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| **UYILO KICK START FUND - APPLICATION FORM** |  |

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| **Project Information** |
| Short Project Title: |  |
| Final Deliverable: |  |
| Total Project Budget (including VAT): |  |
| Total Request from Kick Start Fund (including VAT): |  |
| Expected Duration of the Project: |  |

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| **Applicant Information** |
| Name of Applicant: |  |
| Company / Institution Name: |  |
| Type: (Company, SMME, Science Council or HEI) |  |
| Position in Current Company / Institution: |  |
| Location: (City, Province) |  |
| Telephone Number (Land line): |  |
| Alternate Telephone Number (Cell phone): |  |
| Email Address: |  |
| List of other Project Partners if part of a Consortium: |  |

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| **Identify the technology field in which the Project falls:** Mark with an X |
| Energy Storage Technologies |  |  | Electric Vehicle Systems |  |
| Charging Infrastructure within Smart-Grids |  |  | Connected Car |  |
| Other (Specify): |  |

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| **Identify the activity(ies) for which funding is sought:** Mark with an X |
| Proof of functionality |  |  | Prototype development or improvement |  |
| Refining and implementing designs |  |  | Production of market samples  |  |
| Support of certification activities |  |  | Piloting, technology scale-up and techno-economic evaluation |  |

*Text in blue are guidelines to complete a section and will assist the assessment of the application form.*

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| **Section 1: Project Description and Purpose** |

* 1. **Concise description of the project and related technology**

*Briefly describe the project (5-10 sentences).*

*Specifically mention the technology (product/process/service) that has been developed or requires further development.*

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* 1. **Purpose and outputs of the project**

*What is the overall/core purpose of the project? What do you hope to achieve?*

*What identified problem/need are you addressing?*

*What will you deliver by completing this project?*

*How will you advance the related technology? What will the* ***TRL*** *(Technology Readiness Level) be upon completion of this project, as defined in the* ***TRL*** *guide included at the end of this application form?*

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* 1. **Maturity of the offering**

*Indicate work conducted thus far to demonstrate that your offering has potential to work and can be practically implementable. If there is work that has been performed, provide proof to give confidence that such activities were conducted and are valid to achieve the envisaged outcomes. Also, indicate the current* ***TRL stage reached*** *(Technology Readiness Level) as defined in the* ***TRL*** *guide included at the end of this application form.*

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| **Section 2: Market and Competitor Analysis** |

* 1. **Market analysis**

*What is the identified customer need/problem that this opportunity aims to address?*

*Specify which customers will be interested in buying your offerings. Include letters of intent from potential customers as Annexures to application, where applicable.*

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* 1. **Competitor analysis**

*State if there are any institutions/companies that are doing what you are proposing or have the potential to do what you are proposing. If there are, indicate any superior features that you have over your competitors’ offerings.*

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| **Section 3: Innovation and Intellectual Property** |

**3.1 Innovation**

*How will this differ projects from existing solutions? Include technology, business process and or any other unique features.*

*What do you see as the most difficult aspects for competitors to copy in your offering?*

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* 1. **Intellectual Property**

*Do you have patents or other IP protection in place that pertains to the project? If so, who owns the IP?*

*Is there a strong likelihood that you will develop IP that is patentable? If so, briefly describe potential IP and complete the table below.*

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| * 1. **Applicant, Entity or Consortium owned or licensed-in Registered Intellectual Property**
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| **Filing date** | **Patent, Design, Trademark application number or granted number** | **Date granted/ status (e.g. PCT phase, national phase)** | **Inventor(s)** | **Assignee / Applicant**  | **Title** | **Region/ territory** |
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| **Section 4: Project Plan and Budget** |

* 1. **Objectives and detailed plan**

*Complete the table below: All costs should* ***include VAT****.*

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| **Activity** | **Timeline** | **Deliverables** | **Entity responsible (in-house versus outsourced)** | **Budget** |
| *e.g. Proof of functionality* | *3 Months* | *Second prototype* | *Consultant* | *R xxx.xx* |
| *Test results & report* |
| *Etc.* |
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*Please attach a summary of results on work already conducted on this project.*

