University : Karunya Institute of Technology an Sciences
Country : India
Web Address : www.karunya.edu

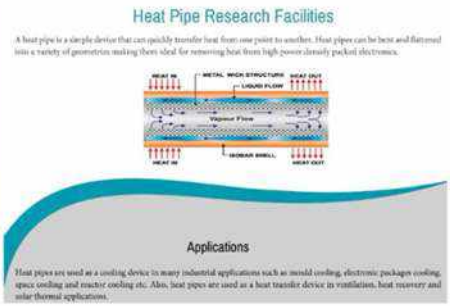
[2] Energy and Climate Change (EC)

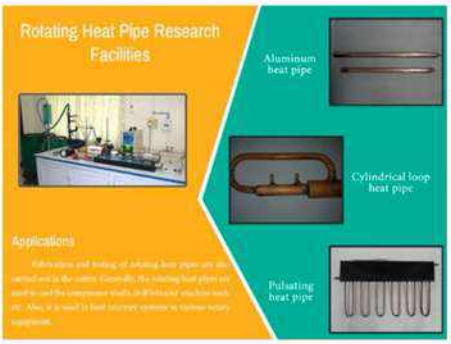
[2.13] Number of innovative program(s) in energy and climate change (EC.9)

1. "Save Energy" Badges Near All Switchboards

2. V3f Drive Based Energy Efficient Lifts

3. Heat Pipes for Cooling Electronic Devices to save Energy





4. Waste Plastic to Energy

Design of 2 TPD Rotary Kiln Gasification Pilot Plant with high CV syngas

5. Zero Emission E-Vehicle

6. Water Supply System Monitoring Using Sensors

Description:

Karunya University has launched the Green Energy Technology Mission to enhance energy sustainability by adopting innovative and renewable energy solutions. This initiative aligns with SDG 7: Affordable and Clean Energy and SDG 13: Climate Action, helping the university reduce its carbon footprint and promote eco-friendly energy usage.

"Save Energy" Badges

To encourage energy conservation, "Save Energy" badges have been strategically placed near switchboards across classrooms, offices, and hostels. This initiative fosters awareness and responsible energy consumption among students and staff, contributing to SDG 12: Responsible Consumption and Production and SDG 13: Climate Action.

The **V3F (Variable Voltage Variable Frequency)** drive-based lift system is an advanced technology that controls the speed and torque of lift motors using variable frequency drives (VFDs). Unlike conventional lifts that run at constant speed, V3F lifts adjust speed dynamically, ensuring smoother operation, reduced energy loss, and enhanced passenger comfort.

Heat Pipes for Cooling Electronic Devices to save Energy

Heat pipes transfer heat rapidly from hot components (like CPUs or power electronics) to cooler regions without requiring mechanical energy. They use **phase change** — liquid absorbs heat and evaporates, then releases heat when it condenses — enabling **passive cooling**.

Because of this mechanism:

- **Less electrical power** is needed for fans or compressors.
- **Smaller temperature differences** are maintained, improving electronic efficiency.
- **Reduced air conditioning load** in data centers or systems leads to **up to 30–50% energy savings** compared to conventional cooling.

Waste Plastic to Energy

- Integration of the Rotary Kiln TurnW2E gasifier with steam or power generator to treat hazardous and certain non-hazardous waste while complying to PCB norms.

- Demonstration of sustainable solid waste to syngas production by rotary kiln gasification to achieve the goals of the Swachh Bharat Mission. The plant will process 2 TPD of non- biodegradable solid waste. Moisture level will be adjusted to meet process requirements.

Creation of a technology platform and facility for pilot and techno-economic analysis

Battery-Operated Electric Car

A battery-operated electric car has been introduced to conduct regular campus tours, reducing reliance on fossil fuels. This initiative supports **SDG 7: Affordable and Clean Energy**, **SDG 11: Sustainable Cities and Communities**, and **SDG 13: Climate Action** by promoting sustainable transportation.

Zero Emission E-Vehicle

Number of Electrical Vehice	: 02
Number of Seater	: 11+1
Size of the Vehicle	: 10X8X5 feet
Charging Station	: 01
Battery Quantity Required	: 6
Controller	: 48V - 350A controller
Net vehicle weight	: 746kg
Max speed	: 25kmph
Drive Motor Type	: 5kW 3-phase AC induction drive motor
Country of Origin	: Made in India

The Roots Company 12 seater electrical vehicle is a highly reliable and efficient transportation solution designed specifically for professional use. With its spacious interior and seating capacity, it offers a comfortable and convenient mode of transport for large groups or organizations.

Water Supply System Monitoring Using Sensors

At Karunya Institute of Technology and Sciences, sensor-based water supply monitoring systems are used to promote sustainable campus operations and energy efficiency. Smart sensors installed in the campus water network measure flow, pressure, and tank levels in real time, helping detect leaks and prevent water wastage. The data collected is transmitted to a central control system for automated pump operation and efficient water distribution. This reduces electricity consumption in pumping, supports renewable energy integration, and aligns with Karunya’s commitment to environmental stewardship and climate action.