



CleanTech Challenge

Are you building

TRANSFORMATIVE SOLUTIONS
to power accelerated action in
CLEAN ENERGY TECHNOLOGIES?



K-DISC
Kerala Development and Innovation
Storage Council

KSEB
Kerala State Electricity Board



SOCIAL alpha



**CLEAN ENERGY
INTERNATIONAL
INCUBATION CENTRE**
Kerala Incubator





Kerala's First Clean Energy Tech Focussed Innovation and Business Incubation Centre (CEIBIC) was launched on the 22nd of June 2022 as a partnership between Energy Management Centre (EMC) - Kerala, Kerala Development and Innovation Strategic Council (K-DISC) and Social Alpha's Clean Energy International Incubation Centre (CEIIC), supported by Kerala State Electricity Board (KSEB), Agency for New and Renewable Energy Research and Technology (ANERT) and Department of Electrical Inspectorate, Government of Kerala.

Launched to promote innovation and startups in the clean energy landscape at the grassroots level in Kerala, CEIBIC will support upto 30 innovations in Clean Energy Technology by 2026. CEIBIC shall provide innovators and startups with access to testing, validation, prototyping facilities, mentor networks and also financial support.

The glimpse of the startups selected in the first cohort of CEIBIC is presented in this booklet.



*We are constantly on the look out
for innovators and entrepreneurs with
transformative technologies that have the
potential to bring about deep and irreversible
social, economic, and environmental impact.*

ClimAI Cleantech Pvt Ltd (SolarBhai)



SolarBhai SAAS platform enables high-quality solar performance management at low cost for roof-top solar power plants. Our platform connects to solar plants without initial investment and process data using AI to quantify losses in solar plants and pinpoint 20+ corrective maintenance actions to improve the lifetime savings from solar plant by up to 25%.

Problem being solved

Solar underperformance causes 8-25% generation loss in solar plants, decreasing solar carbon offset by 100-200 million metric tons CO2-eq/year. This results in a loss of USD 7.5 billion+ every year, and is expected to grow at a CAGR of 25%.

Solution

SolarBhai Platform collects data from Solar Plants without initial investment and processes the data to:

1. Estimate losses in a solar plant
2. Pinpoint 20+ corrective maintenance actions
3. Quantify the effectiveness of maintenance actions.

Our platform enables 4 key benefits

1. Improve lifetime solar generation by up-to 25%
2. Enhance life of solar equipment
3. Manage safety of installation
4. Optimise solar maintenance cost



SIVA HARSH
Founder, SolarBhai

Potential impact created

Solar under-performance has a significant climate impact, as any underperformance would decrease carbon off-set from Solar Plant Installation. Widespread adoption of our technology solution can improve solar carbon offset by 500 million metric tons CO2-eq/year (~1% of global carbon emission) in the next 5 years.

Insights to solar plant owners with single site

INR 3266 Weekly Savings	4.57 kWh/kWp Energy
Healthy Site Status	100.0% Up Time
137 Days Since Cleaning	5.93% Soiling Loss
95%+ Effectiveness Rating	Top 50% Percentile Rank

Cleaning of solar modules recommended

Maintenance effectiveness score for last cleaning done by vendor was 100%

*Delivery of insights to owners could be through mailers or via APIs to an application

Application to track losses & actions across a portfolio of solar plants

system_name	perc_dev	Description	Recommended Action	Trend
Site 1	-16.93	Max Mismatch: -21.82% Avg Mismatch: -8.94% Perf. Issu: 2	Check the portal, and recommend cleaning of modules with perf issue or raise request to check perf of micros.	
Site 2	-7.6	Inverter 1 : GF Error: 0.2, Off Error: 1.6, LV Alarm: 0.1, Fault Alarm: 0.8, GF Warn: 18.8,	Site has inverter with fault alarm. Site has possibility of Ground Fault error with GF resistance falling below 1000 Kohms. Check for water seepage/moisture ingress to DC cables or junction boxes or connectors or solar module. Site has Voltage Levels lower than 194 V. Please check voltage levels.	

