



Energy Generation Analysis & Performance Indicators of Solar PV Plant/Mini-grid

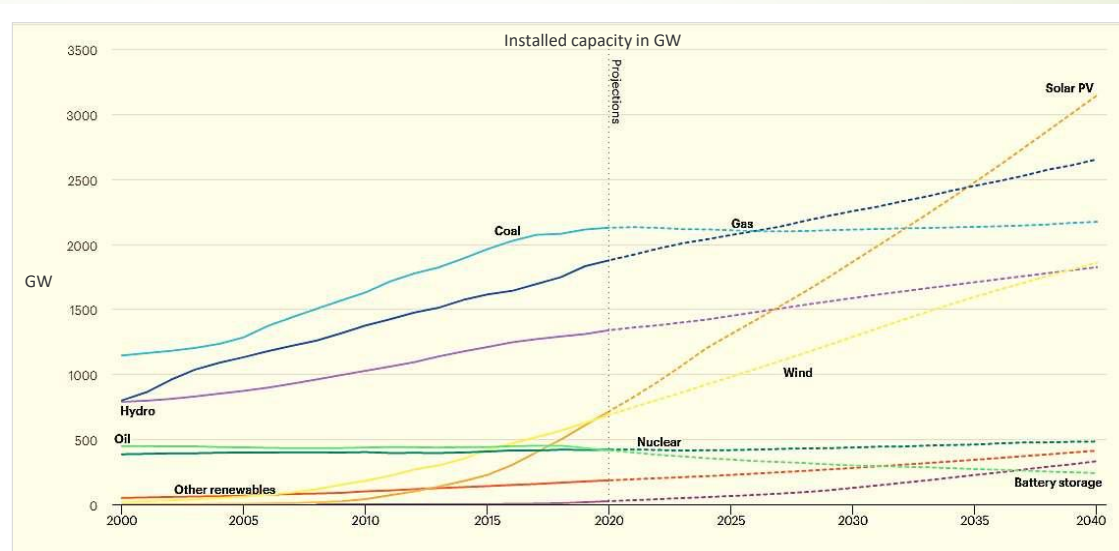
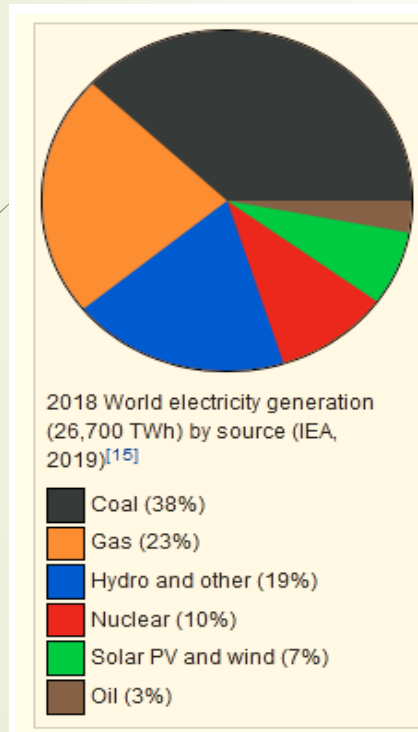


SE4ALL Centre of Excellence to Promote Sustainable Energy Markets, Industries and Innovation



