



# Financing, Policy & Governance Challenges and Opportunities

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## COMPANY OVERVIEW

### ITP Renewables:

- a global leader in renewable energy consulting and project management
- part of the ITP Energised Group
- expertise across renewable energy, energy efficiency, storage and associated technologies

### Our staff:

- experienced renewable energy engineers, specialist strategic advisors, experts in economics, finance, emissions reduction and policy.
- extensive professional backgrounds in industry, academia and government.

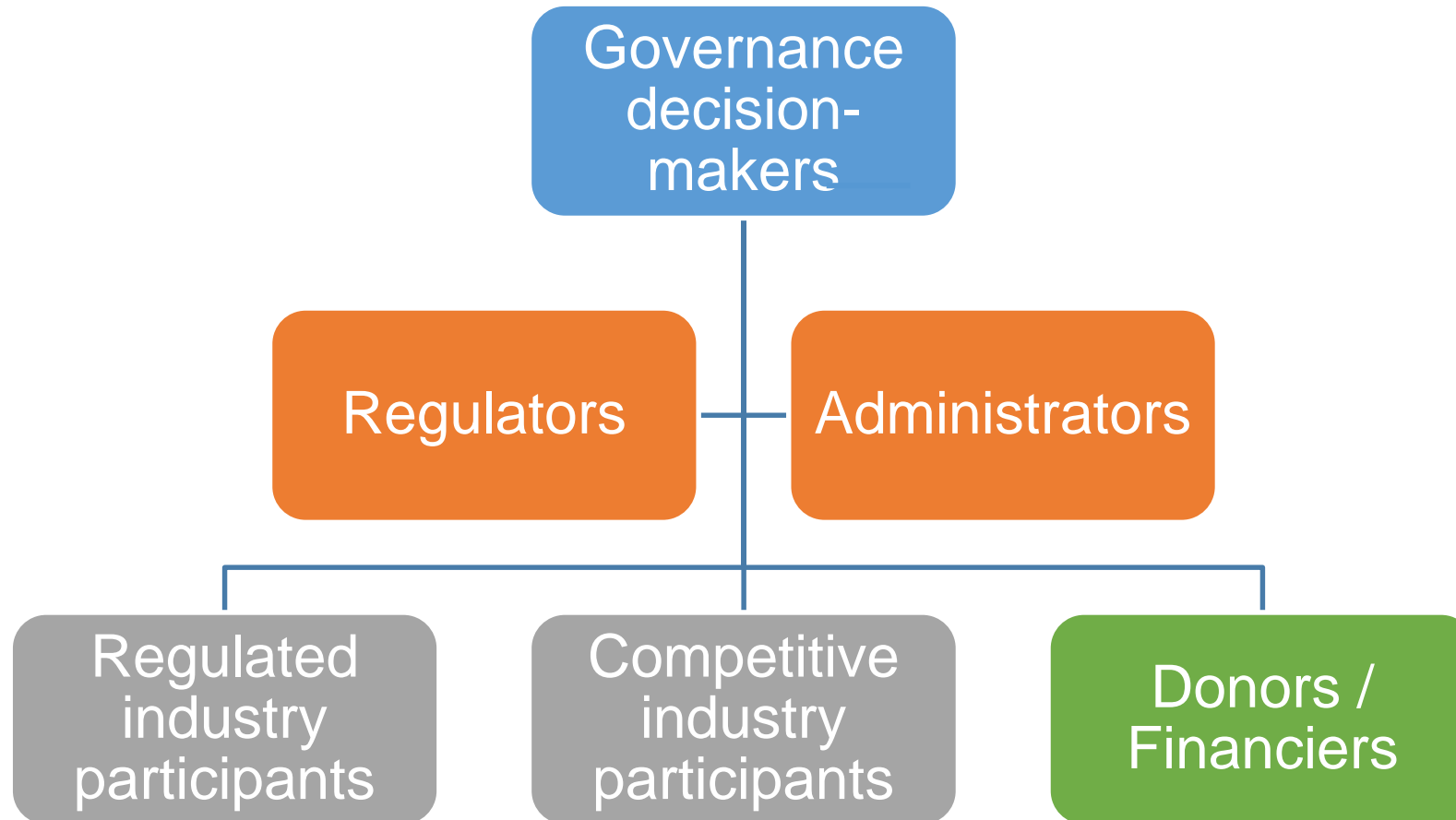


# Challenges

1. Breaking the repetitive cycle of stop start progress based on donor injections and repeated mistakes
2. Policy development for private investment in power systems
3. Electrification of transport – how should Pacific Islands think about this?