*What further activities (beyond the above) would be required before you can sell your offering?*

*Describe what will be the product to be delivered (the end-point) and the current status relative to the end-point.*

* 1. **Budget**

*Taking into consideration the TIA funding mandate and Sections 2, 3 and 4 of the “APPLICATION GUIDE - UYILO KICK START FUND”, populate the table below to indicate the source and amount of external funds, and indicate how the various activities are split between the various funding sources (including the uYilo funding source).*

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| **Activity** | **uYilo Grant**  | **External funds** | **Total** |
| *e.g. Proof of functionality* | *R xxx.xx* | *None* | *R xxx.xx* |
| *e.g. Marketing study* | *None* | *R xxx.xx – ABC*  | *R xxx.xx* |
| ***Total*** | ***R xxx.xx*** | ***R xxx.xx*** | ***R xxx.xx*** |

*Provide information on prior funding received for this project (funder’s name and amount received).*

*Have you recently approached other potential business partners/funders for financial support? If so, what is the status of your application?*

*Typically, the uYilo funds are not disbursed in full upfront. In the table below, propose a payment disbursement schedule that is linked to major project milestones.*

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| **Payment Schedule** |
| **Release criteria** | **Date** | **Amount** |
| *e.g. Start of project* | *Month 0* | *R xxx.xx* |
| *e.g. Proof functionality – working prototype* | *Month 3* | *R xxx.xx* |

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| **Section 5: Key Team Members**  |

*Describe the key team members and include demographics of each member*

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| *Name: e.g. Joe Blogs**Company / Institution: ABC (Pty) Ltd**Position: CEO**Responsibility in Project: Project Management* *Qualification: MBA**Experience: Joe Blogs has ….**Race: African, Coloured, Indian, White* |

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| **Section 6: Project Risks** |

*List any technical and/or commercial risks pertaining to the project and state how these risks will be mitigated.*

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| **Potential Risk** | **Cause** | **Planned Mitigating Action** | **Responsible Person** |
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**DECLARATION**

I declare that:

* I am duly authorised by the organisation or consortium, as applicable, named in this application to complete this form and to sign and submit this declaration, and in doing so the organisation or consortium, as applicable, is bound by this declaration.
* I have read and understood the funding Application Guide, obtained from the uYilo website.
* I am aware that there may be further information required by TIA and/or the Nelson Mandela University in respect of this application, and that my failure to provide requested information timeously may lead to a rejection of this application.
* The information contained in this application and any supporting information is to the best of my knowledge true, accurate and complete. I accept that TIA has the right to terminate this application and/or any project funding that may ensue in instances where the information provided is found to be false, and where instances of fraud are detected.
* I am familiar with the Intellectual Property Rights from Publicly Financed Research and Development Act, 2008 (Act 51 of 2008) and understand the implications of this Act on intellectual property derived from projects funded by the Technology Innovation Agency.
* Unless disclosed above in section 4 above, I have not applied for, or received any other funding from the Technology Innovation Agency (TIA), its previous entities or other Public sources of funding, with regard to the technology that is the subject matter of this application.

Full Name: <Name Here>

RSA ID No <ID no here>

Signature:

Date: \_\_dd\_\_\_/\_\_mm\_\_\_/\_\_yyyy\_\_

***UYILO INTERNAL USE ONLY***

Project Internal Reference: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **Action** | **Comments** | **Date** | **Completed** |
| *Captured on the fund database* |  |  |  |
| *Applicant informed of receipt* |  |  |  |
| *Application assessed* |  |  |  |
| *Steering committee approval* |  |  |  |
| *Applicant informed of outcome* |  |  |  |

