

WHAT SOLAR PV CAN DO FOR COMMERCIAL BUILDINGS

Buildings consume about 40% of global energy and account for approximately 1/3 of global greenhouse gas (GHG) emissions (UNEP). In Ghana, commercial buildings pay the highest charge for a unit of electricity consumed – apart from the mining sector. In addition, a typical commercial building's load profile coincides with

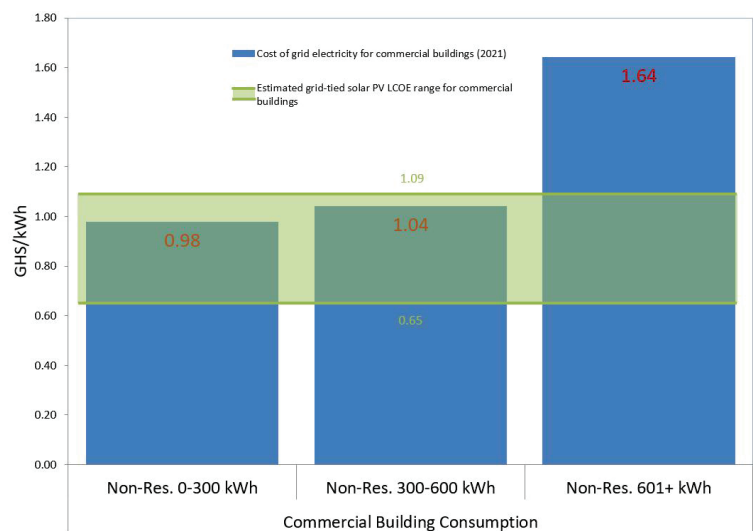
that of the solar PV production curve, thus reducing the need for costly battery storage as part of a PV solutions. Consequently, commercial buildings present the greatest potential for reducing energy consumption and carbon footprint amongst all electricity consumers in Ghana.

Solar PV benefit for commercial buildings



01 Financial Benefits

Solar PV can offset commercial buildings' grid electricity purchases (or backup generator supply) and reduce the monthly electric bill through reduced energy and (possibly) demand charges, thereby increasing business profits. Third-party lease and rent-to-own ownership models have been developed and successfully tested in Ghana and increased the financial attractiveness of solar PV.



02 Environmental Benefits

A unit of electricity generated from solar PV for commercial buildings directly offsets purchase from the grid, and with it the associated GHG emissions accompanying each unit of grid electricity. In Ghana, every unit (kWh) of grid electricity produces on average 0.40 kg of CO₂

(2020). This will be more for backup generators. Solar PV can significantly reduce a commercial building's carbon footprint as the GHG emissions associated with each kWh from the grid will not be produced.

03 Marketing Benefits

Solar PV is a highly visible asset. For institutions willing to project themselves as responsible corporate citizens, solar PV will help meet both sustainability and publicity targets. For commercial buildings, solar PV can be included in advertising to target tenants who value sustainability and environmental wellbeing. For schools and other educational buildings, solar PV can be used as an educational tool to teach students about solar energy and sustainability.



04 Power Supply Reliability

If solar PV is integrated in existing backup generator(s) installed at a commercial building, it can help to power the building during an outage or when disconnected from the grid. Such systems usually supply cleaner power compared to the grid. A building without backup

generator(s) that would like solar PV to be available during an outage can seek the services of the AGI-ESC/a solar Engineer/Consultant to assess the feasibility and costs of the above-described solar PV with a backup generator and/or battery storage.

05 Cooling Load Reduction

Adding solar PV to a roof will reduce your building's cooling load. If solar PV is installed as a canopy on ground, it will provide shading for

space or cars if used as a carport. These configurations reduce the urban heat island effect¹.

1- Source : Masson V, Bonhomme M, Salagnac J-L, Briottet X and Lemonsu A (2014) Solar panels reduce both global warming and urban heat island. Front. Environ. Sci. 2:14. doi: 10.3389/fenvs.2014.00014

Prepared with information from US Department of Energy: energy.gov/betterbuildings

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