# Decision Making Frameworks



Source: Passey et al, 2008



# Framework implementation

- Complete separation of powers may not be possible:
  - Governance and Administration bodies may be combined
  - Overlap possible between Governance body and Regulated industry participant
- Important that the **Regulator is independent** so it can effectively evaluate the scheme / program / project





# Set Assessment Criteria

**Who: Decision maker, Regulator, Administrator, Donor**

**Effectiveness:**

How effective is the program / project (e.g. at deploying plants that generate the expected amount of renewable electricity over a given timeframe?)

**Efficiency:**

Is the project able to deliver renewable energy at low cost, and are there any other cost impacts?

**Equity:**

Are the costs and benefits of the project distributed fairly?

**Administration:**

Is the program / project difficult to administer, including any relevant auditing and compliance requirements?



# Include an Evaluation Phase

**Who: Regulator, Administrator, Utility**

**Monitoring:**

- of uptake, issues and outcomes

**Assessment:**

- of monitored results to assess costs and other aspects

**Recommendations:**

- for revision and adaptation for future projects, based on the assessments
- to ensure processes remain relevant, that lessons learned are acted upon
- to respond to changing circumstances, including prices, new technologies or information



# Opportunities to break the stop start cycle

- Independent regulatory structures – **decision makers, regulators, donors**
- Aid funding which focuses on long term processes, rather than short term capital expenditure alone – **Donors**
- Roadmaps to establish 5 year planning cycles – **Donors, decision makers, utilities, consultants**
- Local training, quality control, standards, import regulations/taxes – **Decision makers, PPA, regulators, consultants**
- Long term programs for outer islands – **local community, donors, regulators, decision makers, consultants**





# Institutional support

Need to address disconnect between power sector revenue and expenditure – **Regulator**

- Unsustainable tariffs
- Low operational funding
- Training for local utility staff
- IT and data systems

Need complimentary activities - **Decision makers**

- Energy education programs
- Energy efficiency programs
- New meters
- Network maps
- Appliance performance standards
- Supportive import tariff structures





# Facilitating Independent Power Producers





# Use of PPAs to Encourage Private Sector Investment

- **Who: Regulator, Utility, PPA, Competitive industry participant, Donors**
- To attract private investment into new generation capacity
- To capitalise on diverse renewable energy resources
- To develop an attractive investment environment for IPPs
- To balance counterparty risk and reward
- A stable policy environment is critical to de-risk private investment



# Structure of a PPA

- A core component of key legal and commercial terms and conditions
  - to communicate 'core' responsibilities and obligations
- Supplementary Schedules
  - more details specific to the project
- A standard PPA Template
  - equitable starting point for negotiation
- Independent financial and legal advice still necessary.



# Evaluation Criteria for reverse auctions

<b>Role</b>	<b>Examples of Criteria</b>
<b>Effectiveness</b>	Desired amount of generation capacity or output.
<b>Efficiency</b>	Electricity generation cost (\$/MWh) compared to generators currently operating in similar areas.
<b>Equity</b>	Type of impact on electricity prices.
<b>Administration</b>	Cost of designing and implementing the auction and selecting the successful IPP(s)



# Use of Private Distributed Generation



Rooftop PV avoids land access issues, earthworks and fencing





# Use of Feed-in Tariffs

- **Who: Decision makers, regulator, utility, PV industry, users, administrators**
- Distributed generation - rooftop PV on grid connected buildings can be a cheap way of increasing local generation
  - Tariff structure is critical to ensure community and utility are better, not worse, off
- Minimum rate per kWh for exported electricity
- Net metering limited to specified capacity (MW) or % of electricity sales (MWh)
- Focus on gross FiT based on avoided cost of generation
  - system owner pays for relevant TDR costs through the tariff they pay for electricity use
  - both the electricity use tariff and the amount of electricity used stay the same



