Promotion of Cleantech Micro Enterprises in Northeast
CES India focuses on Emerging Technologies with its four varied service offerings and Power Trading

1. ET Consulting
   - Providing wide spectrum of consulting services to help clients:
     - Understand complex energy markets
     - Identify key drivers and opportunities for energy storage
     - Estimate, forecast project revenues and optimize investments

2. Storage IQ & Subscription Services
   - Informative reports on key regional energy markets with focus on:
     - Insights on market characteristics, and participation opportunities
     - Key drivers and revenue opportunities
     - Evolving price trends and policy developments

3. R&D Testing Lab
   - In-house battery R&D and testing facility offering a wide range of technical services through its highly experienced lab team at Pune

4. CoMETS
   - CES' proprietary modeling suite CoMETS currently being leveraged to enable:
     - Compare advanced storage technologies' performance evaluation
     - Identify options for optimization of energy dispatch
     - Build bottom-up financial models

Power Trading
- Leverages expertise across electricity market value chain to assist in framing and achieving renewable energy integration to meet sustainability targets, reduce environmental impact and help achieve carbon neutrality
Projects on Ground
Solar Hybrid Mineral Water Bottling unit

- Location: Balmoram Village, East Garo Hills, Meghalaya
- Solar system: 10kW solar + 40kWh BESS
- Plant capacity: 10000L/day
- Powering Quality control Lab, Purification unit, Jar washing Unit and Bottling and Pouch packing machine
- 4 persons will get employ
- Employment generation annually: 2170 days
- Partners: Integrated Village Cooperative Society (IVCS), The State Council of Science, Technology & Environment (SCSTE), CORP, Emsys & Indian Ion Exchange
Pine needles pellets making

- Summer forest fires
- Huge threat to the environment, forest biodiversity and surrounding residence
- Collect pine needles to prevent forest & value addition
- Location: Umshing, Shillong, Meghalaya.
- Production capacity: 300Kg/ day
- Employed persons: 4
- Employment generation annually: 1200 days
- Partners: CORP, SCST, Gangotree
Pine needles pellets making unit

Pine needles collection

Pine needles grinding

Processing

Pellets
Cookstove testing

- Traditional cook stove
- Ignition – Smoke
- Improved Cook Stove
- Smokeless
- Improved Cook Stove
Improved cookstoves deployment

• Training and capacity building of communities on improved cookstoves in Sohra region.

• Users type: households and street food vendors.

• Saving 25% costing compared charcoal.

• Partners: SCSTE & CSIR-NEERI
Biochar Jumbo Kiln

- Location: Umshing, Shillong, Meghalaya.
- Jumbo kiln converts biomass into biochar.
- Currently converting wasted bamboo & wood materials.
- Biochar used: renewable charcoal fuel & soil improving agent.
- Production Capacity: 1MT per day
- Employed persons: 2
- Employment generation annually: 400 days
- Partner: SCSTE, CORP, Emsys & Samuchit
Solar powered turmeric processing unit

- **Location:** Laskein, West Jaintia Hills, Meghalaya.

- System sizing: 30kW solar

- Production capacity: 2MT per day

- No of peoples employed: 5

- Employment generation annually: 1550 days

- Partner: Collective marketing centre, IVCS
Solar hybrid sanitary pad making unit

- **Location:** Balmoram Village, East Garo Hills, Meghalaya.
- **System sizing:** 9kW solar
- **Production capacity:** 500 pads per day
- **No women employed:** 5
- **Employment generation annually:** 1200 days
- **Income level increase by Rs 4500 per women**
- **Partners:** MBDA, Balmoram Technology Resource Centre, MBDA, SCSTE
Solar water pump for community drinking water

- Location: Laitumiong village, East Khasi district, Meghalaya
- System sizing: 5.8 kW solar with RMS, 5HP submersible pump
- This initiative directly impacts almost 20 households, benefiting approximately 120 people.
- Community engagement in the maintenance and management of the solar water pump system is encouraged to promote self-sufficiency.
- Partners: SCSTE, Emsys & IVCS
Pineapple processing Unit

