

Facility for Low Carbon Technology Deployment

BEE UNIDO GEF Initiative

Terms of Reference

Innovation Challenge for Pumps, Pumping Systems and Motors

[Last Date for Application: 31st May 2020]

The **Facility for Low Carbon Technology Deployment (FLCTD)** project, implemented by the United Nations Industrial Development Organization (UNIDO) in collaboration with the Bureau of Energy Efficiency (BEE) is launching the 2020 annual Innovation challenge.

The Challenge is open for promising innovations in Pumps, Pumping Systems and Motors innovations across all industrial, commercial, residential and agriculture sector, in the areas described below, which can be deployed to address technology gaps and increase energy efficiency:

- a) **Industrial & Domestic Pumps:** Innovations that save energy in pumps that find application in industries, buildings, municipalities (water supply and sewage disposal). Pumps should demonstrate efficiency levels higher than what is available in the market (e.g., greater than 5-star rated pumps). Innovations could also focus on integrating intelligence in pumps which makes the system adaptive, commercially viable and improve overall 'wire-to-water' efficiency of the system.
- b) **Agricultural Pumps and Pumping Systems:** Innovations that demonstrate efficient energy and water savings in agriculture pumps or pumping systems. Solutions for efficient water utilization can include improved water-intake and delivery systems (pipes, valves, sprinkler, drip irrigation systems), and precision agriculture with smart-technologies for application in, but not limited to, agriculture, horticulture, agro-forestry.
- c) **Critical Components of Pumps:** Innovations in design and construction of components such as impellers, diffusers, casing and component material that results in low life-cycle costs and higher efficiency. Innovations focusing on reducing the overall embodied energy in manufacturing processes of pumps, increasing the recyclability of various components and embedding electronics for overall system efficiency improvement.
- d) **Motors:** Innovations in design and material of construction that overcome constraints to motor performance imposed by factors such as, but not limited to, voltage variations, frequency variations, power factor and high inrush currents, without compromising the performance of the motor. The design improvement should be targeted at a specific motor application in industry or in commercial

and residential buildings. Motors, irrespective of their principle of operation and design technology, must demonstrate efficiencies higher than the IE4 efficiency class as defined by IEC 60034-30-1 (2014) for fixed speed motors, or IEC TS 60034-30-2 (2016) for variable speed motors respectively. *Preference will be given to 'rare-earth free' motor technologies.*

Eligibility and Qualifiers

All innovative solutions should be based on proof-of-concept or early stage prototype and clearly indicate the technology gap being addressed. Following are the indicative qualifiers:

- Design improvements that reduce energy consumption and overcome application constraints;
- Emerging and novel technology applications that improves efficiency;
- Improvement in material of construction, improvement in hydraulics;
- Innovation in application of information and communication technologies demonstrating precision in controlling water delivery and maintain optimum efficiency level of the overall pumping system and efficiency improvements
- Design improvement in motors that overcome application constrain and can benefit industry in general including the pumps industry for diverse motor-driven systems in industrial, commercial and residential applications.

Who Can Apply?

- The innovation challenge is open to Entrepreneurs, Startups, Indian Technical Institutes / Universities, Research Institutes, Micro, Small and Medium Enterprises, Industries, Public Sector Enterprises and Government Laboratories.
- Consortium of Indian companies, non-profit organization, associations, academic institution, R&D organization
- Indian Start-up companies and collaborations with Industry/Academia/research institutes/ are highly encouraged to apply
- Technologies funded under Department of Science and Technology (DST) and other government schemes, at pre-market phase (TRL 4 - TRL 6) and ready for field demonstration will be given preference
- Innovation teams with **women entrepreneurs** will be given preference.

Incentives for Participation

- **Grant** up to USD 50,000 to the winners for technology demonstration and validation at multiple locations, wherever required;
- **Performance Verification** to establish the efficacy of innovative technology in working conditions;
- **Business Acceleration and Mentoring** support from industry experts;
- Fund-raising support after successful completion of technology validation;



- Recognition from Bureau of Energy Efficiency and UNIDO;
- Grant disbursement will be linked to the progress. Indicative progress-based milestones are:
 - 30% of the award grant will be given to the innovator winning the innovation challenge
 - 50% after installation/commissioning of the innovation
 - 20% at the end of the deployment phase, upon completion of Technology Verification Reporting

Parameters for Selection

This is only an indicative list, and is not exhaustive, and is subject to change and modification.

- Nature of innovation (Product design/ Process Innovation)
- Addresses a key issue/technology gap in the industry
- Replication potential
- Energy saving and greenhouse gas emission reduction potential
- Financials (pay-back period, Internal Rate of Return)
- Technology readiness stage (R&D/ Prototype/ Pilot demonstration/ Commercial)
- Intellectual Property Rights/ Patents (granted/ applied)
- Expertise of the project team

General Guidelines, Terms, and Conditions

- Participant shall submit solutions/ product designs owned by them or to which they have right to claim and use as owned by them. Suitable documents to this effect must be submitted along with the entry.
- Participant shall ensure that any submission made in the Challenge does not violate any of theirs or any third party's intellectual property rights, confidentiality, trade secret and violate any statutory provisions.
- BEE, UNIDO, its employees, members of Expert Panel and organizers of this innovation challenge shall in no event be liable for any violation of IPR, or license or permits required from third party.
- Participant shall not assign any rights, obligations, or privileges hereunder without the prior written consent of Organizers of the Challenge.
- BEE, UNIDO, Organizers, members of Expert Panel, supporting organizations or any employee or agent shall not be liable for, any costs incurred or loss or liability or loss in expectation of profits or loss due to failure of understanding the terms and conditions of the Challenge or of any expected benefit of the participant in relation to entry and submission in the Challenge.
- By way of selecting the entries for evaluation at any Stage or for Final Award, Participants shall not be entitled to claim or have got endorsement from BEE and UNIDO of any sought whatsoever, or have earned approval of any sought whatsoever of BEE and UNIDO, for use in any form whatsoever anywhere in the Industry.
- At any Stage while evaluating the entries, organizers shall be free to contact the Participants and carry out discussions on the matter submitted by the Participants and seek clarifications. Any solicitation by participants in whatever form in respect of their entries shall not be entertained and entries of such participant shall be disqualified from the Innovation Challenge.
- BEE/UNIDO/Organizers may change the Terms and Conditions of participation at any time without prior notice. It shall be sole responsibility of the Participants to update themselves of information posted in the website from time to time.
- BEE/UNIDO/Organizers may disqualify a Participants from the Challenge for breach of any of the conditions of this Challenge, or discontinue this Challenge.