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## 7.1.2 The Institution has facilities for alternate sources of energy and energy conservation measures

### Geotagged Photographs of the Facilities- Sensor Based Energy Conservation

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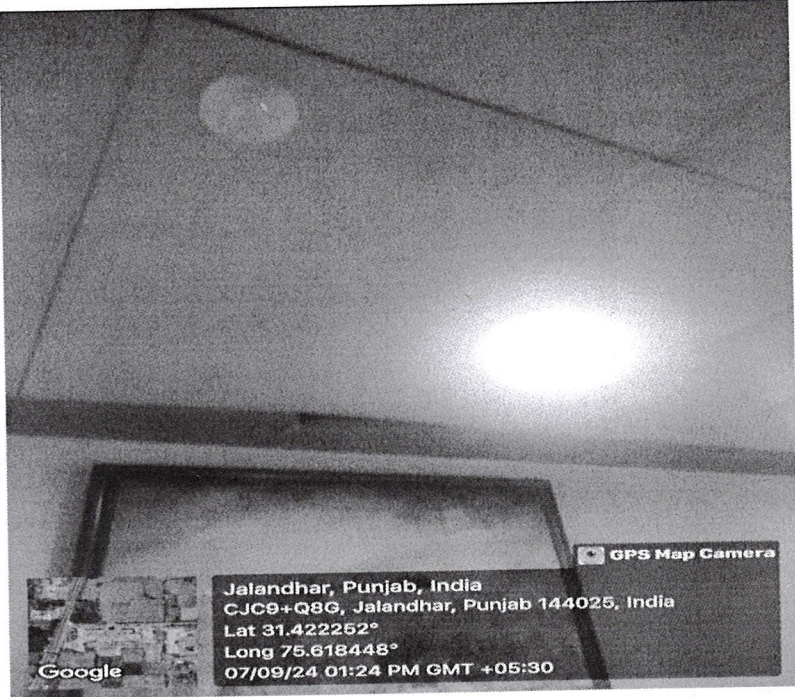
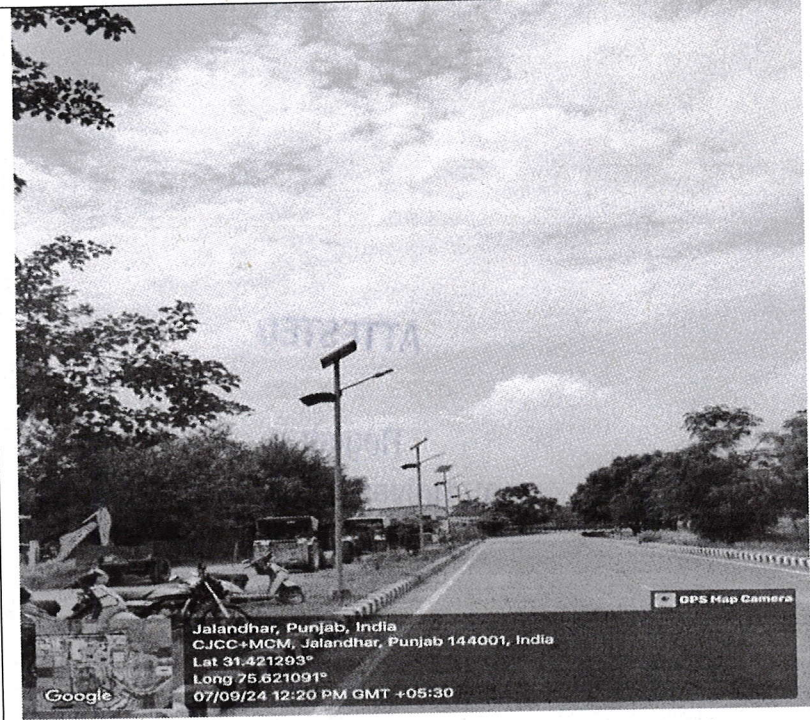
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## 7.1.2 Alternative Sources of Energy & Energy Conservation Measures

