

INNOVATIVE RENEWABLE ENERGY PROCUREMENT STRATEGIES FOR SMALL ISLAND STATES

17 JUNE 2021

Context

Problem:

Small island states face procurement challenges

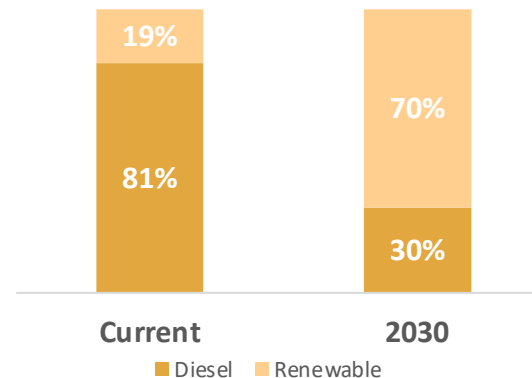
- Small scale
- High RE penetration
- Remote
- Extreme weather
- ✓ High power prices
- ✓ Limited pool of developers
- ✓ Supply and demand mismatch

Challenge for Tonga:

Meeting NDC commitment

- 70% renewable energy by 2030

Current vs Target Generation Mix



Solution:

Design a better procurement structure

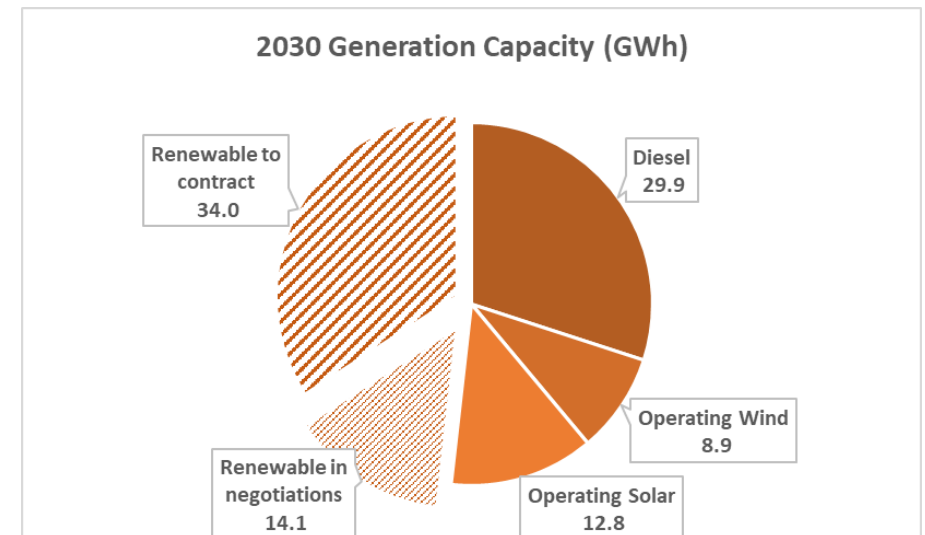
- All-in-one procurement
- Technology agnostic
- Dispatchability focus
- Guaranteed minimum energy purchased
- ✓ Lower power prices
- ✓ Broad pool of developers
- ✓ Flexible contract structure

EOI OVERVIEW

- **Technology agnostic**
 - Specifies quantity of energy (~34GWh/year) instead of generating capacity
 - IPP to propose solutions for appropriate technologies to meet specified quantity
- **Focus on dispatchability**
 - Increase renewable energy penetration, while minimizing electricity spill
 - Promote network stability as loads and generation mix changes
 - Ensure renewable power available 24 hours a day
- **Maintain Bankability**
 - Offtaker will commit to purchasing a minimum quantity of electricity over specified periods

FLEXIBILITY AND TECHNOLOGY

- Estimated energy required to meet target: 34 GWh/year
 - Could increase based on status of current procurements, growth in energy demand
 - EOI will seek developer approaches to addressing increase in energy needs
- Based on Tonga's load profile, developers to determine what they consider to be the best combination to:
 - minimize spill
 - be cost efficient
 - benefit from innovation



DISPATCHABILITY

- A focus on dispatchability will assist utility with managing network stability as loads and generation mix changes:
 - Fast ramp rate & response
 - Low demand, high solar days

