



IND
2019

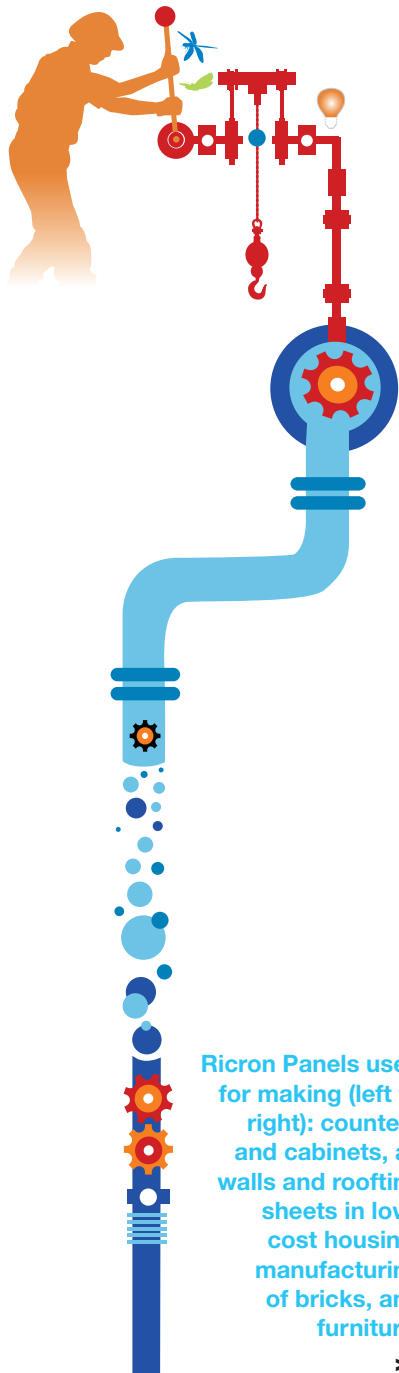
Climate Solver Partners



CLIMATE SOLVER

2018 AWARDEES





CLIMATE SOLVER 2018 AWARDEE

GHG REDUCTION: Ricron Panels- Construction Panels Using Waste Multilayer Plastics

Developed by: Deeya Panel Products Private Limited

INNOVATION

Current rate of consumption of wood/timber is unsustainable and strict measures are needed in both controlling consumption as well the introduction of alternatives. Similarly, the scale of plastic waste generation is an ongoing challenge and it is essential to curb its negative impacts on the environment. On an average, plastic can take up to a thousand years to decompose, choking drains and river systems, contaminating soil and water, while damaging human and animal health, as well as the environment. Plastic packaging accounts for nearly half of all plastic waste globally, much of which is thrown away within just a few minutes of its first use. In India, the major challenge is effective & safe disposal of waste. The present methods for disposal are inefficient and the awareness among public on its hazards to the environment is low.

Deeya Panel Products has found a solution to tackle the plastic waste menace. With their unique technology, they convert multi-layer plastics, that cannot be conventionally recycled into low-cost and high quality building materials called Ricron Panels. The waste is sourced from multilayer film manufacturers, packaging and waste management companies, as well as scrap dealers. The collected waste is then carefully sorted, washed and ground to flakes based on their polymer compositions. Using the proprietary multi-stage manufacturing process, the plastic waste is then formulated into different mixtures keeping the quality of end product in mind, with applications for various industrial and commercial purposes. Ricron Panels are Greenpro certified as a green product building material by the Confederation of Indian Industry (CII), and the manufacturing facility is certified as a zero waste discharge unit.

Ricron Panels used for making (left to right): counters and cabinets, as walls and roofing sheets in low-cost housing, manufacturing of bricks, and furniture.

>>



About the Company

Deeya Panel Products Pvt. Ltd. based out of Ankleshwar Gujarat, imbibes the idea of 'circular economy' and recycles multi-layer plastics and converts them to panels or sheets, to be used as low-cost and high-strength building materials. Deeya Panel manufactures high-quality brick pallets, paver block pallets, recycled plastic sheets and other similar products. The panels are manufactured by their proprietary technology (patent filed) and sold under the brand name 'Ricron'.