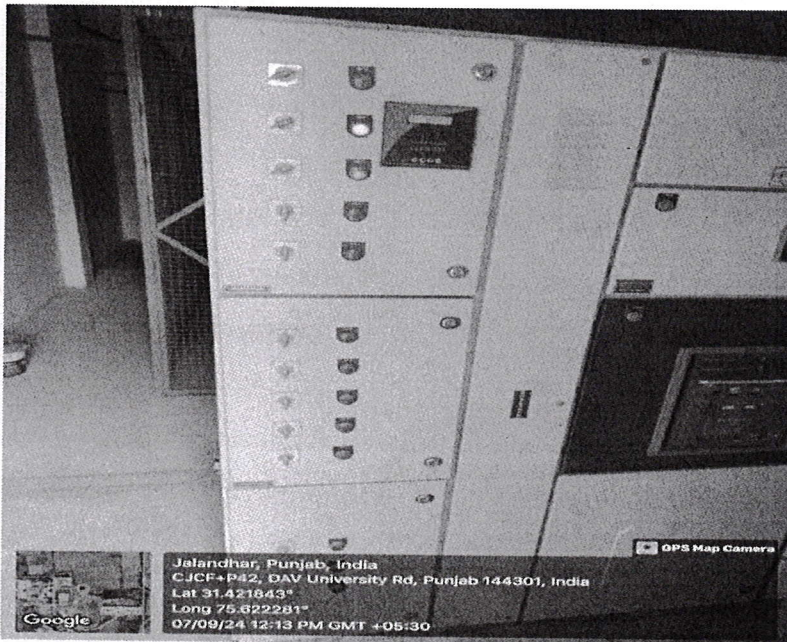
### Sensor-based energy conservation

	<p>Sensor Based LED Lights</p>
	<p>35 Nos. Sensor based Solar LED Street Lights 18Watts, 42Ahr Battery each</p> <p><b>ATTESTED</b> <i>[Signature]</i> <b>Registrar</b> <b>DAV University, Jalandhar</b></p>

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18Watt Solar Street Light



200KVAR APFC Electrical Panel

An Automatic Power Factor Panel (APFP) is a type of electrical panel that automatically regulates and controls the power factor of a power supply to ensure it remains within a specified range. Here's how it works:

**Monitors Power Factor:** The APFP continuously monitors the power factor of the power supply.

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## Automatic Correction:

When the power factor falls below a set threshold, the APFP automatically switches in capacitors to correct the power factor.

**Optimization:** The APFP optimizes the power factor by selecting the appropriate capacitor combination.

**Protection:** The APFP protects the electrical system from power factor-related issues, such as:

- + Low power factor penalties
- + Overheating
- + Voltage drops
- + Equipment damage

## Benefits of Automatic Power Factor Panels:

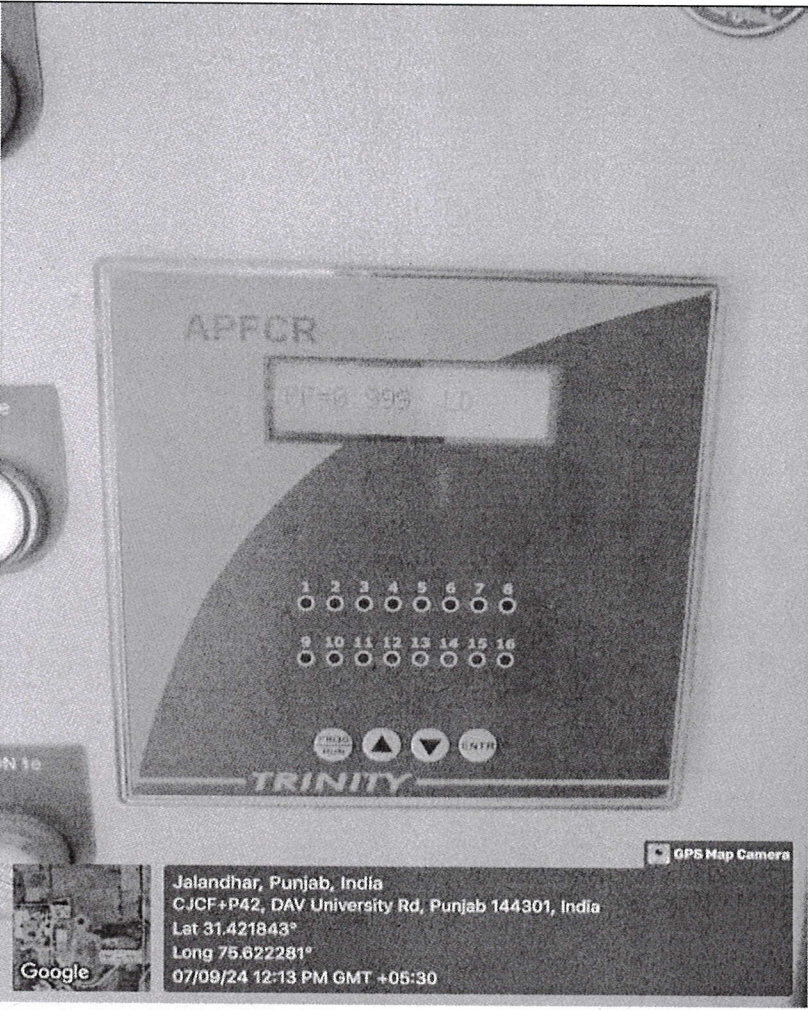
- \*Improved Power Quality
- \*Reduced Energy Losses
- \*Lower Electricity Bills
- \*Increased System Efficiency
- \*Compliance with Power Factor Regulation

