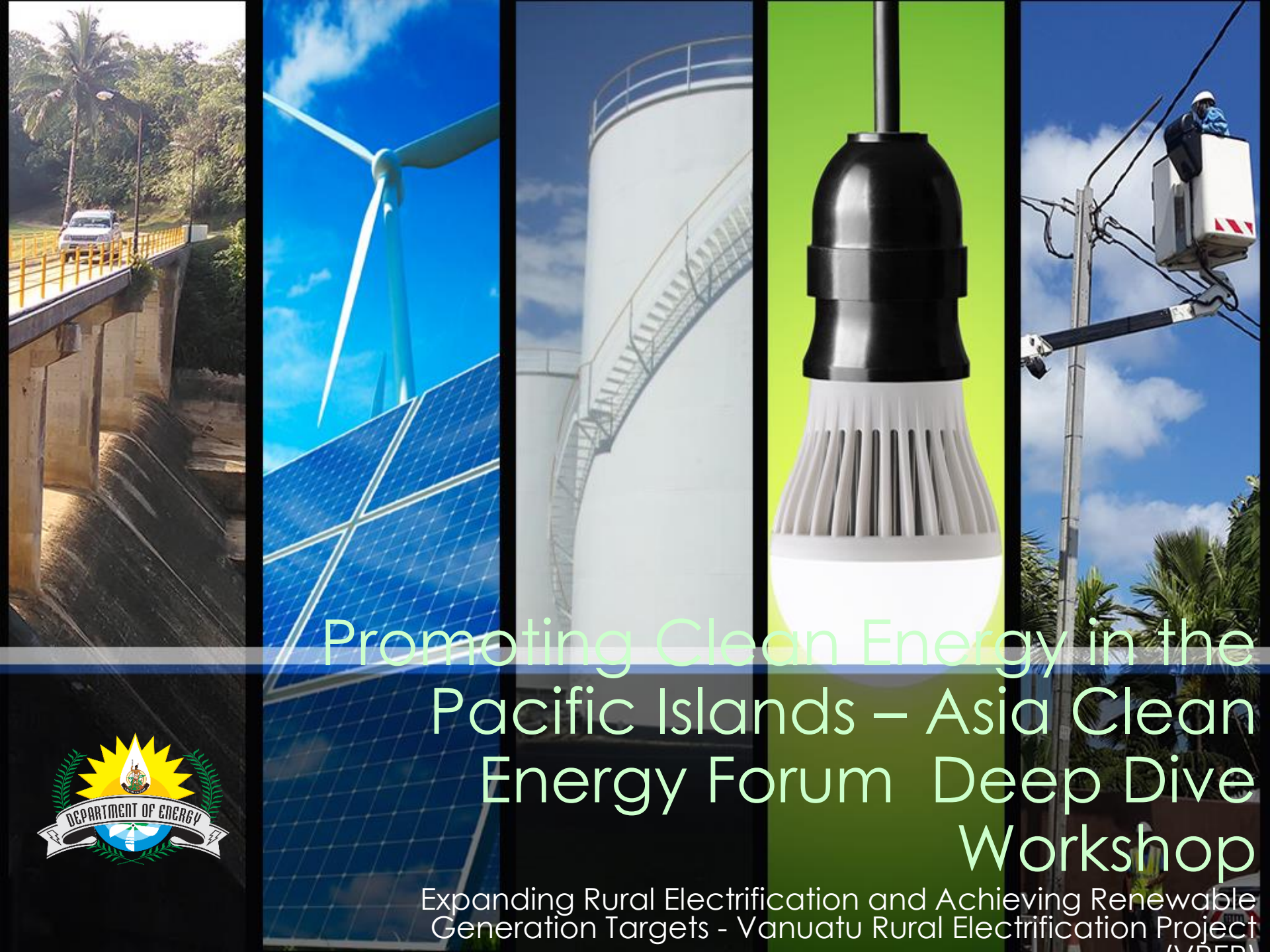
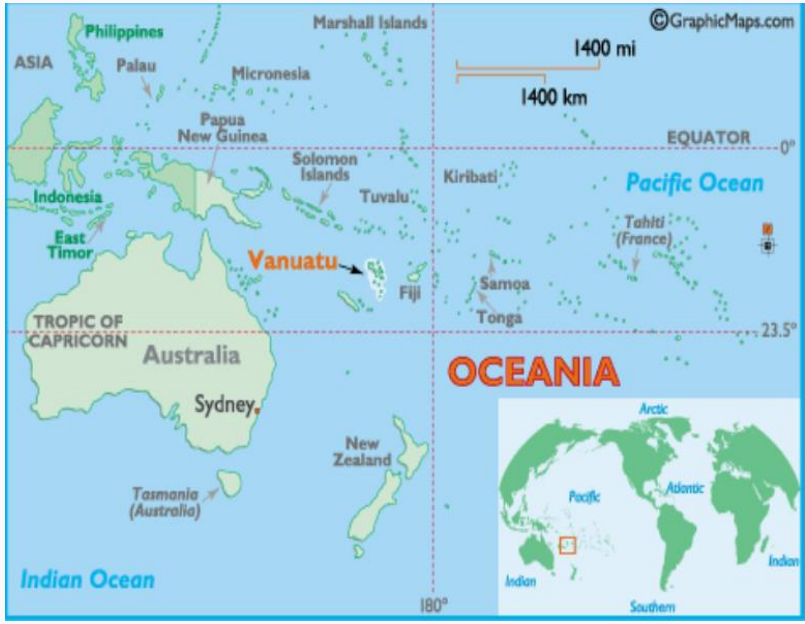