Electricity Generation Analysis

Kalasi 'Uhila Ne Ngaue'aki 'e Mamani 2018



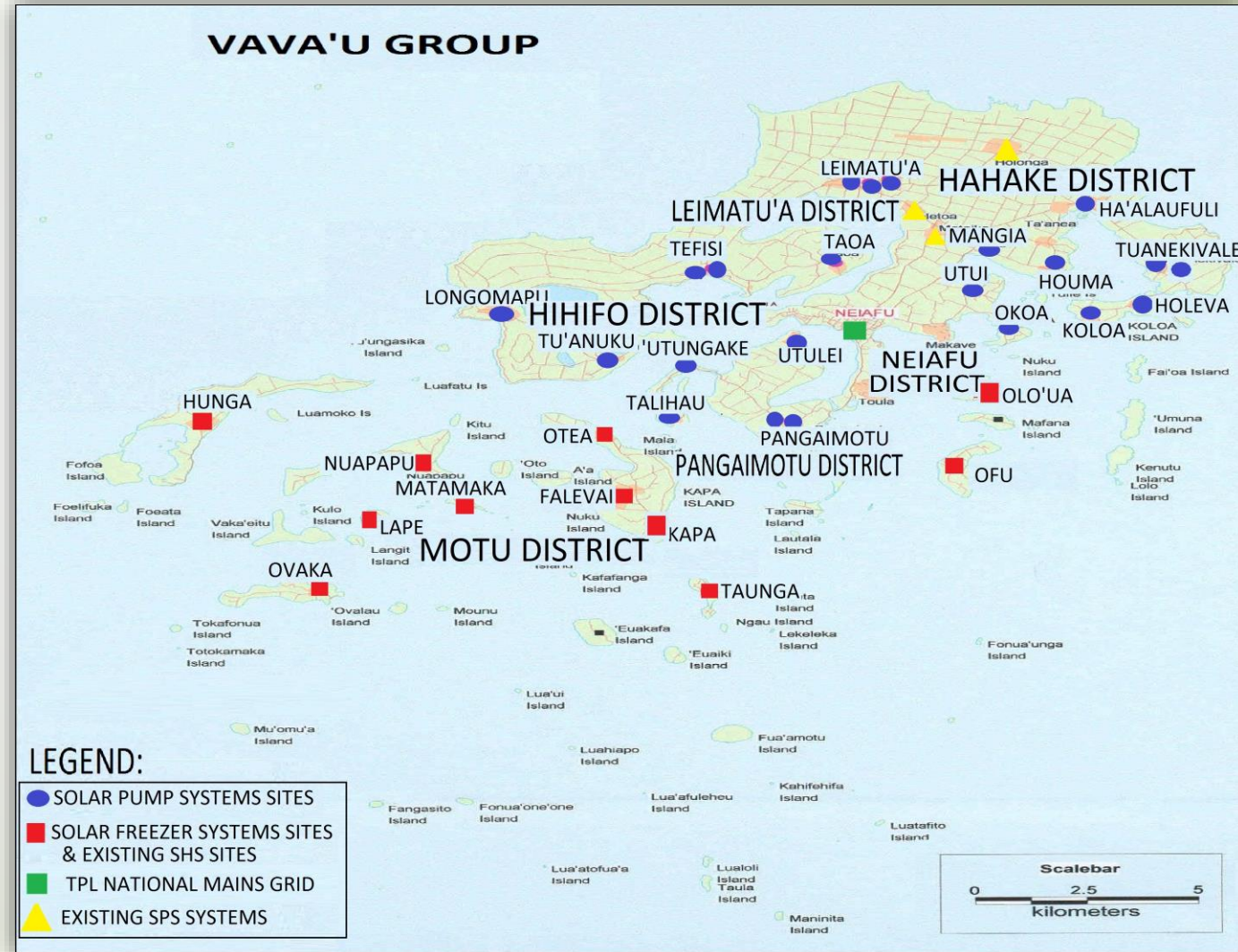
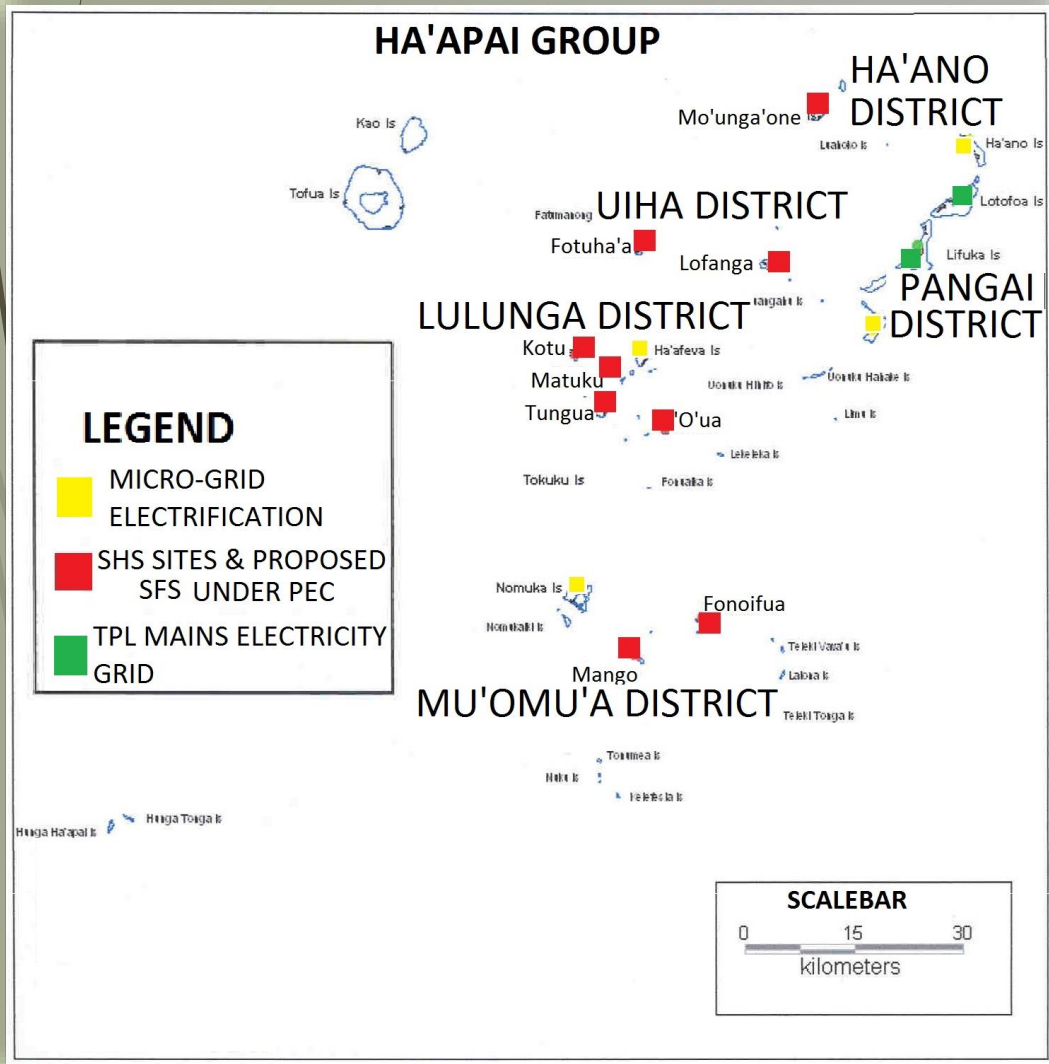
it is expected by 2040, the solar PV will be the leading source of power generation, as electricity is now the most dominating source of power and continuously replacing the other sources, now it's highly critical to develop a cleaner, economical, sustainable energy system for electrical energy....

