



## Papua New Guinea

Asia & Pacific

Ease of doing Solar classification



Potential

Electricity Consumption  
in kWh/capita (2020)

473.9

Average PVout in kWh/  
kWp/day (2020)

3.7

Cumulative Solar Capacity in MW  
(2021)

3.0

Getting Electricity Score (2020)

65.5

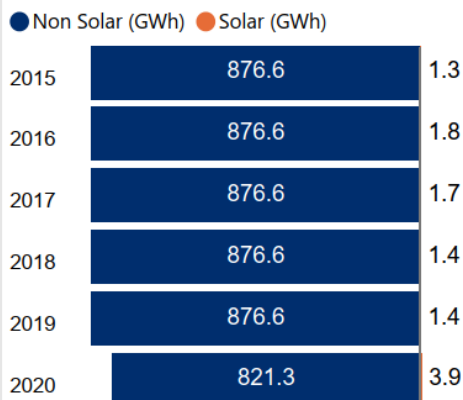
NDC Target by 2030 in %

50.0

Human Development Index (2021)

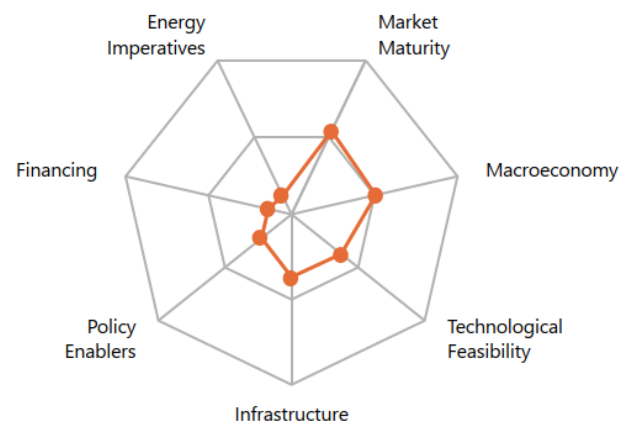
0.6

### Renewable Energy Generation by Source

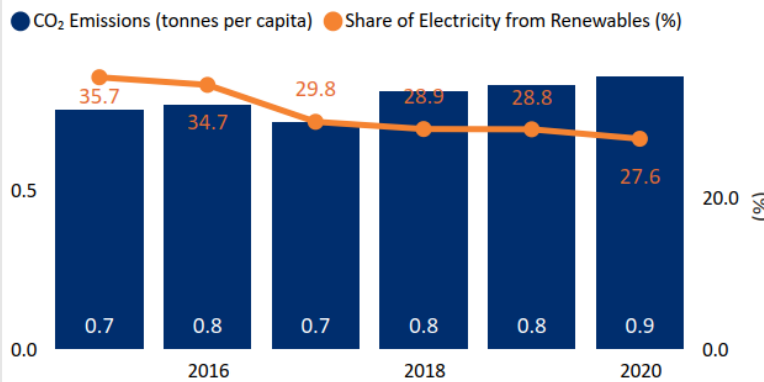


Non Solar RE includes Wind and Hydro;

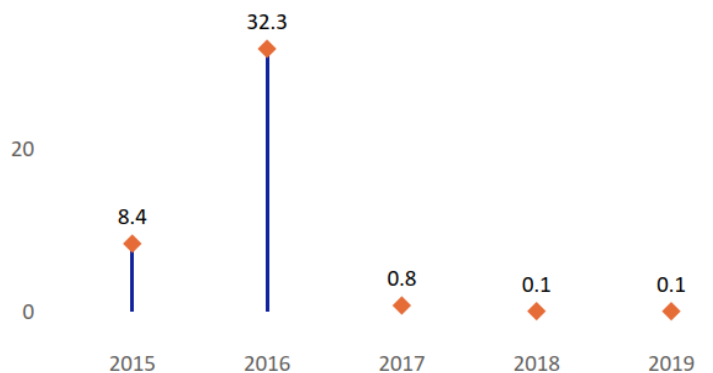
### Performance against 7 Drivers



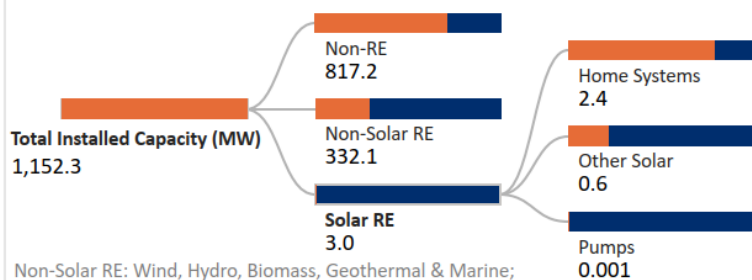
### CO<sub>2</sub> Emissions vs Electricity share from Renewables



### International Finance received for Clean Energy (Million US Dollars)



### Installed Capacity by Source (2019)



Non-Solar RE: Wind, Hydro, Biomass, Geothermal & Marine;

Non-RE: Coal, Natural Gas, Nuclear, Oil, etc.;

Other Solar: Utility Scale Solar, Rooftop etc.;

Data not available for other Solar RE segments;

### Support for Renewables (2020)

Feed-in-Tariffs for renewable  
energy supply to the grid?

