



Global Cleantech Innovation Programme 2017 – India
Product Summary of Semi Finalists

S.No	Team Name	Category	Name	Product Summary
1.	ECOEV	EE	Kishor Munshi	ECOEV is manufacturer of electric three-wheeler “eTrike” to carry small loads for shorter distances. Currently no cargo vehicle is available for small loads. Only solution is hand carts or carry load on the head or use 2-wheeler or three-wheeler driven by petroleum fuels. ECOEV offers electric three-wheeler designed for 100kg loads. eTrike is a design innovation where technology is in its spineless uni-body construction and proprietary design of the vehicle with very simple and cost-effective assembly process resulting in reduced manufacturing time and cost effectiveness. Major innovative component is the body construction, form and material application blended for strength, safety and style, which means giving adequate strength to the body where it is required and at the same time providing enough resilience and shock absorbing properties and subtle aesthetics.
2.	Flamingo Industries	EE	Aniriddha Wakchaure	Flamingo Industries plans to shift the dependence on fossil fuels such as Diesel, Furnace Oil, Coal and wood to Biomass briquettes wherever possible. Applications range from highly efficient Biomass cook-stoves to metal Preheating Furnaces. Applications include: 1. Biomass cook stoves; 2. Water heaters; 3. Steam generators; 4. Air dryers for mango drying, onion drying; 5. Incinerators for Poultry, dead bodies and other biomedical waste; 6. Metal melting / Preheating up to 800-degree Celsius. e.g.: Zinc, Lead, Aluminium, Copper, Bronze.
3.	Glorifac Green Forms	EE	Ravi Kishore Vankayala	Green Form is a Sustainable Energy Efficiency Booster from Polymer (Polystyrene) waste for energy savings in Green Buildings, with a focus towards Water and Power Energy Conservation. Glorifac is the trade name for Polymeric Resin and end-product is Green Form (Granted Patent) used as an insulation foam with continuous production, favouring recycling through advanced extrusion technology. Green Form replaces, imported virgin grade, insulated concrete form (ICF) and red clay bricks, with an enhancement of melt flow index in Polystyrene and molecular weight in Expandable Polystyrene favouring our ecology.
4.	Lithos Motors	EE	Angad Singi	Lithos Motor build electric bikes for the last mile logistics. Our bikes can save up to 90% of the petrol and maintenance cost and lithium cobalt battery packs can give energy to drive up to 100 km in 3 hours of charging. We have also redesigned the motor controller to control the motor precisely and improve efficiency from 80% to 87%.
5.	NavAlt	EE	Sandith Thandasherry	Conventional passenger boats powered by diesel engines causes lot of air and water pollution. The noise and vibration cause inconvenience and irritation for the passengers. In addition, the smell of diesel and its smoke makes passengers



				uncomfortable. NavAlt has designed and launched solar ferry boat “Aditya” that do not have any of these problems of conventional boat. This boat needs only 15 kW power for propulsion at 5.5. Knots compared to about 35 kW for conventional boat. The solar boat helps reducing the water, air pollution by eliminating the usage of diesel or other conventional fuels and helps to maintain un-spoilt natural habitats, as they produce no emissions, are quiet and travel efficiently, with little water disturbance.
6.	Basil	RE	Ram Ramarathnam	Solution packages a DC micro grid with a set of super-efficient DC appliances like Air Conditioners, Refrigerators, Fans, Deep Freezers and a range of LED Lights. The micro grid enables running of appliances directly from solar panels during sunshine and from grid power at other times. Our solution results in lower power rating of the panels and smaller rooftop area. It can address larger motorised loads and has no starting inrush currents. The overall cost is lower with the DC appliances. It can operate over a wide input voltage range, DC or AC. The energy consumption when running on grid power is also reduced drastically due to the much-improved efficiency of the appliances. Overall savings of around 70 - 80% have been recorded. The solution offers distinct advantages even on grid operation such as near unity power factor, low current harmonics & wide input voltage range.
7.	Oorja	RE	Pradeep Rapole	Oorja offers a hybrid solar power generation system with energy storage that allows electricity to be produced during any time of the day. Our beam-down solar-concentrator is compatible with different types of heat storage systems though we are currently offering with cast iron based heat storage system. Oorja uses a steam engine instead of a turbine as steam engine does not require high quality dry steam and can easily be maintained in a rural community. The steam engine can also be combined with a simple biomass based steam generation system to produce electricity during monsoons.
8.	S4S Technologies	RE	Shital Somani	S4S technologies provides farm level solar food dryer which converts post-harvest losses into value added product. Solar Conduction Dryer (SCD) is an electricity free solar powered food dehydrator that reduces moisture content in agri-animal produce so that farmers can preserve seasonal produce up to 1 year without using any chemicals and earn additional income through sale of dehydrated products. SCD has 10 times less life cycle cost than other fuel powered dryers and has payback of 200 days against cost of electricity saving.
9.	SYS3E	RE	Sudhir Muthyala	SYS3E has developed a novel Solar powered micro irrigation system with smart crop monitoring for small to large farms. The system comprises solar tracking, optimized piping and valve regulation, sub surface drip and soil moisture probes. Together they drastically reduce cost, component size, power, water and battery use vs competing systems. Annual water savings are projected to range from 50 to 90 % with fertilizer savings of up to 30 % depending on crop.
10.	Aspartika Biotech	WBE	Srinivas B V	India is the second largest producer of silk with annual production of 28,472MT. Only 20% of this is converted to silk and remaining 80% is discarded as waste. This waste consists of silkworm pupa which is discarded in the open causing