Ngaahi Ma'u'anga Ivi Ala Fakafa'o'u 'i Tonga ni

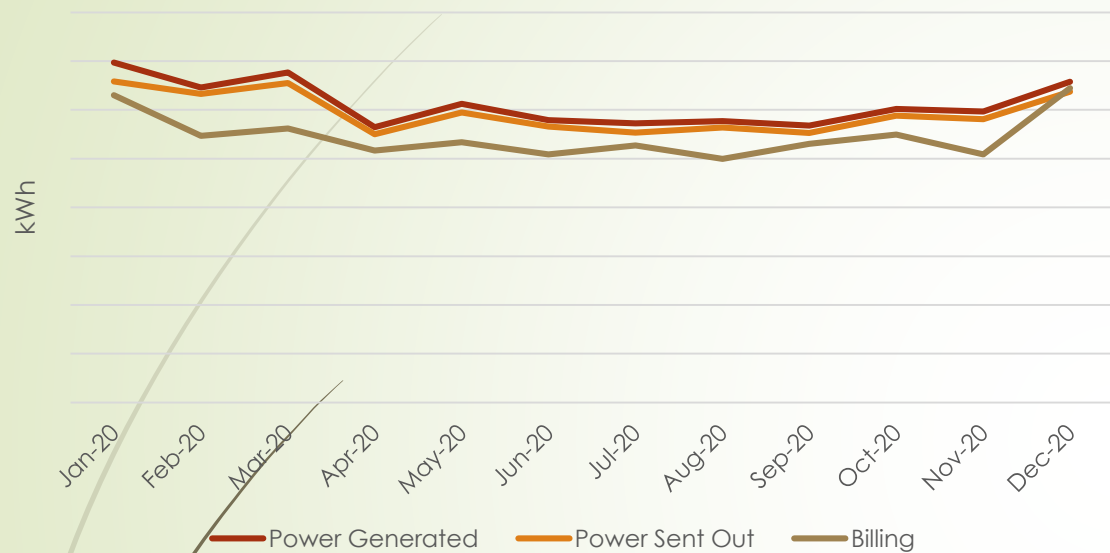
- Solar Home Systems (SHS)
- Solar Street Light (SSL)
- Solar Water Pump (SWP)
- Solar Freezer System SFS)



