

“Tropicalisation” of Feed-in Tariffs NOURISHING OFF-GRID PV/DIESEL HYBRID SYSTEMS WITH A RENEWABLE ENERGY PREMIUM TARIFF (RPT)

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Outline

- Current Situation in the electrification of off-grid areas
- Cost-effectiveness, social, and environmental considerations for PV/diesel hybrids in isolated areas
- Framework of mini-grids
- Renewable Energy Premium Tariff (RPT) scheme discussion
- Conclusions and recommendations

Situation in Off-grid areas

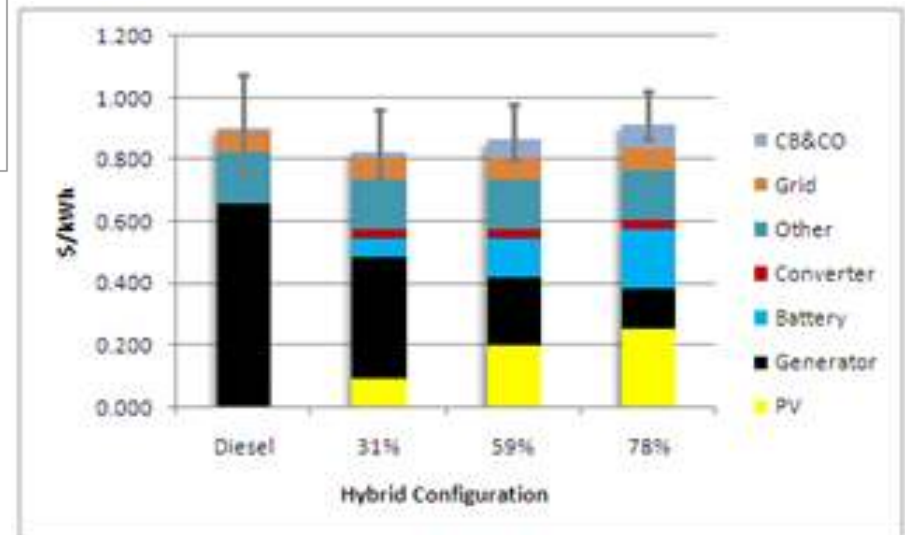
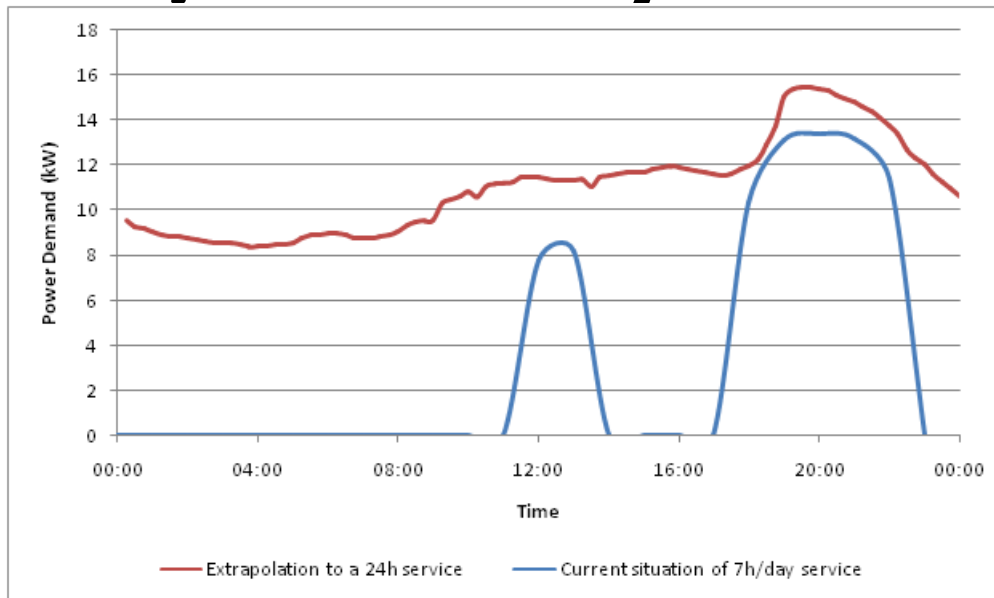
There are >10,000MW of diesel generators installed in off-grid areas