Workflow tool for O&M team: automatic ticketing & effectiveness tracking

My Tickets (11)

#	Alert #	Status #	Subject #	Assigned to #	Priority #	Date raised #	Action
100	100	100	Micro Inverter 100 (1%) Mismatch above 10.0% Production Loss: 10.0%	at #	High	09-24-2025, at 10:19 AM	
100	100	100	Off Error 100 (0%)	5 Star	Normal	09-23-2025, at 07:32 AM	
87	100	100	Column Loss at #	Support	High	09-11-2025, at 03:00 PM	

Solar Bhai

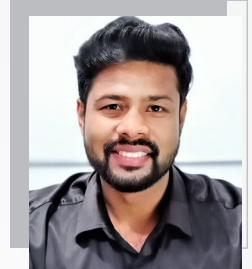
siva@solarbhai.com | 7760033396 | www.solarbhai.com



A youth led Indian social enterprise responsible for the design of Behavioural Effective Energy Planner (BEEP). It is a practical and real time energy management solution which communicates to consumers in their universal language and triggering a behavioural change to custom their own energy management solutions at consumer side, resulting in cost savings for them and energy savings for the society

Problem being solved

The world has been breaking into paths of innovation and scientific excellence in the past two centuries unchecked. We are growing and developing exponentially. One of the biggest impediments to fact that we are progressing is the difference in energy consumed and energy generated continues to grow into unacceptable levels. Electricity demand is expected to rise by 79 percent in the next 10 years and unfortunately 2/3rd of total greenhouse gas emission is from the energy sector, where 1/3rd is from the residential and small-scale industries. If this major problem is left unchecked it will dampen the progress of mankind.



VAISAKH MG
Founder, Praketa

Solution

BEEP is a standalone, real time and practical device for understanding real time residential consumption patterns and changing consumer behaviour. It provides accurate and useful data so that all energy consumers have both the information and the motivation to devise their own energy management solutions, resulting in cost savings for them & energy savings for society. With its universal and youth-friendly language, BEEP is able to maximize potential savings, building on the existing climate-consciousness of youth to enact an immediate behavioral change, whilst also in itself helping to build an energy conscious future generation.

Potential impact created

Initial studies have demonstrated that, with this device, a minimum of 2-4% of total energy consumption and 10-15% of total bill payable can be reduced per consumer. Considering an average consumption of 500 kWh per billing cycle we are looking at 10-20 kWh savings per consumer per billing cycle. As per the available sources, an average of 0.75 kg CO₂ is being emitted for every 1 kWh generation, hence we are reducing around 7.5 – 15 kg of CO₂ per billing cycle per consumer with 1 BEEP.

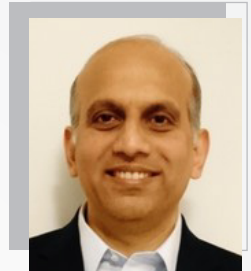




Gridflow is a novel, sustainable, and smart transportation infrastructure that solves the current lacunae in public and private road transportation, and provides the best of both. Based off cleantech, it envisages an internet for transportation that leverages latest developments in robotics, IoT and AI to provide unrivalled 21st century transportation solution.

Problem being solved

Building sustainable transportation infrastructure is a global issue of high concern, and a key component of UN development goals 3, 9 and 11. Current and proposed public and private road transportation solutions have critical shortcomings, leaving a lot to be desired, especially in developing countries.



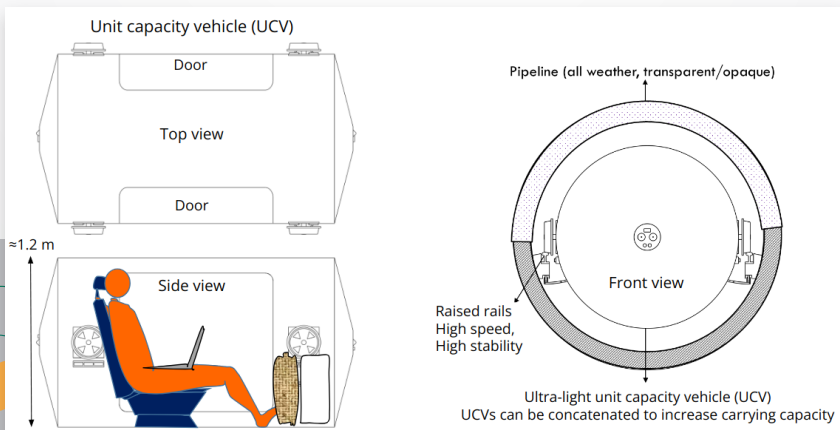
UMESH RUDRAPATNA
Founder, Gridflow

Solution

Gridflow provides a Public/Private internet-like infrastructure for transporting people and goods. The key ingredients of Gridflow are - Novel transportation guideway network above, on, or below ground carrying light pods on raised rails carrying capacity tailored to user needs, electrically powered, fully autonomous stops at walking distances (< 250 m) from each household usage: like driverless Uber modular, light weight, low cost, and deep penetration.

