

Chart of the Week #2024-14

U.S. Insular Territories and The Energy Transition: A Summary View



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Insular Territories and The Energy Transition

– A Summary View

U.S. Insular Territories	Economy, Population, and Area				Energy Reserves / Capacity				Energy Consumption			Emissions	Renewable Energy	
	Pop (Mil) (2019)	Area (sq. Miles)	GDP (\$Billion) (2018)	GDP per capita (\$thou)	Crude Oil Reserves (bil bbls)	Natural Gas (tril cu ft)	Electricity Capacity (mil kW)	Electricity Generating Capacity Notes	Petroleum (thous bbls per day)	Nat Gas (bil cubic feet per day)	Annual Electricity (bil kWh)	CO2 (mmt/yr)	Solar	Wind
American Samoa	0.1	77.0	\$1.0	\$20.0	0.0	0.0	0.05	90% Diesel	3.0	0.0	0.05	Not meaningful	3% of current generation.	Tropical cyclones make development difficult
Guam	0.2	210.0	\$6.0	\$30.0	0.0	0.0	1.0	Petroleum fuels generate 80% of Guam's power	12.0	0.0	2.0	2.0	About 85 Mwh installed with another 100 planned	Substantial wind availability, but located in the Pacific's Typhoon Alley
Northern Mariana Islands	0.1	179.0	\$1.6	\$16.0	0.0	0.0	Not meaningful	Minimal diesel generating capacity	Not meaningful	Not meaningful	Not meaningful	Not meaningful	5 MWs of solar; about 11% of the islands' generation	
Puerto Rico	3.0	3,424.0	\$66.0	\$22.0	0.0	0.0	7.0	Petroleum fuels and natural gas generate 93% Puerto Rico's power	76.0	0.1	18.0	18.0	About 1.125% of total generation	About 0.7% of total generation
U.S. Virgin Islands	0.1	133.7	\$3.9	\$36.8	0.0	0.0	1.0	62% Propane / 37% Diesel	16.0	0.0	1.0	2.0	Plans to upgrade U.S. VI to 30% Solar	
(for comparison) United State	328.2	3,531,905.0	\$19,552.0	\$59.6	44.0	465.0	1,177.0		19,890.0	88.5	4,165.0	4,904.0		

Analysis based on EIA and BEA Data

Energy Policy Research

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- Insular areas are territories under the jurisdiction of the U.S. but not part of a U.S. state or the District of Columbia. The primary insular territories are American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands.
- Together, these territories have an approximate population of 3.4 million, with Puerto Rico dominating with 3 million. Combined per capita GDP is \$22.7 thousand, 38.1% of the U.S. average of \$59.6 thousand. Military bases coupled with tourism are the bases for territories' economies except for basic manufacturing and services being prevalent in Puerto Rico and garment production in the Northern Mariana Islands.
- Petroleum products via imports are the primary energy source used to generate electricity as well as provide transportation fuels.
- At 22 million metric tons per year, CO2 emissions are minimal making up 0.45% of the U.S. total of 4.9 billion metric tons and 0.06% of the global sum.
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- There is minimal use of solar and wind energy. While solar irradiance (measured on a scale of 3.8 to 7) averages at 6.2 indicating abundance and equal to that which is available in the northern areas of Arizona, New Mexico, or Nevada, installed capacity is low. Expansion plans are in place with the most ambitious in the U.S. Virgin Islands targeting 30% of generation to come from solar.
- Wind power is more challenging. Notably, American Samoa and Guam are in the Pacific Ocean's Typhoon Alley requiring that turbines and supporting infrastructure have the capability of withstanding tropical cyclones.
- The resource endowment is there; however, raising capital for renewable energy investment in these lower-income island territories might be challenging as well as implementation.

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- This slide deck is available at: <https://eprinc.org/chart-of-the-week/>
- For more information on these charts, please contact Max Pyziur (maxp@eprinc.org).