By automatically regulating

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	<p>the power factor, APFPs help ensure efficient, reliable, and cost-effective electrical power distribution.</p>
	<p>APFC Relay with Power Factor 0.999</p>

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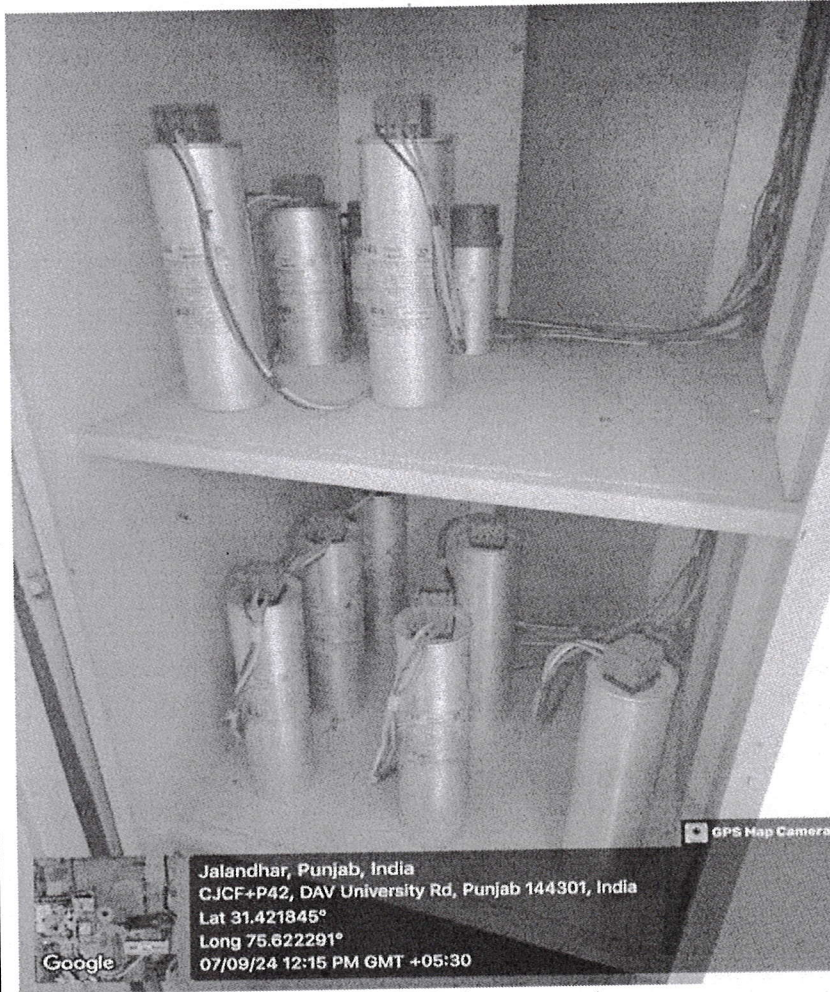
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APFC 200KVAR Capacitor Bank for Power Factor Improvement