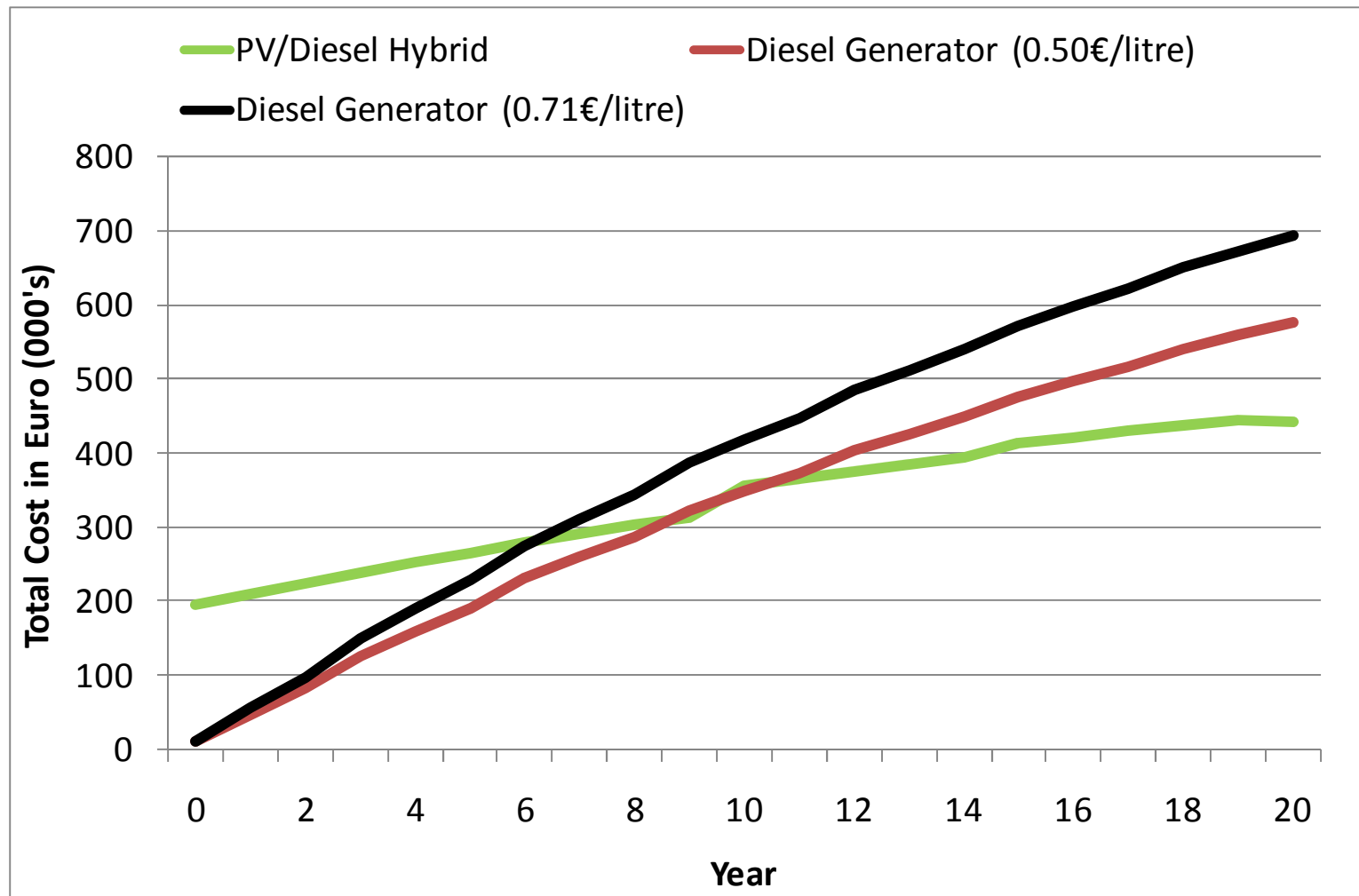
Focus of renewable solutions has been on solar home systems systems (e.g. >2.5 million SHS installed)

>10,000 small hydro and >1,000 PV or wind hybrids (REN21), mostly in India and China

Vast opportunity for the introduction of renewables into existing mini-grids and new systems in agglomerate communities as a solution