Potential impact created

1. Greatly reduces carbon footprint, transportation power consumption, big CleanTech user
2. Energy efficiency better than current public and private transportation
3. Mitigates air and noise pollution
4. Improves society's productivity by eliminating driving and congestion
5. Can prevent deaths/disabilities caused by road accidents
6. Enables fast, scalable and low-cost transition to smart transportation





We are a startup company that focuses on the solutions in the energy sector of the country. Our prime product is the nanocarbon coated transmission wires for transmission lines in the power grid. Low cost hydrogen production is another solution for the energy sector that we are working on.

Problem being solved

Power transmission lines play a crucial role in delivering electricity from power plants to end users. Most of the transmission and distribution lines contribute significantly to the total power loss of 15-20%. Our startup aims to explore the causes of power loss in transmission lines and propose a potential solution in the form of carbon coated conducting aluminium wires.

Solution

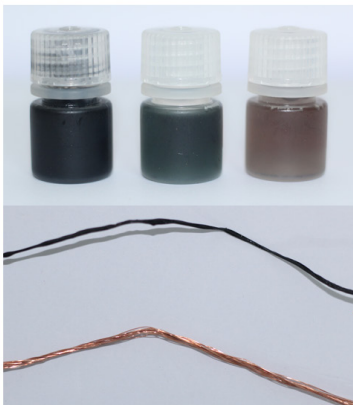
Our startup is utilizing carbon nano coating as a solution to conserve power by reducing the various losses. We are applying carbon nano coating in electric transmission lines for improving its efficiency in power transmission. Thin layer of carbon-based material is applied to the surface of electric transmission lines. This coating is composed of carbon nanotubes or graphene, which possess exceptional electrical conductivity and thermal stability properties.



Dr. ROBIN JOHN
Founder, Hooba Energetics

Potential impact created

Reduction of power losses in transmission lines, improved efficiency of electrical transmission and distribution, leading to lower energy costs for consumers and businesses and potentially increasing access to electricity for those who are currently underserved.



← *Semi conducting , metallic and insulating carbon nanotubes*

For KSEB transmission lines

← *Carbon nanotube coated wires
And uncoated copper wires*



We are offering a plug and play electric retrofit solution for converting the existing fuel boats into electric ones. Our goal is to make sustainable adoptions desirable, suitable and accessible. Our Net Zero technologies increase energy efficiency and promote sustainable use of resources.

Problem being solved

The marine boating industry's foremost challenges are high operational expenses, loss of ecosystem from elevated carbon emissions and water pollution from fossil fuels, the harsh noise, the smell of fuel, and vibration from the conventional engine which cause discomfort to the boat operators and passengers. All these challenges are posing formidable threats to society and the environment.



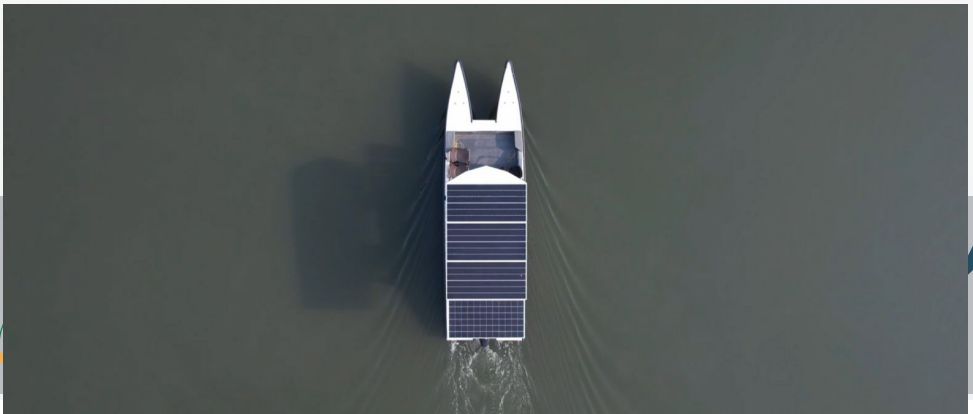
Dr. GEORGE MATHEW
Founder, Yesen Sustain

Solution

We are offering an electric retrofit solution for converting the existing boats into electric. With an electric propulsion system, the emissions can be completely avoided. With zero emissions the marine life including fishes will thrive benefiting the local community. A developed tourist boating ecosystem will attract domestic and international tourists. Without the noise, vibration and smell of fuel the tourist can enjoy a calm and beautiful ride.