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Indoor Cassette for highly efficient 436HP DAIKIN VRV System

Daikin's VRV (Variable Refrigerant Volume) systems are designed to be energy efficient in several ways:

1. Inverter Technology: Daikin's VRV systems use inverter-driven compressors, which modulate their speed to match the cooling or heating demand, reducing energy waste.
2. Variable Refrigerant Flow: The system adjusts refrigerant flow to each indoor unit based on its individual needs, optimizing energy use.
3. High-Performance Compressors: Daikin's compressors are designed for high efficiency and low energy consumption.
4. Advanced Heat

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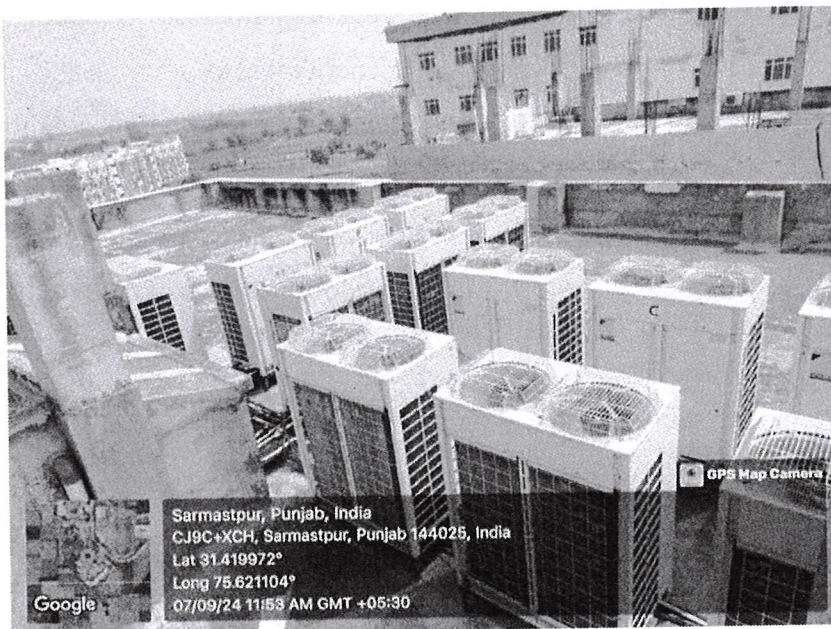
Exchangers: Daikin's heat exchangers are designed for maximum heat transfer efficiency, reducing energy losses.

5. Smart Sensors and Controls: Daikin's VRV systems come with advanced sensors and controls that optimize performance, detect issues, and adjust operation for maximum efficiency.

6. Part-Load Efficiency: Daikin's VRV systems maintain high efficiency even at part-load conditions, which is typical in most applications.

7. Refrigerant Efficiency: Daikin's VRV systems use environmentally friendly refrigerants with low global warming potential.

8. System Optimization: Daikin's VRV systems can be optimized for specific applications and building conditions, ensuring



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maximum energy efficiency.

By combining these technologies, Daikin's VRV systems can achieve significant energy savings, often up to 30-50% compared to traditional HVAC systems.

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10 Nos. of Johnson Passenger Elevators

Johnson Lifts, a leading elevator manufacturer, offers energy-efficient lifts that incorporate various technologies to reduce energy consumption. Some features of their energy-efficient lifts include:

1. Machine Room-Less (MRL) Design: Eliminates the need for a dedicated machine room, reducing energy consumption and space requirements.
2. Gearless Machines: High-efficiency gearless machines reduce energy losses and provide smooth operation.
3. Regenerative Drive: Captures energy generated by the lift during descent and feeds it back into the building's electrical grid.
4. LED Lighting: Energy-efficient LED lighting reduces power