PV/Diesel Hybrids

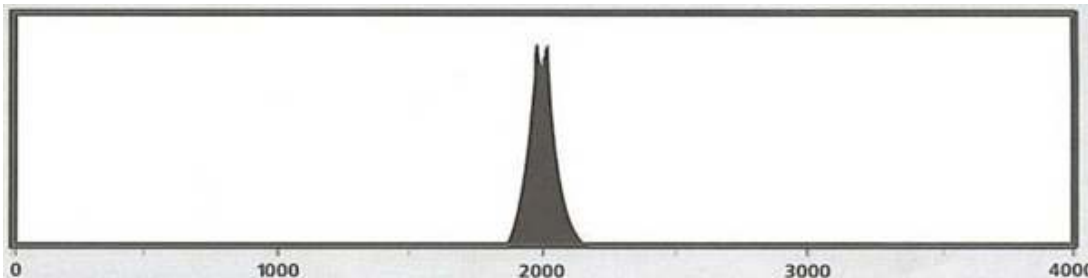




Social and Environmental Issues



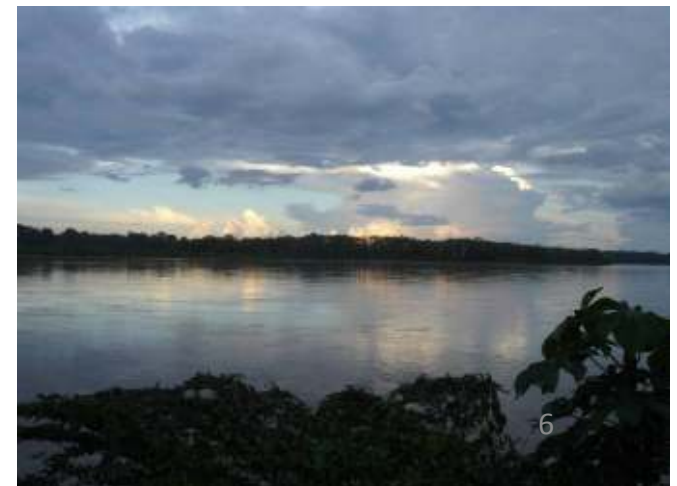
Jessica spill in Galapagos. Source:
Charles Darwin Foundation



Source: <http://blog.choicefor.us/wp-content/uploads/2008/12/image5.png>

24/09/2009

24th EU PV SEC, Hamburg, Germany



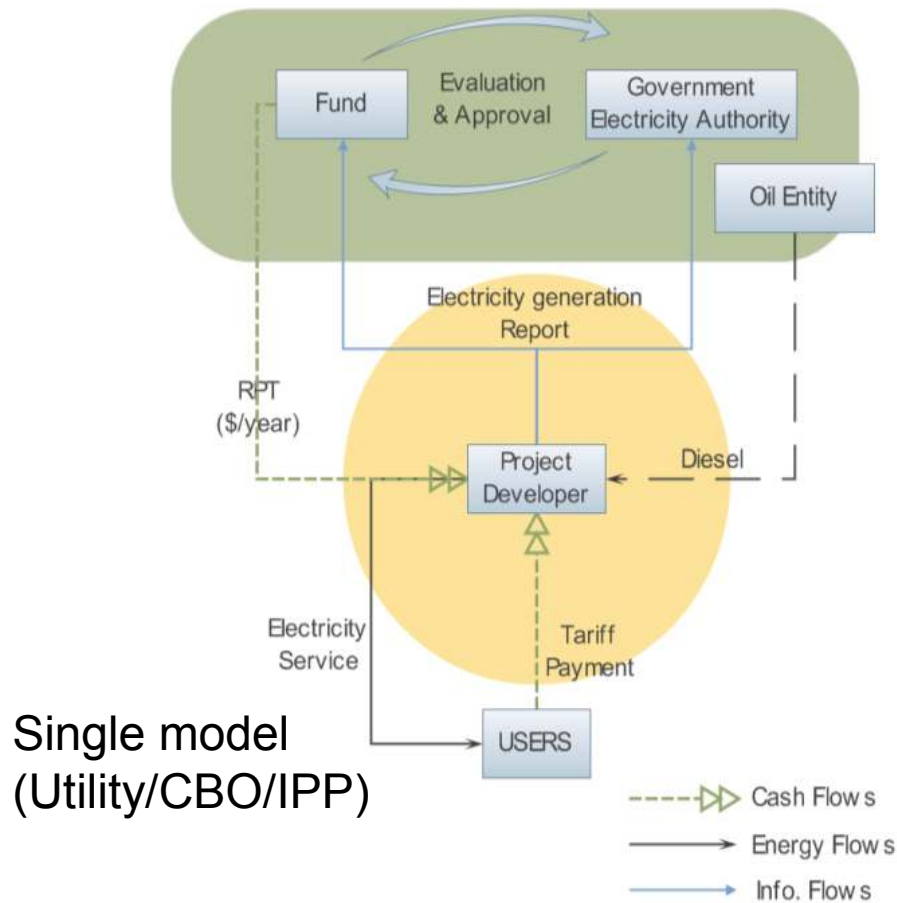
Necessary Framework

- Regulatory Framework
- Operation Models
 - IPPs, CBO, Utility or Hybrid
- Finance Mechanisms
 - Seed Capital
 - Renewable Energy Premium Tariff