Potential impact created

Electric boats can help to improve the quality of life for people in the bottom of the pyramid. It helps to protect the health of society since it doesn't have any water emissions or greenhouse gas emissions. Without emissions to water, the life under water will flourish and it will increase the revenue of the people whose life is dependent on the water bodies. Till date we have saved more than 120 tons of carbon emissions by replacing the conventional engines with our electric propulsion.





Propulse Mobility

PROPULSE

Propulse is an EV freight mobility company that provides freight capacity as-a-service. We help businesses unlock intelligent movement of goods using a sophisticated union of EVs, chargers and data intelligence to increase savings and reduce scope emissions for smarter, sustainable, and efficient operations.

Problem being solved

Switching to electric freight is more than replacing diesel truck with an EV. In addition to vehicles and human resources, there are a range of physical and digital infrastructure components needed for effective and efficient operations. Businesses currently are unable to tap into the cost and GHG emission savings due to this technology gap.



VAISHNAV NAIR

Founder, Propulse Mobility

Solution

We provide an all-new freight as a service model to close this gap. We help businesses unlock efficiency by accessing our EV fleets supported by complex AI vehicular intelligence to save on transport costs and reach GHG reduction targets. Our platform provides real-time insights on vehicle performance and telematics as well as CO2e data for better orchestration.

Potential impact created

Our ecosystem can reduce costs by upto 30% for transportation and also increase GHG savings by upto 60% all with a conservative 20% increase in vehicle uptime compared to a normal EV.



Propulse Mobility

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Trans Float Solar Pvt Ltd

As the generation of renewable energy increases, energy storage is essential for grid stability. Battery storage systems are used to store the energy using lithium ion phosphate batteries. The batteries in electric vehicles have to be replaced when it reaches 70 to 80% storage capacity. It is proposed to repurpose these batteries and build second life energy storage systems.

Problem being solved

Disposal of lithium batteries will cause environmental pollution. These batteries can be reused for energy storage systems and for grid stability.

Solution

Second life batteries are used to build energy storage systems.

Potential impact created

Enables greater use of renewable energy and helps in reducing the carbon foot print.



M R NARAYANAN
Founder, Trans Float Solar



Trans Float Solar Pvt Ltd

narayanan@floatels.net | 9895466140

Tranquility IoT & Big Data Solutions Pvt Ltd



Inhouse developed Wireless IoT Controller, IoT Gateways, IIoT Sensor Kit, Automated Irrigation Control System, Energy Management Sensors, BMS Sensors.

Problem being solved

How to perform remote monitoring and controlling of any equipment through wired or wireless medium at an affordable cost irrespective of the age/make/model of the equipment? Are you worried about cost and time taken to develop custom automation solutions to solve your everyday production problems? Tranquility can wipe out your worries.

Solution

We retrofit sensors onto any manufacturing machines and monitor the machine vitals wireless through our multiport/protocol agnostic plug and play controllers, Energy monitoring through smart wireless energy meters and intelligent adaptors like optical port reader and Modbus readers, BMS Automation kits etc. Tranquility R&D team has developed a highly flexible plug and play controllers for quick development of custom solutions as per customer requirement at low cost and in quick turnaround time.



Dr. SHIJU SATHYDEVAN
Founder, Tranquility

Potential impact created

Real time monitoring creating better awareness of customer environments to take corrective actions at the right time so that breakdown time is nullified there by increasing the ROI.

IIoT Sensors



TIBS Vibration Sensor



TIBS Oil Temperature Sensor



TIBS Fluid Pressure Sensor



Non Invasive Oil Temperature Sensor



TIBS Motor Fan Temperature Sensor



TIBS Level Sensor



Smart Meter Wireless Adaptor



Industrial LPG Gas Leak Detector



Smart Energy Watcher

mistEO helps organisations overcome the cost of climate change.

Problem being solved

Increase solar ROI for wide adoption of renewable energy.