Benefits

- Ricron Panels can substitute plywood (12 mm thick), MDF, PVC sheets, as well as other soft woods, for use in applications such as furnitures, paver pallets, shuttering panels, etc.
- The panels are fire-proof, water-proof, corrosion-free and termite resistant. They are stronger and non-brittle with respect to cement sheets (6 mm thick) used for roofing, and can also replace GI sheets.
- The estimated GHG reduction by global adoption of this technology is likely to be 9 million tonnes by 2028.



CLIMATE SOLVER 2018 AWARDEE

GHG REDUCTION: Surface Water Velocity Driven Hydrokinetic Turbine

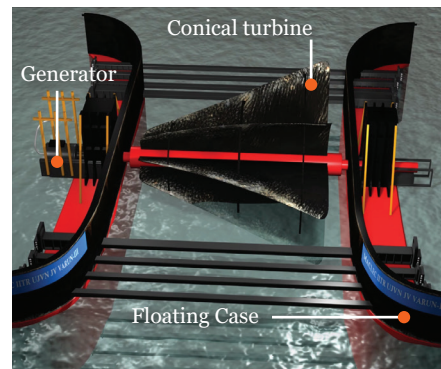
Developed by: Maclec Technical Project Laboratory Private Limited

INNOVATION

Renewable energy is one of the most effective tools we have in the fight against climate change, and is the cleanest pathway to achieve sustainable development. Renewable energy contributes to about 25% of total electricity generated in the world from numerous sources, such as hydro, solar, wind and geothermal. Decentralized renewable energy sources present a substantial untapped potential, especially in the form of micro and small hydro power projects. One such example is generating power by applying the principles of hydrokinetic energy. Based on this fundamental, Maclec Technical Project Laboratory has developed a simple, sustainable and indigenous hydropower innovation called VARUN III.

VARUN III is a reliable, sustainable and environment friendly technology that caters to the 24x7 electricity demand. The deployment of this technology can be beneficial for rural electrification and development of remote areas situated close to perennial water bodies, such as rivers, canals and streams.

VARUN III has various innovative features. One such feature being debris-free turbine technology- where- in the turbine is fit between a floating case, which provides buoyancy to the turbine module to remain half submerged and other important parts, such as generator to stay above the water surface. The buoyant floating case also provides sufficient space for debris, silt and floating material to pass through without reacting on the turbine surface. This unique feature helps avoid the installation of any additional structure such as trash rack. The installation and running cost of VARUN III is similar to an off-grid solar power plant, but unlike solar PV, it can generate power continuously till there is adequate flow of water. VARUN III has modules ranging from 1kW-100kW. There is also a natural calamity warning and control system installed 10 km upstream, which constantly shares data with the power station in real time. The revenue generation model is similar to other renewable energy projects in which power is sold to consumers through power purchase agreements (PPA).



VARUN III: Hydrokinetic Turbine

About the Company

Maclec Technical Project Laboratory (MTPL) Pvt. Ltd., incorporated in December 2014, based out of Delhi is working in partnership with Department of Hydro and Renewable Energy, IIT Roorkee, Uttarakhand Jal Vidyut Nigam (UJVN) and Government of Uttarakhand for the development and commercialization of Surface Water Hydrokinetic Turbine (VARUN III).



MTPL is the technology provider/industry partner, while IIT Roorkee is the R&D Partner, and Uttarakhand Jal Vidyut Nigam Limited (UJVT), Govt. of Uttarakhand is the sponsor/facilitator.

Maclec Technical Project Laboratory has received the Budding Innovator Award by National Research Development Corporation, Government of India in 2017, and has also received the ICT Top Startup 2018 Award from Ministry of Information and Communication Technology, Government of India.

