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Analysis and Evaluation of Both AC and DC Standalone Photovoltaic Supply to Ethio-Telecom Access Layer Devices: The Case of Multi-Service Access Gateway in Adama

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Abstract : Ethio-telecom holds a variety of telecom devices that needs a consistent power source to be operational. The company got this power mainly from the national grid and used this power source alone or with a generator and/or batteries as a backup. In addition, for off-grid or remote areas, the company commonly uses generators and batteries. But unstable diesel prices, huge expenses of fuel and transportation, and high carbon emissions are the main problems associated with fuel energy. So, the design of solar power with battery backup is a highly recommended and advantageous source for the next coming years. This project designs the AC and DC standalone photovoltaic supply to Ethio-telecom access layer devices for the case of multi-service access gateway in Adama. The design is done by using Homer software for both AC and DC loads. The project shows that the design of a solar based microgrid is the best option for the designed area.

Keywords : solar power, battery, inverter, Ethio-telecom, solar radiation
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