				environment pollution. Our innovation aims at curbing the issue of environment pollution by utilizing the discarded pupa from silk reeling industries and converting it into High Value Nutraceutical like Omega3 fatty acids. for human and animal consumption.
11.	Chakr Innovation	WBE	Ms. Bharti Singhla	Our Innovation, Chakr Shield is a device which can be retrofitted on diesel generators and can capture 70-90% of particulate matter emission. Created using a novel capturing method, it is a one of its kind device which controls pollution without causing any adverse impact on the engine's performance. Along with controlling emission at the source, our technology also ensures that the collected particulate matter is used as a raw material for inks and paints.
12.	Rays Enserv	WBE	Ashok Suyal	Rays Enserv has developed an indigenous process 'Advanced Supercritical Thermal treatment technology' that converts Non-recycled plastic waste (Poly Ethylene, Poly Propylene, Poly Styrene) into synthetic fuel, an alternate source of energy. The technology can convert Non-Recycled Plastic waste into usable low sulphur Synthetic fuel.
13.	Saathi Eco Innovations	WBE	Tarun Bothra	Saathi is India's first biodegradable sanitary pad made from banana fibres and absolutely zero chemicals. Saathi does all local sourcing and manufacturing, unlike the leading brands who used imported bleached wood pulp. We locally source banana fibre and other biodegradable materials to create pads that degrade within 6 months of disposal- 1,200x faster than plastic pads. Each woman purchasing Saathi pads saves 60 kg of pad waste over her lifetime, and subsidizes pads for low-income women.
14.	Sagar Defence Engineering	WBE	Lakshay Dang	Sagar Defence's indigenous technology based Unmanned vehicle "Trashfin" is designed for round-the-clock autonomous waste collection. It autonomously swims through water, extracting unwanted material, gathering data about their marine environment and can also communicates with other vehicles in the water. These vehicles are IOT enabled, with zero greenhouse emissions and act as an intelligent, responsive and self-organizing net.
15.	Cerulean	WE	Dr. Sonali Mokashi	Cerulean grey water treatment plant uses patented technology based on chemical treatment. It recycles 90% inlet water for non-potable applications. It is fully automatic PLC based plant having smart features. It is compact and customizable for capacity requirement from 1 KLD to 100 KLD. It is most suitable for car/vehicle washing, canteen, restaurant, and industries having huge washing applications such as auto parts, vegetable, fruits and dairy industry.
16.	Oriental Aquamarine	WE	Mohan Kandaswamy	Oriental Aquamarine provides a patented solution for water quality and disease management in the aquaculture industry. The product offered is an Integrated organic nitrifying and denitrifying bioreactor with a specific bacterial consortium delivery system that converts: a) Ammonia (NH ₃) and ammonium (NH ₄ ⁺) to nitrite (NO ₂); b) Nitrite to nitrate (NO ₃); c) Nitrate reduced to molecular nitrogen (N ₂). The bioreactor can be used to remove the harmful ammonia,



				nitrite and nitrate in the water and help to reuse the water continuously. The system can maintain optimum water quality condition in aquaculture tanks and used to develop a Recirculating Aquaculture Systems.
17.	Need Innovation	WE	Sandeep Sarkar	We at NI have developed and is being manufacturing ceramic membrane and ceramic membrane based filtration system primarily for water purification and water treatment application. Other important application areas are desalination, dairy industry, sugar cane, paint, food processing, oil and waste management like MBR, ETP and STP. We are commercially manufacturing ceramic membrane based on our in-house developed technology for the first time in India. The average life of ceramic membrane is more than 15 years.