Benefits

- VARUN III (5 kW) generates 120-240 units/day and can be installed in any waterbody having velocity more than 0.7m/sec.
- High plant load factor of more than 90% when installed in perennial water bodies, such as canals or rivers.
- Present installation of VARUN III (Size: 9m x 6m x 3m) is designed to generate power of 5kW, with peak power output at 1.5m/s stream velocity.
- The estimated GHG reduction by global adoption of this technology is likely to be 2 million tonnes by 2028.

CLIMATE SOLVER 2018 AWARDEE

GHG REDUCTION: HyPixi- Hybrid Retrofit System for Vehicles

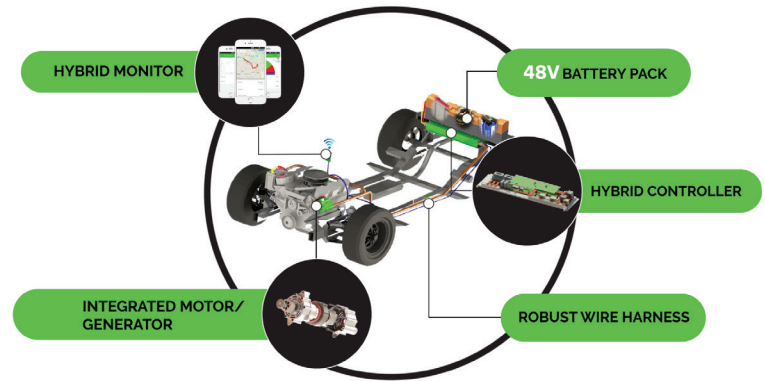
Developed by: Altigreen Propulsion Labs Private Limited

INNOVATION

A leading source of GHG emissions and urban air pollution are on-road vehicles. The problem gets worse in developing economies like India that struggle with congested cities. Traffic snarls, poor infrastructure, and disorderly driving slow down vehicles - reducing fuel efficiency and increasing pollution levels. Hybrid and electric vehicles are the hope for a low- carbon future.

Altigreen Propulsion Labs has created a low-cost retrofit system– HyPixi – that transforms fossil fuel-based vehicles into hybrid electrics, leading to reduction in fuel consumption and emissions by over 20%. HyPixi is a fit and forget torque-assist, regenerative electric system. This powertrain generates electricity through regenerative braking, a concept used in full hybrid vehicles. In a normal vehicle, on application of brakes, the kinetic energy of the vehicle is lost in the form of friction at the brake pads. This loss of energy is prevented by the regenerative braking and energy harnessed is then used by Altigreen’s powerful motor generator system to assist the engine, thereby reducing fuel consumption and exhaust emissions. Altigreen’s HyPixi is a retrofit product that can be installed in petrol/diesel cars, as well as Light Commercial Vehicles (LCVs). The technology works by augmenting the standard (fuel-based) engine’s power through an electric motor, with no change required in the standard engine.

HyPixi technology is type approved by ARAI, Pune and iCAT, Manesar. Altigreen has filed 9 patents in 60+ countries, 19 patents of which have already been granted, including 6 in the US. Altigreen has undertaken more than 50 installations till date, mostly in small commercial vehicles (<2 tonnes).



HyPixi kit and its components

About the Company

Altigreen Propulsion Labs Pvt. Ltd. based out of Bangalore, designs and manufactures low-cost & rugged electric vehicle powertrains, suited for driving conditions in India and other emerging economies. Altigreen Propulsion Labs has received the award for the “Most Significant Innovation” at the IDTechEx Show 2016 in Berlin and has also secured the 2nd prize for innovation in Startup Awards in Elecrama 2018.



Benefits

- HyPixi transforms fossil fuel-based vehicles into hybrid electrics, leading to reduction in fuel consumption and emissions by over 20%.
- HyPixi is a fit and forget torque-assist, regenerative electric system.
- The fleet telematics and vehicle management system connected with the HyPixi kit provides proactive alerts, drive summaries, route information, and fuel efficiency information on mobile and web apps.
- The estimated GHG reduction by global adoption of this technology is likely to be 8 million tonnes by 2028.