencies or foundations. There should be **no parallel submissions**.

All PIs, Co-Is and Collaborators must be accounted for under this section, please indicate “N.A.” if there are no currently awarded grants or grants being applied for.

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| **Declared For / Awarded to** | **Grant ID** | **Project Title** | **Funding Agency** | **Status (Awarded / Applied)** | **Total Amount Awarded / Applied for (S$)** | **Years of Support** | **Duration (dd/mm/yyyy to dd/mm/yyyy)** |
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1. **All other resources**

Please provide details on the funding or other resources to be provided by any organisation(s) for the applied grant.

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| **Type of Resources** | **Funding Organisations** | **Duration of Support (Years)** | **Expiry Date (MMYYYY)** |
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**SECTION VII: Undertaking by Principal Investigator, all Co- Investigators and Collaborators**

In signing the application, the project team / personnel UNDERTAKE, on any Grant Award, to:

* Ensure that a proposal with similar research aims has not been awarded research funding by another funding agency;
* Declare that all information is accurate and true.
* Read, support and agree to this proposal being carried out in the Organisation(s)
* Ensure that approval from the funding agency has been obtained before engaging in any commercial activity that will exploit the finds of the research funded by the funding agency
* Read, support and agree to this proposal being carried out in the Organisation(s)
* Ensure that all necessary licenses and approvals have been obtained or are being sought
* Ensure that the funding is acknowledged in all publications;
* Ensure all publications arising from research wholly or partly funded be forwarded to the EDGE Programme Office;
* Ensure that all publications arising from the research is deposited in the Organisation’s open access repository (or any other organisational/subject open access repository), in accordance with the Organisation’s open access policy.
* Ensure that the requested equipment/resources are not funded by another agency or research proposal.
* Ensure that there is a reasonable effort in accessing available equipment/resources within the Organisation(s) or elsewhere within Singapore.
* Ensure that there is no financial conflict of interest
* Ensure that the project team does not have any conflict of interest with the industry partners / collaborators (company(s) and company executives) as listed in this proposal.
* Provide the Singapore Government, public sector agencies and SIT a non-exclusive, non-transferable, perpetual, irrevocable, worldwide, royalty-free right and licence to use, modify, reproduce and distribute the Foreground IP for non-commercial, research and development and/or educational purposes only; and
* Provide the Singapore Government, public sector agencies and SIT with information, including data and statistics, pertaining to the project when requested.
* Adhere to the funding agency's Grants Terms & Conditions (T&Cs) and Funding Guidelines, as well as all other applicable guidelines, policies and procedures adopted by the funding agency, which may be amended or varied from time to time;
* Agree to hold primary responsibility for the responsible conduct of research, and shall abide and comply with the ethical, legal and professional standards relevant to research, in accordance with the research integrity policy of the Organisation(s).

We declare that the facts stated in this application and the accompany information are true. This is an original and latest version of the proposal. We also declare that no other versions of this proposal (or parts thereof) with similar objectives, scope, deliverables or outcome have been or will be submitted to any other funding bodies.

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| **Name of Applicant** | **Signature** | **Date Signed** |
| Principal Investigator  <Name of Applicant> |  |  |
| Co-Investigator  <Name of Applicant> |  |  |
| Co-Investigator  <Name of Applicant> |  |  |
| Co- Investigator  <Name of Applicant> |  |  |
| Collaborator  <Name of Applicant> |  |  |
| Collaborator  <Name of Applicant> |  |  |
| Collaborator  <Name of Applicant> |  |  |

*Please add more rows if required,*

**SECTION VIII: Undertaking by Host Institution**

In signing the Grant Application, the Host Institution UNDERTAKES, on any Grant Award, to:

* support and agree to this proposal being carried out by the Applicant in the Host Institution;
* ensure that the funds provided are used for the appropriate purposes;
* ensure that all necessary licenses and approvals have been obtained or are being sought;
* ensure that all budget requests, including EOM, are in accordance with Host Institution’s prevailing HR policies and financial guidelines;
* provide the Singapore Government, public sector agencies and SIT a non-exclusive, non-transferable, perpetual, irrevocable, worldwide, royalty-free right and licence to use, modify, reproduce and distribute the Foreground IP for non-commercial, research and development and/or educational purposes only; and
* provide the Singapore Government, public sector agencies and SIT with information, including data and statistics, pertaining to the project when requested.

