



**MISSION
INNOVATION**

NET-ZERO COMPATIBLE
**INNOVATIONS
INITIATIVE**

Smart micro-grid by Basil Energetics Private Limited

Avoided Emissions Framework – Level 1 alpha assessment

≈10 MtCO₂e/year in 2030

Assessment conducted: 2018

Assessor: WWF Sweden

In Mission Innovation's Net-Zero Compatible Innovations Initiative, assessments are performed following The Avoided Emissions Framework (AEF) guidance. The aim of this assessment is to estimate the potential avoided greenhouse gas (GHG) emissions per year in 2030 enabled by Smart micro-grid and similar competing innovations on a global market. The Level 1 alpha assessment presented in this report uses written information provided by the innovator to estimate the order of magnitude (≤ 0.1 , ≈ 1 Mt, ≈ 10 Mt, ≈ 100 , ≈ 1000 MtCO₂e/year) of its avoided emissions potential. The order of magnitude allows innovators, incubators, funders and investors to understand where in the wide spectrum of avoided emissions potential the innovation lies. To demonstrate the benefit of the innovation to reduce overall system level GHG emissions, this assessment quantifies approximately and compares the greenhouse gas (GHG) emissions from a business-as-usual (BAU) baseline scenario with those from an innovation-enabled scenario.

The results below are from the initial implementation of the Avoided Emissions Framework methodology. Some of the assessor's assumptions or data presented could not be confirmed through the available references. Subsequent work to estimate the avoided emissions is based on a more advanced methodology to enable the full potential of the solution to be estimated. Advanced estimates also include an assessment of the compatibility of the solution with the IPCC's 1.5 °C P1 Low Energy Demand pathway.

Innovation

The company Basil Energetics Pvt. Ltd offers an innovation consisting of Smart Micro Grid (SMG) Using DC Appliances: The key component of this innovation is the smart micro-grid (SMG) with superefficient DC appliances. The key thing in this system is that the DC grid and the appliances are compatible with AC power grid. Even the wiring does not need to be changed. Normally battery or inverter is not required. With an additional grid tied inverter, the system can work as on On Grid type. When there is power outage there in AC Grid, the system automatically converts itself into an Off Grid type.

Region

India

Supported by:



Innovation challenge/Sector

Energy efficiency/RE

Market

Basil Energetics are targeting domestic consumers to replace electricity from the grid and switch to renewable electricity power and use superefficient DC devices which are compatible with AC power as well. So that it can be implemented in every household.

The following aspects have been considered, based on which a deployment potential of 5% has been assumed:

- Affordability (high cost DC appliance than conventional AC)
- Urban population have AC power, switching to DC is very difficult
- Limited appliances
- Type of house
- Solutions offering solar rooftop system, solar UPS
- Generation from solar rooftop, solar micro-grid for rural electrification

Impact assessment

To assess the impact, we have considered the system would replace appliances powered by electricity. Since the system is powered by renewable sources of electricity it causes minimal emissions.

Delivers on SDGs

Note: The innovator self-reported relevant SDGs as including the following:

- SDG Nr 7: Affordable and clean energy – Reduces the consumption of electricity and uses renewable sources of energy which reduces the emissions from electricity.

Potential climate impact

Based on the assumptions made and notwithstanding the uncertainties inherent in the assessment, if this innovation or others like it, penetrates 10 percent of the target market by 2030, the global greenhouse gas emissions would be reduced by **28.35 million tonnes of CO₂** annually.