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Electrical Engineering

Theme: The BIT's mini solar PV power plant Energy efficiency analysis

The BIT Mini Solar PV Plant project aligns with several of the United Nations Sustainable Development Goals (SDGs) with the vision of the SDGs by advancing sustainability in energy, education, and climate action. Here's an analysis of how the project addresses these goals:

The project directly addresses seven (07) Goals to know:

- **Goal 7: Affordable and Clean Energy**

The project promotes the use of renewable energy through a mini solar photovoltaic power plant, reducing reliance on fossil fuels and providing a sustainable energy source.

Contribution:

- Increases access to affordable, reliable, and sustainable electricity.
- Supports energy security and independence at the Burkina Institute of Technology.

- **Goal 13: Climate Action**

By utilizing solar energy, the project reduces greenhouse gas emissions and contributes to climate change mitigation.

Contribution:

- Reduction in carbon footprint (43.9 gCO2eq/kWh compared to 600 gCO2eq/kWh for fossil fuels).
- Demonstrates a sustainable model for renewable energy in developing countries.

❖ **Goal 9: Industry, Innovation, and Infrastructure**

The installation of a solar photovoltaic system showcases innovation in energy infrastructure, particularly in regions with unreliable power grids.

Contribution:

- Builds resilient infrastructure by integrating renewable energy into educational institutions.
- Encourages innovation in energy optimization techniques.

❖ **Goal 4: Quality Education**

Access to reliable electricity directly supports the academic activities of BIT students and staff.

Contribution:

- Enhances the learning environment by minimizing power outages.
- Demonstrates practical applications of renewable energy technologies, fostering knowledge and skills in electrical engineering and renewable energies.

❖ **Goal 11: Sustainable Cities and Communities**

The project provides a model for sustainable energy solutions at the community level.

Contribution:

- Promotes sustainable development by reducing the dependence on non-renewable energy sources.
- Encourages the adoption of similar projects in other educational and community institutions.

- **Goal 12: Responsible Consumption and Production**

The study includes an analysis of the lifecycle emissions of the solar plant, encouraging responsible use and maintenance of energy systems.

Contribution: Advocates for reducing resource consumption and promoting renewable energy as a sustainable production method.

- **Goal 17: Partnerships for the Goals**

The project involves collaborations with international partners (e.g., hep global, SMA Solar Technology), demonstrating global partnerships for sustainability.

Contribution: Fosters partnerships between institutions, governments, and private companies to promote clean energy.

Indirectly Addressed Goals:

Goal 3: Good Health and Well-being: Reliable electricity improves the comfort of students and staff, reducing stress from power outages.

Goal 8: Decent Work and Economic Growth: By improving energy efficiency, the project contributes to operational efficiency, enabling the institute to focus more on its educational mission.