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| Comments (if any): |  |

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Name and Signature of Chief Executive Officer / Chief Technology Officer or equivalent\*

Date:

\* *If the PI / Applicant is the CEO / CTO or equivalent, UNDERTAKING by the applicant’s Reporting Officer is required.*

**Technology Readiness Level (TRL) Definitions**



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| **TRL** | **Description** | **Definition** |
| 0 | Idea | Unproven concept, no testing has been performed |
| 1 | Basic Research | Basic principles postulated and observed but no experimental proof available |
| 2 | Applied Research | Concept and application have been formulated |
| 3 | Critical Function | First laboratory test completed; proof of concept |
| 4 | Concept Validation | Small scale prototype built in a laboratory environment; technology validated in laboratory |
| 5 | Validation of Integrated System | Component and/or validation in a relevant environment |
| 6 | Verification of Integrated System | System model or prototype tested in intended environment close to expected performance |
| 7 | Demonstration System | Operating in operational environment at pre-commercial scale |
| 8 | System Completed and Qualified | Manufacturing issues solved |
| 9 | Full commercial application | Technology available for consumers |

Please indicate the TRL range of the research project based on the table above.

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|  | **TRL Level** |
| **Start of the project** |  |
| **End of the project** |  |

**ANNEXES**

Please attach the following annexes in pdf format, together with the Application Form to the EDGE Programme Office:

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| --- | --- | --- |
| **Item** | **Remarks** | **Description** |
| **ANNEX A** | Mandatory for all applications | Detailed research proposal (in PDF Format) – refer to Section III of the application form. Limited to 10 pages. |
| **ANNEX B** | Mandatory for all applications | Curriculum vitaes of all team members – limited to 2 pages maximum per CV, excluding full publication list. |
| **ANNEX C** | Mandatory for all applications | Company information and contact person details of Host Institution for correspondence regarding this application.  Please attach the ACRA BizFile as reference. |
| **ANNEX D** | Mandatory for all applications | Quad Chart Template (in PDF Format). |
| **ANNEX E** | Mandatory for all applications | Letter(s) of support: letters from **all partner organisations** to state their roles and contributions to the research. |
| **ANNEX F** | Mandatory for all applications | Other supporting documents (if any) |

**ANNEX B: CURRICULUM VITAE**

Please note the eligibility requirements. PI must:

1. Have a minimum of 9 months employment with a Singapore-based company;
2. Fulfil at least 6 months of residency in Singapore over a period of 1 calendar year;
3. Be an independent PI with a track record of leadership ability in coordinating research programs and providing mentorship to research team, as well as having productive research outcomes; and
4. Have no outstanding reports from other national grants.

Please use the format below to provide the required information on the research team. Please indicate “**NA”** beside the label field if the required information is not applicable. Please limit the CVs to **2 pages** for each team member. The full publication list can be attached separately.

* Personal Particulars (Name, Title, NRIC/Passport No., Office Mailing Address, Email, Contact No.)
* Current Position & Past Employment History (Please provide full details, e.g. primary appointment, joint appointments; other academic appointments including those outside of Singapore; percentage of time spent in Singapore every year, if applicable)
* Employment History
* Academic qualifications (Indicate institution’s name and year degree awarded)
* Professional Awards
* Research interests
* Highlight the top 5 publications in the last 5 years that pertains to the proposed project/programme
* Patents filed (related or unrelated to the study)
* Summary of the most relevant research outcomes from all previous grants (e.g. patents, awards, etc) [please limit to half a page]

**ANNEX C: COMPANY INFORMATION AND CONTACT DETAILS**

Please also provide the **ACRA BizFile** of the company as reference.

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| **Company Information** | |
| **Registered Company Name** |  |
| **Unique Entity Name (UEN)** |  |
| **Revenue** |  |
| **Employment Size** |  |
| **Correspondence Address** |  |
| **Key Contact Person** | Name:  Designation:  Email Address:  Contact Number: |

**ANNEX D: QUAD CHART**

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| **Need(s)**   * *Why was the project being done? How did it contribute to the objective(s) of the RFP?* * *Who will benefit from the project?* | **Approach & Assumptions**   * *What was your approach?* * *What are your underlying strategic assumptions and its basis? Are they valid in Singapore’s context?* |
| **Benefit(s)**   * *What was the outcome of the project? How did you measure success?* * *How are the outcomes being commercialised?* * *Start TRL = <>; End TRL = <>* | **Need(s)**   * *How does your project stand out compared to other similar projects? Please cite references.* * *Are there risk factors involved? Does your project take the risk factors into account?* |