# FiTs cont.

- Customers need confidence their investment can be re-paid
  - Set time over which tariffs will be paid - no retrospective changes
  - DG systems should always be paid at least the avoided cost of generation (with no time limit)
  - Gross FiTs should not be imposed on systems installed under a net FiT, until their specified contract time is reached
  - If the FiT value needs to be changed (e.g. avoided cost of generation changes), the new rate should only apply to systems installed after the date of change
  - To facilitate change to new tariffs over time, a set period of time (say 5 years) can be specified





# FiTs continued

- Announce any reductions in support over time at the start, E.g. net FiTs no longer available after 5 MW installed.
- Have public information on DG systems, tariffs, requirements, standards and approval processes
- Consider higher FiTs for generation during peak demand periods or in grid constrained areas (needs time-of use meters)
- Can have different tariffs for each technology (e.g. mini-hydro, PV, small wind, small biogas), or each sector (commercial, residential, or community)
- A public register of approved installations will be useful



# Example of Evaluation Criteria for FiTs

<b>Role</b>	<b>Example Criteria</b>
<b>Effectiveness</b>	Number, nature and generation from DE systems Assessment of technical impacts.
<b>Efficiency</b>	Generation costs of central Utility administration - as a per kWh cost.
<b>Equity</b>	Survey residential recipients for income and housing type.
<b>Administration</b>	Administration costs per MW installed or per kWh



# Electrification of transport

- **Who: Decision makers, regulators, utilities, transport sector**
- Potential to change the energy dynamics in Pacific islands
  - Reduced transport fuel imports
  - Increased electricity demand -> needs to be renewable to be sustainable
  - Cleaner
  - Cheaper to maintain
- Do Pacific Islands want EVs?
- Where do they source supply – currently second-hand market?
- Perceived maintenance hurdle or new technologies?
- Future use of batteries?

	Current Actions	3 year	10 year
<b>PIC Utilities</b>	<ul style="list-style-type: none"> <li>Managing diesels with inc RE</li> <li>Little budget for O&amp;M</li> </ul>	<ul style="list-style-type: none"> <li>High RE implementation plans and resourcing</li> <li>Access to finance for new projects via IPPs</li> </ul>	<ul style="list-style-type: none"> <li>Range of RE of different scales, with tariffs and consumer assistance (EE, appliances, PV etc)</li> </ul>
<b>Consultants</b>	<ul style="list-style-type: none"> <li>Re-doing reports every few years</li> </ul>	<ul style="list-style-type: none"> <li>Move to next phase of implementation</li> </ul>	<ul style="list-style-type: none"> <li>Assess progress</li> </ul>
<b>PIC Govt</b>	<ul style="list-style-type: none"> <li>Controlling tariffs</li> <li>Making ad-hoc decisions about projects</li> <li>Heroic GHG targets</li> </ul>	<ul style="list-style-type: none"> <li>Establishing independent regulators</li> <li>Allowing more cost reflective tariffs</li> <li>Set 5 year plans</li> </ul>	<ul style="list-style-type: none"> <li>Regular review of plans and progress</li> <li>Look for new ideas, eg EVs</li> </ul>
<b>Research</b>	<ul style="list-style-type: none"> <li>Ad-hoc</li> </ul>	<ul style="list-style-type: none"> <li>Priority list from each country</li> </ul>	<ul style="list-style-type: none"> <li>Range of projects involving local researchers</li> </ul>
<b>Donors/finance</b>	<ul style="list-style-type: none"> <li>One-off capital grants</li> <li>Re-run of roadmaps and other reports</li> </ul>	<ul style="list-style-type: none"> <li>Long term funding strategies to support processes not just projects</li> </ul>	<ul style="list-style-type: none"> <li>Use of donors to facilitate finance at appropriate terms</li> <li>Share outcomes</li> </ul>



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