No

Net metering/Gross metering  
policies and regulations?

No

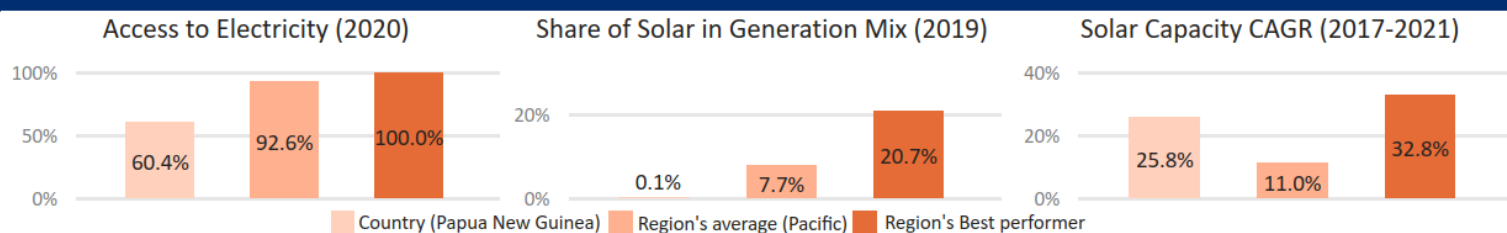
Renewable Energy Certificates?

No

Renewable Purchase Obligation?

No

## Country's regional performance and characteristics



### Areas of Strength

Macroeconomy  
Market Maturity

### Areas of Improvement

Energy Imperatives  
Financing

## Key Insights

### Drivers

### Insights



Macroeconomy

- Papua New Guinea (PNG) is a lower middle-income country with a GDP per capita (PPP) of USD 4,040 in 2021.<sup>1, 2</sup>
- Due to COVID-19 Pandemic, the GDP (Real) has declined by 3.5% in 2020. However, in 2021, the GDP has bounced back with an annual growth rate of 1.2%.<sup>3</sup>
- The inflation rate (CPI) of Papua New Guinea has declined to 4.5% in 2021 from -4.9% levels in 2020.<sup>4</sup>
- The general government gross debt to GDP has increased to 50.9% in 2021 from 47.1% levels in 2020.<sup>5</sup>



Policy enablers

- The government of Papua New Guinea, with its National Energy Policy, has set the ambitious goal of reaching 70% access to electricity by 2030 and to become carbon-neutral by 2050.<sup>6</sup>
- The Government of PNG and UNDP's Facilitating Renewable Energy and Energy Efficiency Applications for Greenhouse Gas Emission Reduction (FREAGER) project has worked closely to create awareness about application of mini grids using hydro and solar resources to improve livelihoods in rural areas.<sup>7</sup>
- PNG electricity sector is governed by Electricity Industry Act 2002.<sup>8</sup>



Technological Feasibility

- Papua New Guinea receives moderate levels of solar irradiation (GHI) of 4.5 kWh/m<sup>2</sup>/day and specific yield 3.7 kWh/kWp/day indicating a moderate technical feasibility for solar in the country.<sup>9</sup>
- Papua New Guineans are embracing mobile pay-go (PAYG) solar which is improving energy access, rural electrification, renewable energy use and sustainable development.<sup>10</sup>



Market Maturity

- 60.4% of the population in Papua New Guinea had access to electricity as of 2020.<sup>11</sup>
- National Energy Authority (NEA) oversees the implementation of energy regulations in the country.<sup>12</sup>



Infrastructure

- The ADB's Power Sector Development Project has supported government in expanding and upgrading transmission lines for both low and medium voltage.<sup>13</sup>
- A 130 km of overhead transmission line of 132 kV has been installed from Taraka to Singing Substation.<sup>14</sup>



Financing

- Japan International Cooperation Agency (JICA) had extended a loan to PNG government for transmission network upgradation.<sup>14</sup>
- ADB's Power Sector Development Investment Program has invested in the country to develop PNG's power sector (Generation, Transmission, Distribution, rural electrification etc.).<sup>15</sup>
- World Bank has invested USD 8.35 Mn in PNG's Energy Sector Development Project to strengthen strategic framework for RE and rural electrification.<sup>16</sup>



Energy Imperatives

- In 2020, the per capita electricity consumption of 0.473 MWh, which is significantly lower as compared to the global average of 3.31 MWh as of 2020.<sup>17</sup>
- The total installed capacity of Solar PV witnessed a CAGR of 25.8% between 2017-2021 reaching 3 MW in 2021 from 1.2 MW levels in 2017.<sup>18</sup>
- The peak demand for electricity in the country is 4.24 TWh remaining same in 2020 and 2021.<sup>19</sup>
- In 2021, the total installed capacity in the country reached 563.74 GW with a significant share coming from fossil fuels (79.25%) followed by hydro (18.87%).<sup>19</sup>