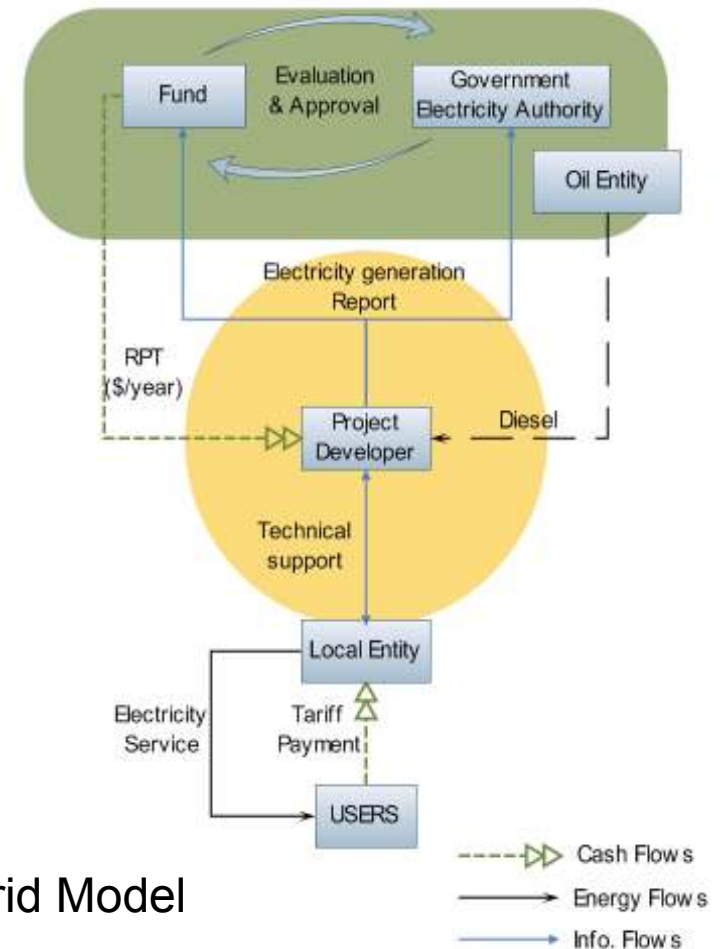
RPT Discussion

- Variables to consider
- Channelling RPT
 - Periodicity (6-12 months)
 - Consumed vs. made-available electricity? (forfeit tariff)
 - Facilitate transferring of funds
- Users Tariffs
 - Capacity to pay
 - Willingness to pay