Promoting Clean Energy in the Pacific Islands – Asia Clean Energy Forum Deep Dive Workshop

Expanding Rural Electrification and Achieving Renewable Generation Targets - Vanuatu Rural Electrification Project (VREP)

Vanuatu – Background Information

- Island country in the South Pacific
  - 82 volcanic island, spread over 1,300km
  - Population: Approx. 270,000, more than 55,000 households
  - Over 78% in rural, rest in urban centers
  - Only 4 main islands with grid connections (operated by 2 private companies) plus 2 biofuel mini-grids on 2 islands
    - Grid generation: approx. 77% diesel; 10.7% hydropower; 7.5% wind power; 4.4% coconut oil & 0.2% solar
    - Only 21,500 hh grid connected
  - Remaining 29,000 are in off-grid areas – only 20% have access to electricity (2009)



National Energy Roadmap (NERM)

Implementation approaches

"Many players, one team, one plan"

- Government-led
- Donor-led
- Private sector-led
- Community-led

→ National economic and social outcomes

→ NERM priorities

→ Energy subsectors

Priorities

Educated, healthy, and wealthy Vanuatu

- Accessible energy
- Affordable energy
- Secure and reliable energy
- Sustainable energy
- Green growth

- Liquid fuels (e.g. petrol)
- Electricity
- Cooking fuels

DEPARTMENT OF ENERGY

Key Target for electrification in NERM

- 100% rural electrification by 2030
- 100% electrification through renewable energy by 2030

Implementations Programs

- Creation of National Energy Green Fund (NGEF)
- Development of mini grids mini-hydro and biofuel
- Grid extensions – both utilities (round-island grid extension)
- Grid extensions – planned for 2nd Island – Santo and Malekula (to be supported by ADB)
- Connection to customers On-grid – World Bank supported GPOBA (4,320 hh)
- Off-grid: Vanuatu Rural Electrification Program (VREP) Phase I (17,500 hh, 2,000 community halls & 230 aidpost)

Vanuatu Rural Electrification Program

- Vanuatu Rural Electrification Project (VREP) funded by NZ Government through World Bank.
  - ① VREP 1 ($7.8m): “Plug and Play” solar systems under vendor model to consumers in rural and remote areas (Implementation stage); (17,500 HH, 2,000 community halls and 230 aid posts) – already underway; and
  - ② VREP II ($14.2m) – to commence in 2017:
    - ① Solar Home Systems & micro-grids (SHS) to 8,400 rural households, public institutions, communities and business; 37 public institutions (delivered through private sector and subsidy) – approximately 42,000 people
    - ② 5 mini-grids (550 HH) – approximately 2,750 people