***TRL (TECHNOLOGY READINESS LEVELS) GUIDELINES***

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| **OVERVIEW - TECHNOLOGY READINESS LEVEL (TRL) DEFINITIONS**  |
| **TRL 1**  | **Basic Research:** Initial scientific research has been conducted. Principles are qualitatively postulated and observed. Focus is on new discovery rather than applications.  |
| **TRL 2**  | **Applied Research:** Initial practical applications are identified. Potential of material or process to solve a problem, satisfy a need, or find application is confirmed.  |
| **TRL 3**  | **Critical Function or Proof of Concept Established:** Applied research advances and early stage development begins. Studies and laboratory measurements validate analytical predictions of separate elements of the technology.  |
| **TRL 4**  | **Lab Testing/Validation of Alpha Prototype Component/Process:** Design, development and lab testing of components/processes. Results provide evidence that performance targets may be attainable based on projected or modeled systems.  |
| **TRL 5**  | **Laboratory Testing of Integrated/Semi-Integrated System:** System Component and/or process validation is achieved in a relevant environment.  |
| **TRL 6**  | **Prototype System Verified:** System/process prototype demonstration in an operational environment (beta prototype system level).  |
| **TRL 7**  | **Integrated Pilot System Demonstrated:** System/process prototype demonstration in an operational environment (integrated pilot system level).  |
| **TRL 8**  | **System Incorporated in Commercial Design:** Actual system/process completed and qualified through test and demonstration (pre-commercial demonstration).  |
| **TRL 9**  | **System Proven and Ready for Full Commercial Deployment:** Actual system proven through successful operations in operating environment, and ready for full commercial deployment.  |

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| **TRL 1 Definition** | **TRL 1 Description** |
| **Basic Research**Initial scientific research begins. Examples include studies on basic material properties. Principles are qualitatively postulated and observed.  | Basic principles are observed. Focus is on fundamental understanding of a material or process. Examples might include paper studies of a material’s basic properties or experimental work that consists mainly of observations of the physical world. Supporting information includes published research or other references that identify the principles that underlie the material or process. A specific example in PV might be the observation of increased light absorption in silicon nanotubes or observation of multiple exciton generation.  |
| **TRL 2 Definition** | **TRL 2 Description** |
| **Applied Research**Initial practical applications are identified. Potential of material or process to satisfy a technology need is confirmed.  | Once basic principles are observed, practical applications can be identified. Applications are speculative, and there may be no proof or detailed analysis to support the assumptions. Examples are still limited to analytic studies. Supporting information includes publications or other references that outline the application being considered and that provide analysis to support the concept. The step up from TRL 1 to TRL 2 moves the ideas from basic to applied research. Most of the work is analytical or paper studies with the emphasis on understanding the science better. Experimental work is designed to corroborate the basic scientific observations made during TRL 1 work. An example in PV might be analytical models of a new thin film with very low absorption coefficient that could serve as an enhanced anti-reflective coating, or in a multi-layer anti-reflective coating. |
| **TRL 3 Definition** | **TRL 3 Description** |
| **Critical Function, i.e., Proof of Concept Established** Applied research continues and early stage development begins. Includes studies and initial laboratory measurements to validate analytical predictions of separate elements of the technology. Examples include research on materials, components, or processes that are not yet integrated.  |  Analytical studies and laboratory-scale studies are designed to physically validate the predictions of separate elements of the technology. Examples include components that are not yet integrated. Supporting information includes results of laboratory tests performed to measure parameters of interest and comparison to analytical predictions for critical components. At TRL 3 experimental work is intended to verify that the concept works as expected. Components of the technology are validated, but there is no strong attempt to integrate the components into a complete system. Modelling and simulation may be used to complement physical experiments. Examples in PV would include deposition of thin films on bare substrates or films for optical measurement of devices and not necessarily actual PV devices. |
| **TRL 4 Definition** | **TRL 4 Description** |
| **Laboratory Testing/Validation of Alpha Prototype Component/Process**Design, development and lab testing of technological components are performed. Results provide evidence that applicable component/process performance targets may be attainable based on projected or modelled systems. | The basic technological components are integrated to establish that the pieces will work together. This is relatively "low fidelity" compared with the eventual system. Examples include integration of ad hoc hardware in a laboratory and testing. Supporting information includes the results of the integrated experiments and estimates of how the experimental components and experimental test results differ from the expected system performance goals. TRL 4-6 represent the bridge from scientific research to engineering, from development to demonstration. TRL 4 is the first step in determining whether the individual components will work together as a system. The laboratory system will probably be a mix of on-hand equipment and a few special purpose components that may require special handling, calibration, or alignment to get them to function. An example in PV might include the first attempts to fabricate a new PV device design in the laboratory. The concept is there but the details of the unit process steps are not yet worked out. The goal of TRL 4 should be the narrowing of possible options in the complete system. |
| **TRL 5 Definition** | **TRL 5 Description** |
| **Laboratory Testing of Integrated/Semi-Integrated System**Component and/or process validation in relevant environment- (Beta prototype component level). | The basic technological components are integrated so that the system configuration is similar to (matches) the final application in almost all respects. Supporting information includes results from the laboratory scale testing, analysis of the differences between the laboratory and eventual operating system/environment, and analysis of what the experimental results mean for the eventual operating system/environment. The major difference between TRL 4 and 5 is the increase in the fidelity of the system and environment to the actual application. The system tested is almost prototypical. An example in PV might be the fabrication of devices that closely match or exceed the expected efficiency targets but is fabricated in the lab manually with minimal automation. Scientific risk should be retired at the end of TRL 5. Results presented should be statistically relevant. |
| **TRL 6 Definition** | **TRL 6 Description** |
| **Prototype System Verified**System/process prototype demonstration in an operational environment- (Beta prototype system level). | Engineering-scale models or prototypes are tested in a relevant environment. This represents a major step up in a technology’s demonstrated readiness. Examples include fabrication of the device on an engineering pilot line. Supporting information includes results from the engineering scale testing and analysis of the differences between the engineering scale, prototypical system/environment, and analysis of what the experimental results mean for the eventual operating system/environment. TRL 6 begins true engineering development of the technology as an operational system. The major difference between TRL 5 and 6 is the step up from laboratory scale to engineering scale and the determination of scaling factors that will enable design of the final system. For PV cell or module manufacturing, the system that is referred to is the manufacturing system and not the cell or module. The engineering pilot scale demonstration should be capable of performing all the functions that will be required of a full manufacturing system. The operating environment for the testing should closely represent the actual operating environment. Refinement of the cost model is expected at this stage based on new learning from the pilot line. The goal while in TRL 6 is to reduce engineering risk. Results presented should be statistically relevant. |