- Location: Balmoram, Garo Hills, Meghalaya.
- System sizing: 10kW
- Production capacity: 300-500Kg/day
- 4-5 women will get employed
- Employment generation annually: 700 days
- Partner: MBDA & SCST
Waste plastic baling press

• Waste plastic materials are compressed into dense blocks using balers, also known as baling machines.
• Location: Umshing, Shillong
• Machine capacity: 3 MT per day
• Specification: 3HP, single phase
• Plastic balers can be used as a substitute of pulverized coal in cement industry furnace.
• Partner: SCSTE
Solar pico hydro hybrid system for coffee processing & feed livestock

- Location: Tuensang, Nagaland
- System sizing: 10kW Solar + 10kW hydro + 22kWh LPF batteries
- Processing capacity: Coffee - 3-5MT/ month & livestock 10MT/month
- 5 persons will get employed
- Employment generation annually: 1750 days
- Partner: Eden enterprise & Ministry
Solar powered cold room

- Location: Tuensang, Nagaland
- Cold room capacity: 2MT
- Cold will help to reduce post-harvest losses, increase farmers' income, and enhance the value chain of horticultural commodities.
- Major commodities are vegetables & fruits.
- Direct impact: 50-70 farmers
- It can increase farmers income level by 15-30%
Solar Hybrid for Pulses Processing units

- Location: Rikwa, Hazaribagh, Jharkhand
- System sizing 20kVA load – 7 kW solar+ 15kWh LFP and 15kVA three phase grid electricity
- Powering equipment's – Grader, Destoner, Milling units, dryer and Sortex, Packaging in addition to increase the utility flour milling unit is set up
- Employment generated – 1450 days
- Processing done – 70 MT
Groundnut decorticator unit

- Location: Jargatoli village, Gumla district, Jharkhand
- Plant capacity: 23kW, 92kW
- Productive use: Preclener cum grader groundnut decorticator to increase utility of microgrid
- Production capacity: 300Kg/day
- Employed persons: 2
- Employment generation annually: 600 days
Local Champions – Together Everyone Achieves More (TEAM) - Jharkhand

- Kiran Devi
  - Mill Operator

- Loknath Mahto
  - Development Manager

- Suman Devi
  - Destoner Operator

- Satendar Menta
  - Marketing & Sales Associate

- Manju Devi
  - Associate Mill Operator

- Mithun Kumar
  - Sortex Operator

- Sunita Devi
  - Associate Mill Operator

- Dinesh Mahto
  - Logistics Associate
CES leadership team – Economic Development Initiatives

- Stephen Fernands
  - President – CES Global and Mentor

- Dr. Rahul Walawalkar
  - MD – CES India & President IESA

- Netra Walawalkar
  - VP – Operations

- Harsh Thacker
  - Director – Emerging Technologies

- Nitin Akhade
  - ED - Rural Electrification & Livelihoods (RE & L)

- Aditi Pathak
  - Manager – Communications & Outreach

- Rupesh Badkhal
  - Senior Program Associate – RE &L

- Sneha Mishra
  - Program Associate – RE &L
Sharing the lesson learned – Ideal Village Conference 2022
(IIT BHU and Stanford University)
Customized Initiatives for Campus and Rural Economic Development

Satellite based remote monitoring for micro grids

Solar hybrid: Pulses Processing unit, Jharkhand

Pine Needle – Forest Fires – Biomass Pelleting Unit – Umsingh, Meghalaya

Effective utilization of mini grids for groundnut decorticator plant, Jharkhand

Solid biomass fuel pellets from dried, crushed pine needles, Meghalaya
Plastic waste to furnace oil and pelleting units for cement industries

Waste to Energy initiatives, Meghalaya

Action for Restoring Environment 2022, New Delhi

CES as Winner!

PACESETTER Winner – Intelligent Charge Controller

Manual for lead Acid battery O&M
THANK YOU

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