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	<p>consumption.</p> <p>5. Energy-Efficient Motors: High-efficiency motors minimize energy losses.</p> <p>6. Smart Controls: Optimized control systems reduce energy consumption by:</p> <ul style="list-style-type: none"><li>- Matching lift speed to passenger demand</li><li>- Reducing start/stop cycles</li><li>- Optimizing door opening/closing times</li></ul> <p>7. Low-Power Sleep Mode: Lifts enter a low-power state during periods of inactivity.</p> <p>Johnson Lifts' energy-efficient solutions can help reduce energy consumption by up to 50% compared to traditional lifts.</p>
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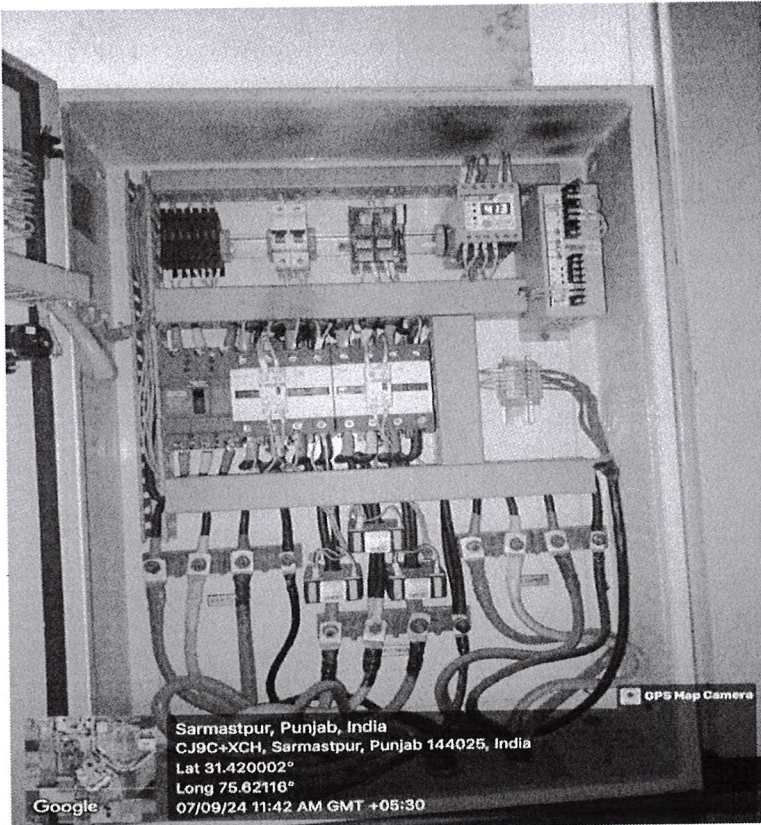


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## 3 Nos . of AMF Panels

An Automatic Mains Failure (AMF) panel can contribute to energy conservation in several ways:

1. Ensures Efficient Switching: AMF panels automatically switch to a backup power source (like a generator) during mains failure, reducing the energy wasted during manual switching.
2. Minimizes Transition Losses: AMF panels optimize the transition process, minimizing energy losses and reducing the stress on electrical equipment.
3. Reduces Standby Power Consumption: Some AMF panels can be configured to shut down or put into standby mode non-essential loads during mains failure, reducing standby power consumption.

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evaporative cooling, which is more energy efficient than traditional vapor compression cooling.

3. Auto-Shutoff: Many Usha water cooler models come with an auto-shutoff feature that turns off the cooler when not in use, saving energy.

4. Energy-Efficient Motors: Usha water coolers are equipped with energy-efficient motors that reduce energy losses.

5. Eco-Friendly: Usha water coolers are an eco-friendly alternative to air conditioners, using water to cool the air instead of harmful refrigerants

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Around 98 Nos. sensor-based split AC is a type of air conditioning system that uses sensors to detect and respond to changes in the room's temperature and humidity.

1. Temperature sensors: Detect the room's temperature and adjust the AC's cooling or heating output accordingly.
2. Humidity sensors: Monitor the room's humidity levels and adjust the AC's dehumidification or humidification output.