Solution

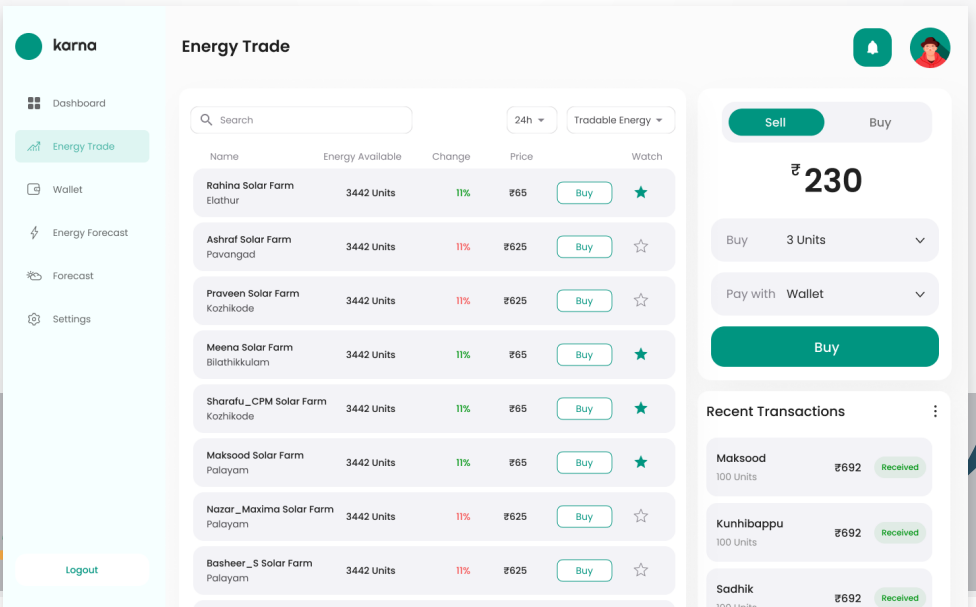
Karna solar production and consumption forecasting system.

Potential impact created

Increased adoption of roof top solar leading to positive climate action.



SAMUEL JOHN
Founder, MistEO



The screenshot shows the MistEO Energy Trade interface for the 'karna' region. The interface includes a sidebar with navigation options: Dashboard, Energy Trade (selected), Wallet, Energy Forecast, Forecast, and Settings. The main content area displays a table of energy trade opportunities with columns for Name, Energy Available, Change, Price, and Watch. The table lists several solar farms, each with 3442 units available and a 11% change. The price for each unit is ₹65. The interface also features a search bar, a 24h time filter, and a Tradable Energy dropdown. On the right side, there is a trade execution panel with 'Sell' and 'Buy' buttons, a price of ₹230, and a 'Buy 3 Units' button. Below this, there is a 'Pay with Wallet' dropdown and a large green 'Buy' button. The bottom right section shows 'Recent Transactions' with three entries: Maksood (100 Units, ₹692 Received), Kunhibappu (100 Units, ₹692 Received), and Sadhik (100 Units, ₹692 Received).

Name	Energy Available	Change	Price	Watch
Rahina Solar Farm Elathur	3442 Units	11%	₹65	Buy ★
Ashraf Solar Farm Pavangad	3442 Units	11%	₹625	Buy ☆
Praveen Solar Farm Kozhikode	3442 Units	11%	₹625	Buy ☆
Meena Solar Farm Bilathikkulam	3442 Units	11%	₹65	Buy ★
Sharafu_CPM Solar Farm Kozhikode	3442 Units	11%	₹65	Buy ★
Maksood Solar Farm Palayam	3442 Units	11%	₹65	Buy ★
Nazar_Maxima Solar Farm Palayam	3442 Units	11%	₹625	Buy ☆
Basheer_S Solar Farm Palayam	3442 Units	11%	₹625	Buy ☆

The logo for CleanTech Challenge features the words "CleanTech" and "Challenge" stacked vertically in a green, sans-serif font. The "C" in "CleanTech" is stylized with radiating lines above it, and the "e" in "Challenge" has a similar radiating effect. The text is set against a background of thin, curved grey lines that sweep across the page.

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..... Are you building.....

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to power accelerated action in
CLEAN ENERGY TECHNOLOGIES ?



CEIBIC

CLEAN ENERGY INNOVATION &
BUSINESS INCUBATION CENTRE

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