

Facility for Low Carbon Technology Deployment

BEE GEF UNIDO Initiative

Terms of Reference

Industrial Resource Efficiency Innovation Challenge 2020

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

Entries are invited to the 2020 FLCTD Innovation Challenge for Industrial Resource Efficiency to suggest promising innovations in the areas described below. Winning entries will be supported in the deployment of their innovation to showcase that technology gaps are addressed resulting and result in improved resource efficiency. The maximum award per entry is US\$50,000 (excl GST) and the total award money earmarked for this particular vertical for 2020 Annual Innovation Challenge is US \$500,000.

Within the context of this FLCTD challenge, Industrial Resource Efficiency encompasses technology solutions that result in the reduction of the specific consumption of either or a combination of raw materials, product components and ingredients, consumables, water and energy (referred collectively as natural resources) per unit of product and/or per unit of manufacturing output. The FLCTD challenge particularly zooms in on resource efficiency solutions with demonstrably significant reductions of net greenhouse gas (GHG) emissions resulting from direct energy savings, savings of indirect and embodied energy from avoided production and supply of these natural resources and potentially non energy GHGs.

The Challenge is open for Resource Efficiency technology innovations at product and/or process levels across all industrial sectors in India for the following (or combinations thereof):

- **Chemicals** – Innovations demonstrating reduction in the usage of chemicals in industry. The reduction could be due to: better/ improved chemicals and/or process chemistry (e.g. catalytic, at near ambient conditions); superior application/ usage methods (e.g. with regard to mixing, cooling, heating, etc.); recovery and/or reuse of chemicals (in process or as useful byproduct); improved process and product control; etc. The innovation should not have any negative impacts on the end product/ equipment/ environment/ occupational, consumer and community health and safety, etc.
- **Consumables** – Innovations demonstrating reduction in the usage of consumables in industry. Consumables include any materials in the manufacturing process that are not directly included in the final end product, for example: lubricating oils, hydraulic oils, cleaning agents, reaction media (e.g. solvents), casting sand, molds, refractory, intermediate packaging/holding, etc. The reduction could be due to: custom designed consumables; superior usage methods; recovery and/or reuse of consumables; minimizing wear due to better design; etc. The innovation should not have any

negative impacts on the end product/ equipment/ environment/ occupational, consumer and community health and safety

- **Materials** – Innovations demonstrating reduction in the usage of all materials (excluding chemicals and consumables as above but including raw materials) and/or substitution to lower GHG materials in industrial products and/or processes through light-weighting and/or selection of alternative materials with a lower carbon footprint.
- **Waste generation and recycling** – Innovations demonstrating reduction in the generation of waste from manufacturing units, conversion into useful byproducts and/ or recycling of waste products/ byproducts in industry. Innovations may be applicable to a particular equipment/ machinery or to a manufacturing unit as a whole.
- **Water management** – Innovations demonstrating: conversion to less water-intensive or even waterless manufacturing and/or auxiliary processes, reuse of process water and/or improved recycling/ reclamation of water in industry. Innovations must not pollute or have other negative impacts on water used/ discharged from the industry.
- **Energy and GHG management** – Innovations demonstrating: greatly improved energy efficiency, better energy management, deep GHG emissions reductions in industrial energy use.

All innovative solutions should be based on proof-of-concept or early stage prototype and clearly indicate the replication potential and opportunities for scale-up, and also the following:

- ✓ Innovations that result in overall resource efficiency improvements
- ✓ Emerging and novel technology applications that reduce resource consumption
- ✓ Design improvements that reduce resource consumption, overcome application constraints and improve economic feasibility
- ✓ Innovation should not have any negative impacts on the end product/ equipment/ environment/ occupational, consumer and community health and safety etc.

Eligibility

- The innovation challenge is open to Innovators, Entrepreneurs, Startups, Indian Technical Institutes / Universities, Research Institutes, Micro, Small and Medium Enterprises, Industries, Public Sector Enterprises and Government Laboratories.
- Consortiums of entrepreneurs and academic institutions with industry partnerships are highly encouraged to participate in the innovation challenge.
- Innovation teams with **women innovators and/or entrepreneurs** are particularly welcomed.

Incentives for Participation

- **Grant** up to USD 50,000 for winning entry with provision for demonstration at multiple locations, wherever required;
- **Performance Verification** to establish the efficacy of innovative technology in-field working conditions;
- **Business Acceleration and Mentoring** support from industry experts;
- Opportunity to **Network** with investors and industry stakeholders to publicize the innovation;
- The winners of the Innovation Challenge will receive recognition from Bureau of Energy Efficiency and UNIDO;
- Grant disbursement will be linked to specific progress-based milestones, typically
 - 30% of the award grant will be given to the innovator winning the innovation challenge upon submission of plan for technology demonstration after signing the contract
 - 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
- Scalability and sustainability
- 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 Right / Patents (granted/applied)
- Expertise of 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 Participant from the Challenge for breach of any of the conditions of this Challenge, or discontinue this Challenge.

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