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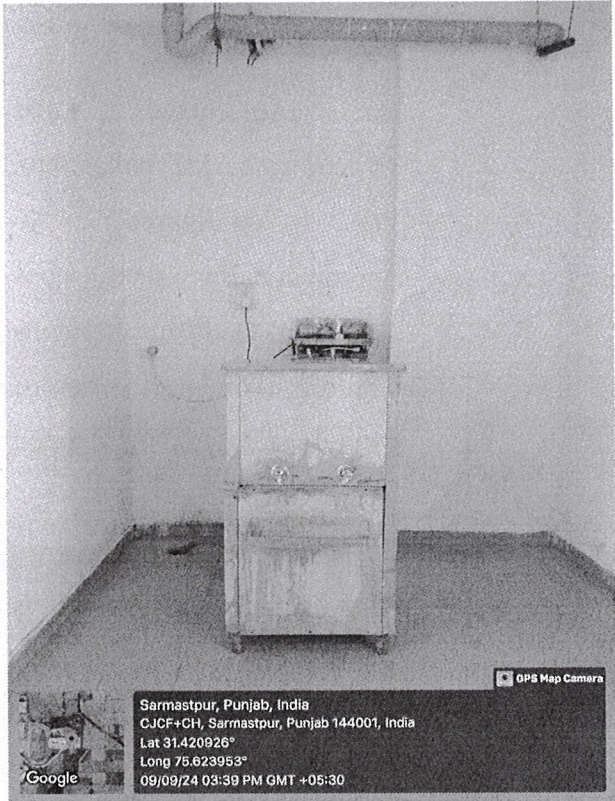


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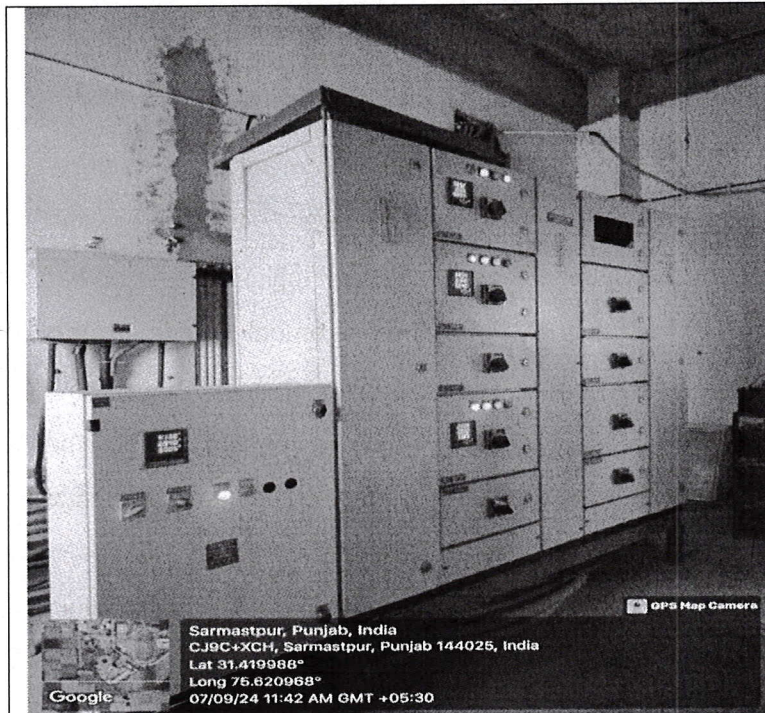
	<p>By incorporating energy-efficient features and optimizing power management, AMF panels can contribute to overall energy conservation and reduced environmental impact.</p>
	<p>30 Nos. USHA Water Cooler</p> <p>Usha water coolers are designed to be energy efficient. Here are some features that make them Sensor based energy efficient:</p> <ol style="list-style-type: none"><li>1. Low Power Consumption: Usha water coolers have a low power consumption range of 120-200 watts, which is significantly lower than traditional air conditioners.</li><li>2. High Cooling Efficiency: Usha water coolers use advanced cooling technologies like</li></ol>

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4. Optimizes Generator Performance: AMF panels can be integrated with generators to optimize their performance, reducing fuel consumption and associated emissions.

5. Real-time Monitoring: Advanced AMF panels offer real-time monitoring, enabling energy managers to track energy usage and identify areas for further optimization.

6. Automated Load Shedding: AMF panels can be configured to automatically shed non-essential loads during mains failure, reducing the risk of overloading and associated energy waste.

7. Compliance with Energy Standards: AMF panels help organizations comply with energy efficiency standards and regulations, avoiding potential penalties and fines.

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