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| **TRL 7 Definition** | **TRL 7 Description** |
| **Integrated Pilot System Demonstrated**System/process prototype demonstration in an operational environment (integrated pilot system level). | This represents a major step up from TRL 6, requiring demonstration of an actual system prototype in a relevant environment. In the case of a new PV module, this will include a full scale pilot line capable of producing such modules. Examples include manufacturing the PV devices on a manufacturing pilot line with operations under primary control of manufacturing. Significant amount of automation is expected at the completion of this phase if the cost model for full scale ramp requires it. 24 hour production (at least for a relevant duration) is expected to discover any unexpected issues that might occur during scale up and ramp. Supporting information includes results from the full-scale testing and analysis of the differences between the test environment, and analysis of what the experimental results mean for the eventual operating system/environment. Final design is virtually complete. The goal of this stage is to retire engineering and manufacturing risk. To credibly achieve this goal and exit TRL 7, scale is required as many significant engineering and manufacturing issues can surface during the transition between TRL 6 and 7. |
| **TRL 8 Definition** | **TRL 8 Description** |
| **System Incorporated in Commercial Design**Actual system/process completed and qualified through test and demonstration- (Pre-commercial demonstration). | The technology has been proven to work in its final form and under expected conditions. In almost all cases, this TRL represents the end of true system development. Examples include full scale volume manufacturing of commercial end product. True manufacturing costs will be determined and deltas to models will need to be highlighted and plans developed to address them. Product performance delta to plan needs to be highlighted and plans to close the gap will need to be developed. |
| **TRL 9 Definition** | **TRL 9 Description** |
| **System Proven and Ready for Full Commercial Deployment**Actual system proven through successful operations in operating environment, and ready for full commercial deployment. | The technology is in its final form and operated under the full range of operating conditions. Examples include steady state 24/7 manufacturing meeting cost, yield, and output targets. Emphasis shifts toward statistical process control. |