



## Climate Solver Award

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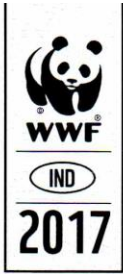
WWF (World Wide Fund) for Nature is a worldwide organisation to protect nature - wildlife, flora and fauna. It is head quartered in Geneva, Switzerland. It is known as World Wildlife Fund in USA.

WWF has selected our company BASIL Energetics as the winner of the Global Climate Solver award for 2016. I received the award at a function in Delhi on Nov 27. WWF has also nominated our company as an Ambassador for their Global Climate Solver Program. More details can be had from their website [www.climatesolver.org](http://www.climatesolver.org)



A photo of self with award, which was given by Mr. C. K. Mishra (to my left), Secretary, Ministry of Environment, Forest & Climate Change, Government of India. To my right is Mr Ravi Singh, Secretary General & CEO, WWF India.

Others in the picture are (from L - R) Mr Krishnan Dhawan, Board Member, Shakti Sustainable Energy Foundation, New Delhi, Mr.R.Subramaniam, Secretary (Rtd), Government of India, Ms Seema Aurora, Deputy Director General, CII (Confederation of Indian Industries), CII - ITC Centre of Excellence for Sustainable Development.



# GHG REDUCTION:

## RENEWABLE ENERGY-BASED SMART MICRO-GRID USING DC APPLIANCES

DEVELOPED BY: BASIL ENERGETICS PRIVATE LIMITED

### Innovation

Renewable energy is the need of the hour. As per the Climate & Sustainability Energy Finance report, nearly half of global renewable energy investments in 2016 are in the solar sector, with a majority focusing on building photovoltaic power plants. However, the focus on power generation and pricing needs to be coupled with effective dispatch and management of the supplied power against demand in order to balance the electrical grid and avoid disproportionate stress on the grid infrastructure. De-centralized electricity management hence can play a key role in managing in-firm power through renewable sources to reduce pressure on the electrical grid.

Basil Energetics offers a solution to manage green power at the tail end of the grid or at the load end, to help cater to both urban and rural areas through its decentralized approach. The offered solution is provided in the form of a package, consisting of not only standalone solar panels, but also includes a range of innovative hybrid household electrical appliances such as a ceiling fan, LED lights, air conditioner, refrigerator etc. The demand and supply is managed using a smart micro-grid (SMG) controller, called an iGrid. This scheme eliminates the requirement of electrical conversions, particularly DC to AC in hybrid appliances, to a large extent. Solar power can now be used directly to run hybrid equipment and offers increased functionality as compared to standalone AC equipment, besides being more energy efficient.

iGrid ensures that power requirements are met, either through the solar power pack, the electricity grid source or the battery packs. This means that the iGrid tracks the available power from the solar pack as a primary source, against the load demand. In instances where the solar supply is insufficient, like on a rainy or cloudy day, iGrid dispatches the required power after importing it from the grid or battery packs or other renewable energy sources, as applicable. The iGrid is smart enough to manage supply also from other renewable energy sources, such as small hydro, small wind turbine, gasifier, etc., and dispatch the power to cater to the load in a way that the extra generated electricity can either be stored in batteries, or transmitted to the electrical grid using government notified net metering arrangements. This ensures that the user also benefits from the sale of electricity to utility.

The system can be installed in green or brown-field projects. In case of a brown field project, the system can be set-up on top of the existing infrastructure. However, the electrical equipment needs to be replaced with the hybrid equipment. The hybrid equipment can receive DC or AC and needs to be fitted with a smart controller that can sense the supply and trigger a rectifier, installed within, to convert the AC supply to DC. This will ensure that only DC is used for running equipment and will help save electricity due to efficiency in operation. For example the offered hybrid ceiling fans can save 65 per cent electricity as compared to induction based fans and a 300L refrigerator called iFreez consumes only one fourth power compared to 5-star BEE labeled refrigerator.

All the DC appliances are based on the patented motor control developed by Basil.

Based on user requirements and usage patterns, Basil offers services through four models, each comprising of a solar panel, electrical equipment, iGrid and installation. The number of equipment offered or their capacities vary across models, which further decide the cost of the set-up. For example, a 1.7 kWp power project consisting of single one tonne air-conditioner, a 300L refrigerator, three ceiling fans, LED tube lights and LED lights will cost around INR 3.6 lakh.



Smart micro-grid and hybrid electrical appliances

### Benefits

Power packs developed by Basil Energetics present a complete decentralized energy solution for urban and rural areas. The implementation leads to not only reduced stress on the electricity grid by means of on-site generation using renewable sources, but also regulates energy losses that occur during transmission and distribution. The estimated GHG emission reduction by wide adoption of this technology is likely to be 27 million tonnes by 2026.

### About the company

Basil Energetics Private Limited is a technology start-up that deploys smart micro-grid (SMG) along with hybrid electrical appliances. Started in 2013, Basil Energetics has installed around 50 rooftop solar-based systems in Tamil Nadu, Karnataka and Kerala and plans to expand it to other states. Basil Energetics also has business interests through channel partners in selected regions of Iran. The offered system capacities range from 1.5 to 18 kWp.

