

Title	IMPACT ASSESSMENT OF ROOF-MOUNTED GRID-TIED PHOTOVOLTAIC SYSTEM AT THE CLIMATE CHANGE CENTER BUILDING, ISU, ECHAGUE, ISABELA
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<p style="text-align: center;">Abstract</p> <p>A 20-kW roof-mounted grid-tied photovoltaic system (GTPVS) installed at the Climate Change Center building was assessed in terms of its actual power generated, grid power and electric bill reduction and contribution to climate change mitigation. Running power from ordinary electricity meter was 0.4 kW/sec. Input current and voltage with running heavy-load equipment (5 tonner aircon, 600 watts server and workstations) were 40.5-98.8 A and 234-235 V, respectively, yielding 9.5-23.12 kW power range. Daily generation power ranged between 5 and 10 kW from 7am to 3pm. Daily exported power reached as high as 30 kW. Exported energy was highest in 2019 at 70 MWh that was dumped to avoid added kWh readings payable by the University. Electric consumption ranged from 1,011 kwh in January 2020 (cold season) to 2,562 kwh in April 2019 (summer season). Indicative electric bill reduction was P32,677 from 4,736 to 1,237 kWh power reduction resulting to a 5 years payback period for the P2M GTPVS investment. Cash flow analysis over 25 years life span indicated an The P2M worth roof-mounted GTPVS indicated an NPV, BCR, IRR and break even of P896,717, 1.33, 16.27% and 7-8 years, respectively considering 10% discount rate and P10,000 scrap value on declining balance depreciation. Carbon offset was 41.71 tons equivalent to 112 trees planted since it was commissioned in December 11, 2017. Roof durability due to PV panel railings was also observed since it withstood a 180 kph strong typhoon “Rosita” in October 2018.</p>	
<p>Keywords: carbon offset; climate change mitigation; exported power; generation power; roof-mounted grid-tied photovoltaic system (GTPVS).</p>	