

# Facility for Low Carbon Technology Deployment (FLCTD) BEE UNIDO GEF Project

## Terms of Reference

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### Annual Innovation Challenge for the Space Conditioning Vertical of the FLCTD project 2020

[Last Date for Application: 31<sup>st</sup> 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 Innovation challenge in Space Conditioning technology vertical.

Entries are invited to the 2020 FLCTD Innovation Challenge for Space Conditioning, Refrigeration and Cold-chain to identify the promising innovations in the areas described below, which can be deployed to address technology gaps and/or reduce energy consumption.

The Challenge is open for innovations in the following technology areas:

- **Space Conditioning:** Innovations that demonstrate reduction in space cooling requirement, impact on environment particularly on climate, and energy use in providing the thermal comfort in the built environments without compromising functionality of the spaces such as, but not limited to, residential and public buildings, commercial spaces, industrial work spaces, warehouses, and public/private transport such as buses, river/sea ferries. Solutions may include:
  - Innovative and new, active/passive cooling technologies including hybrid designs in evaporative cooling, vapour compression, solid-state cooling applications and green refrigerants are highly encouraged to apply.
  - Scalable technologies for various applications of integrated systems/process that can include IoT applications for HVAC incorporating newer technology for innovative field devices and sensors that can contribute to energy savings, thermal comfort and indoor environmental quality; systems to have in-built analytics for monitoring various parameters required to evaluate system performance on a real time basis.
- **Refrigeration:** Innovations demonstrating, technological innovation, reduction in refrigerant, use of environment friendly refrigerants, energy savings in application of refrigeration technologies for domestic/commercial/industrial applications including, but not limited to, instant chillers in fishing boats/trawlers, plate freezers/ freezer rooms, water-coolers, milk chillers, pack houses and cold rooms.
- **Cold-Chain:** Innovative cold-chain solutions and technologies in primary, secondary or tertiary segments of the cold-chain to reduce the energy consumption during storage and/or

transportation of perishable products including agri-produce, flowers, dairy products, beverages, sea-food, and frozen food.

## 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:

- ✓ Use of refrigerants with zero ODS and low GWP while demonstrating the efficiency benefits;
- ✓ Emerging and novel technology applications that reduces energy consumption, including through system heat reduction and heat gain reduction;
- ✓ Innovations that result in overall efficiency improvements;
- ✓ Design improvements that reduce energy consumption and overcome application constraints;
- ✓ Applications that reduce fossil fuel consumption or lead to integration with renewable source of energy.

## 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 (Technology/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.