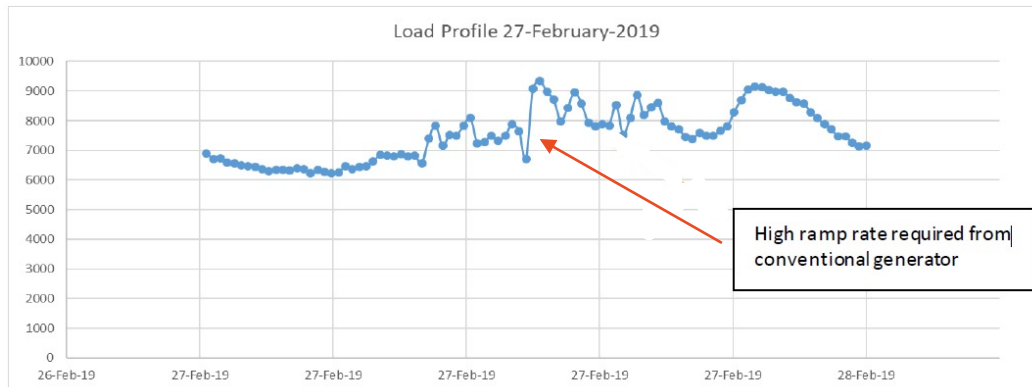


Figure 1: Maximum Load Profile: Wednesday, 27th February 2019

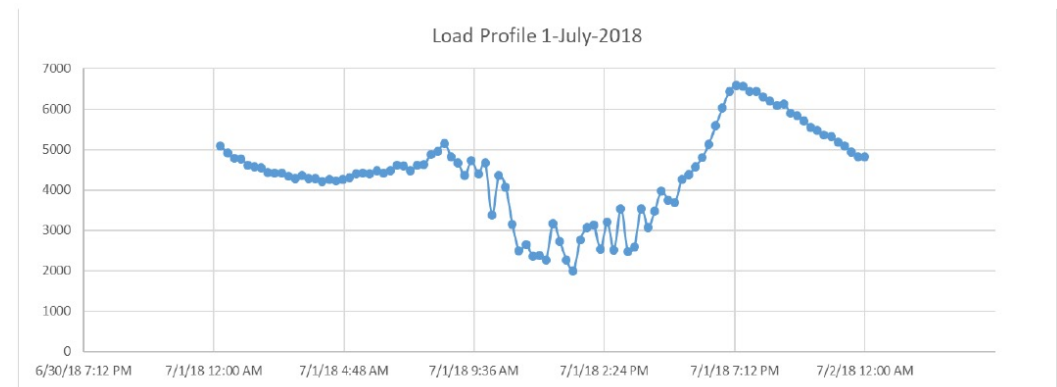


Figure 2: Minimum Load Profile: Sunday, 1st July 2018

CONTRACT TERMS

- Long-term PPA
- TPL incentives: land, potential for shared forex risk, tax benefits
- Minimum quantity of energy purchase guaranteed to meet bankability requirements

EOI REQUIREMENTS

Respondent to provide:

- Company and contact information
- Relevant experience
- References
- Intended solution, or approach to finding solution
- Indicative price—built around set of assumptions for given energy (quantity) and technology (developer provided)
- Suggestions for additional information required from TPL
- ✓ Intention is for TPL to develop a shortlist of bidders for a full tender

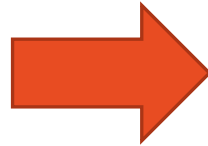
ILLUSTRATIVE EOI TIMELINE

Item	Timing
EOI Issued	30 June 2021
EOI Responses Due	31 July 2021
Completion of EOI Evaluation and Shortlisting	31 August 2021
Release of Tender	Early Q4 2021
Tender Process completion and signing of PPA	End Q1 2022
Financial close and commence EPC	Q4 2022
Commissioning of first facility(ies)	Q4 2023-Q2 2024

Conclusion

PROCUREMENT APPROACH

- All-in procurement
- Technology agnostic approach
- Focus on dispatchability
- Minimum quantity commitment



INTENDED RESULTS

- ✓ Economies of scale
- ✓ Bankable project
- ✓ Innovative solutions
- ✓ Competitive pricing
- ✓ Maintain network stability

Thank you!

We welcome your feedback!

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