    Total of approximately – approx. 42-45,000 people to be benefit

VREP results to date

- Slow but possible to achieve targets:
  - Over 1,700 households and over 100 community halls electrified
  - Over 40 islands out of the 63 islands
  - Two(2) approved local vendors (both small private companies)
  - Nine (9) approved VREP products in Product Catalogue
  - Started off – Government has no experience in subsidy programs in small markets but with the processes established, it is intending to utilise for its ongoing programs or other donor investment
  - Demonstrated demands exists between 'plug and play' and larger systems

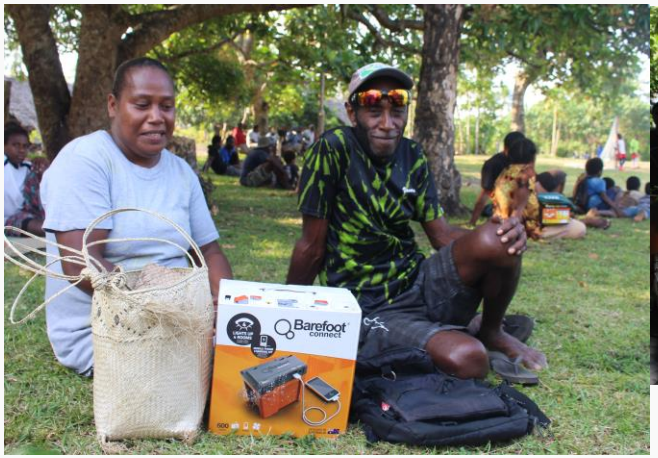
Broader changes to sector from VREP

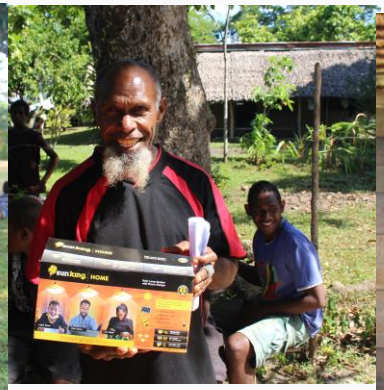
- Capacity of small private sector to strengthen and a much coordinated support to rural electrification
- Vanuatu's ambitious policy of 100% access and 100% renewables by 2030 can be achieved – 90% access to be achieved and 100% displacement of imported fuel for electrification in rural areas
- Small private sector companies will grow as a result of VREP creating additional demand. Behavior of private sector will change as high quality products are brought into markets
- Technologies – lives can be saved through the systems during disasters and kerosene, diesel and petrol will be removed from rural areas – saving money to the rural
- Customer and business behaviours will change – purchases, quality of products, after sales customer service, demand for warranty, politician behaviors of free systems to now pay for systems

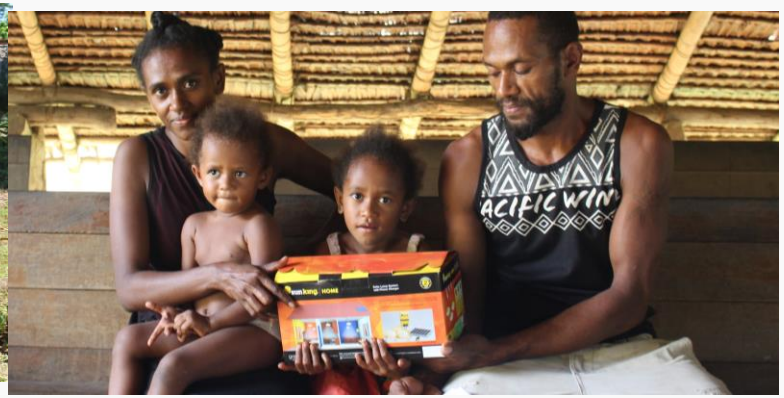
Potential Perceived Risk

- **Institutional Capacity Risks**: Capacity of the Dept of Energy (Implementation of funded investments) and Utilities Regulatory Authority (manage competing demand for lower tariff)
- **Technological Risks**: Remoteness of the Islands is a challenge for the systems (ongoing operations and durability to weather conditions)
- **Environmental Risks**: Potential for some clearing during construction of mini-grids
- **Social Risks**: Land ownership & managing dispute

- The best part of all is seeing people smile and share their stories as they benefit from getting electricity either through grid connection or off-grid systems.







- Numbers matters but the feelings of happiness worth a lot in peoples lives

Tankio Tumas!

Thank you

Merci