RPT Structuring

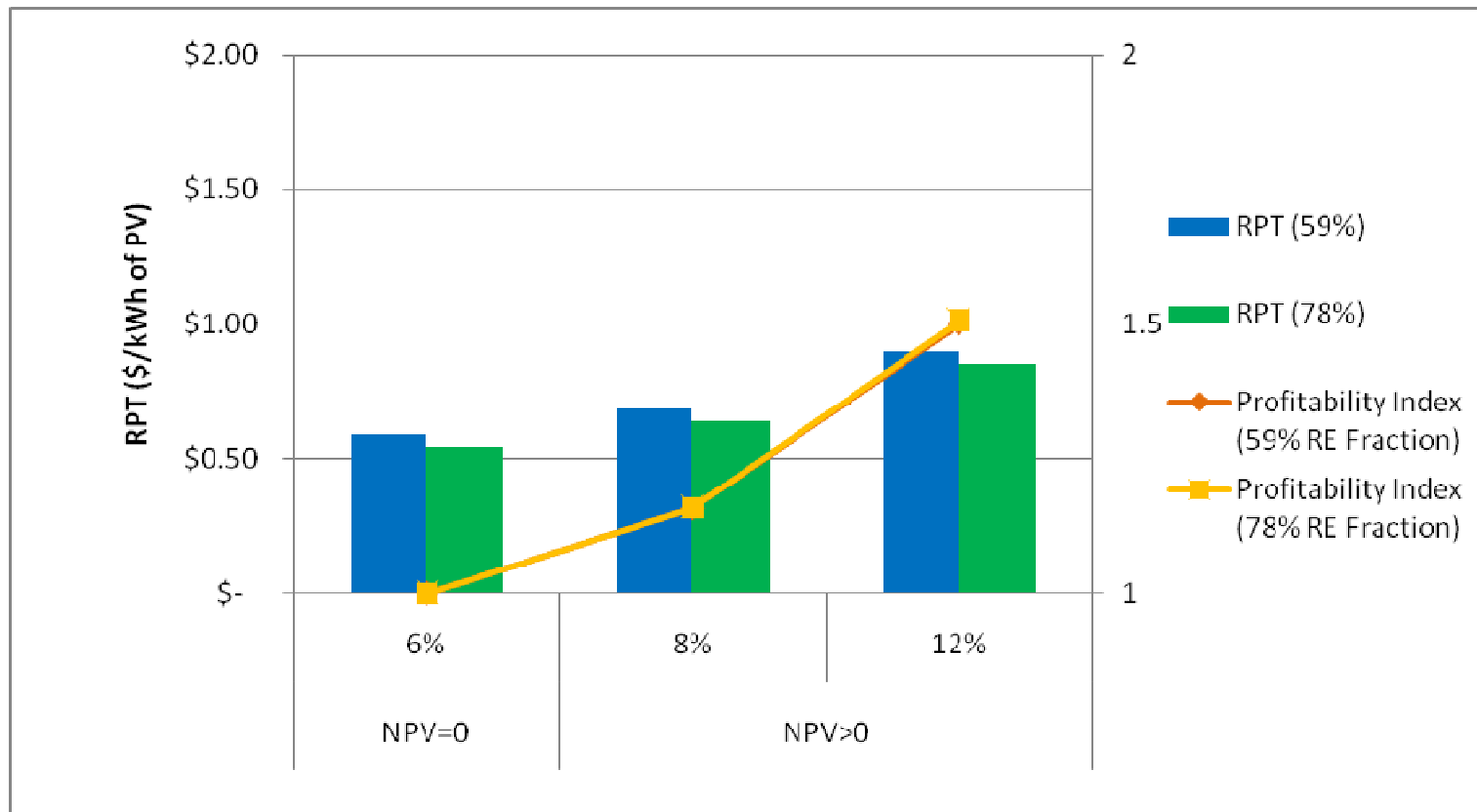


Single model
(Utility/CBO/IPP)



Hybrid Model

RPT Values



Pros and Cons

	Pros	Cons
Seed	<ul style="list-style-type: none"> Common approach Low risk (costs are covered) Helps CBOs with limited capital resources 	<ul style="list-style-type: none"> Funds may not be enough in the long-term for technical assistance Quality of the service provided is not guaranteed
RPT	<ul style="list-style-type: none"> Can finance more projects initially (new alternative) Effective way of channelling funds Ensure quality of the service 	<ul style="list-style-type: none"> The project developer has a higher risk Effectiveness has yet to be proven (based on the FiT experience) Need of institutional framework

Conclusions

- Diesel mini-grids
 - Require high amount of subsidies to maintain service in off-grid areas
 - Give a limited service
 - Environmental risks attached to diesel transportation
- PV/diesel hybrid systems
 - Can be cost-effective
 - Reduce environmental risks
 - Development of energy-independent and sustainable communities
- RPT Scheme
 - Values from 0.70-1.00\$/kWh (-20 years) for pilot projects
 - Values from 0.40-.060\$/kWh (-20 years) for large scale replication
 - Channel funds must be in a simple and effective way
 - Can be useful for other RET and countries

Recommendations

- Government
 - Give more liberty to independent project developers
 - Identify agglomerate communities that can benefit from a hybrid system
 - Divert subsidies to diesel generators to renewables
 - Differentiate between off-grid and grid-connected FiTs
- Project Developers
 - Increase willingness to invest in off-grid areas
 - Consider hybrid systems
 - Share know-how
- Funding agencies
 - Use of RPT scheme to finance electricity service provided instead of electricity projects
 - Provide a warranty to project developers
 - Maintain a constant check-up of systems

Acknowledgements



Organization of
American States



Thank you!