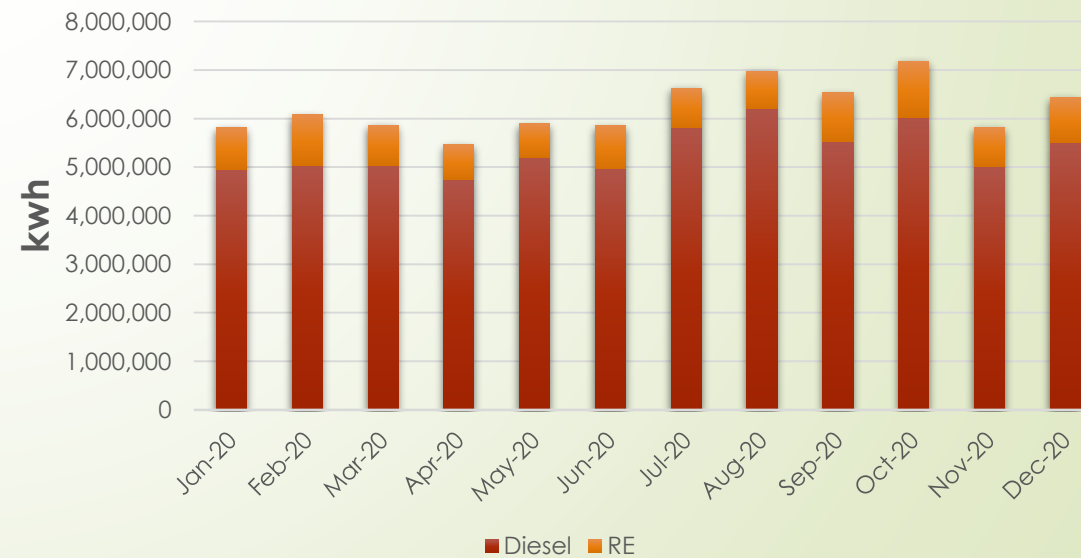
Ngaahi Ma'u'anga Ivi Ala Fakafa'o'u 'i Tonga ni



'Uhila Ngaue'aki 'e Tonga 2020



'Uhila Ngaue'aki 'e Tonga 2020



Performance Indicators of Solar PV Plant/Mini-grid



'Ea mo hono ngaahi fa'ahi ta'u



Tisaini & Palani



Quality of Bill of Material



Taukei ngaue

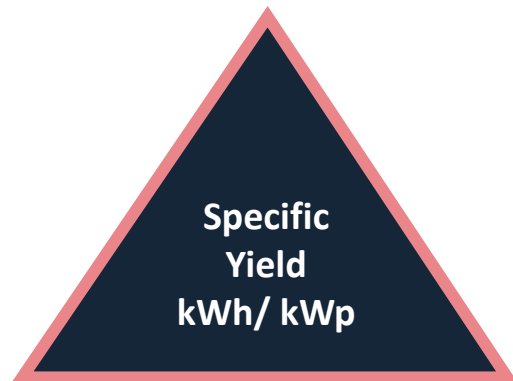


Tauhi & Tokanga'i e Sola

Performance Indicators of SPV Power Plant

According to IEC 61724 two main indicators of performance are Specific Yield & Performance ratio:

Underperforming plants can easily be detected by calculating PR



**Specific Energy Yield
(kWh / kWp):**

Ratio of energy to utility and
rated PV array capacity
Depending BOM, QM & O&M



Performance Ratio PR (%)

Ratio of actual and theoretical
possible energy output of the PV
plant

Typical annual PR : ~ 75 – 85%

CUF

CUF of SPV plant is considered as a
maximum 20%,

Capacity utilization factor CUF (%)

Energy production in comparison to
theoretical maximum amount when
operating continuously at full
capacity

Ngaahi Polokalama ki hono fika'i e ngaahi fakafuofuoa 'oe Fokotu'u Sola





MALO 'AUPITO !