Distributed generation using RE

Observations from the Pacific Island Countries (PICs)

Rationale: **To reduce dependency on diesel through RE.**

Current cost of generation in small islands: **0.30-0.60 US$/kWh**

***Some challenges for achieving high penetration of RE in small grids owned and operated by state owned utilities*:**

- **Technological: mostly to solar PV and wind;**
- **Land availability and siting;**
- **Grid integration: planning and stability;**
- **Cost and financial sustainability.**

Distributed generation using RE

Observations from the Pacific Island Countries (PICs) [Cont 2]

Some challenges to achieve high penetration RE systems:

Technological

1) ***Solar PV***: **Cyclonic and highly corrosive climates. Ground mounting may have benefits versus existing buildings (e.g. aging, wiring). However, land constraints.**

2) ***Wind***: **Limited selection of wind turbines suitable for cyclonic regions. Vergnet (France) and C&F Green (Ireland); suitability of wind resource; Other issues: transport, cranes for installation, foundation plants, access/roads.**

Distributed generation using RE

Observations from the Pacific Island Countries (PICs) [Cont 3]

Integration/stability

1) **Need for improved planning to guide investments, including resource mapping, technical specifications, power system analysis.**

2) **Need for integrated control systems to manage various generation sources.**

3) **Operations and maintenance.**

4) **Legislation/legal frameworks required to encourage participation yet ensure utility viability**

Distributed generation using RE

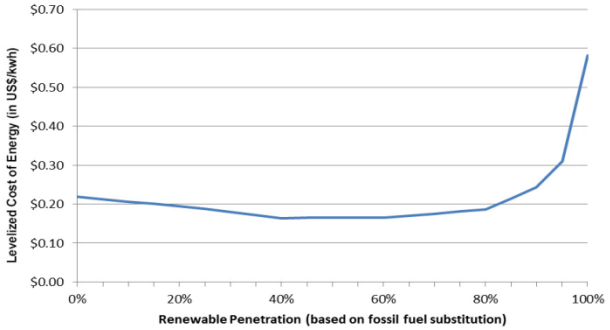
Observations from the Pacific Island Countries (PICs) [Cont 4]

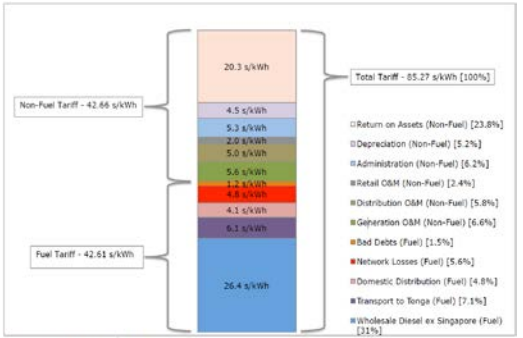
Cost – Financial sustainability

1) **Is 100% RE cost effective? Storage is required above 25-30% RE capacity – expensive and challenging;**

2) **Should there be a lower medium term goal for diesel reduction instead?**

3) **Potential loss of revenue due to customer installed solar; it does not reduce the fixed costs of the network – commercial viability of small utility versus cost to customer.**





O&M = operations and maintenance
1/ As at November 2012.
2/ Breakdown is approximate only.