

ENERGY STAKEHOLDERS & JOINT DEVELOPMENT PARTNERS WORKSHOP SESSION 2 : DONORS INITIATIVES

Outer Island Renewable Energy Project (OIREP)



PROJECT STAKEHOLDERS



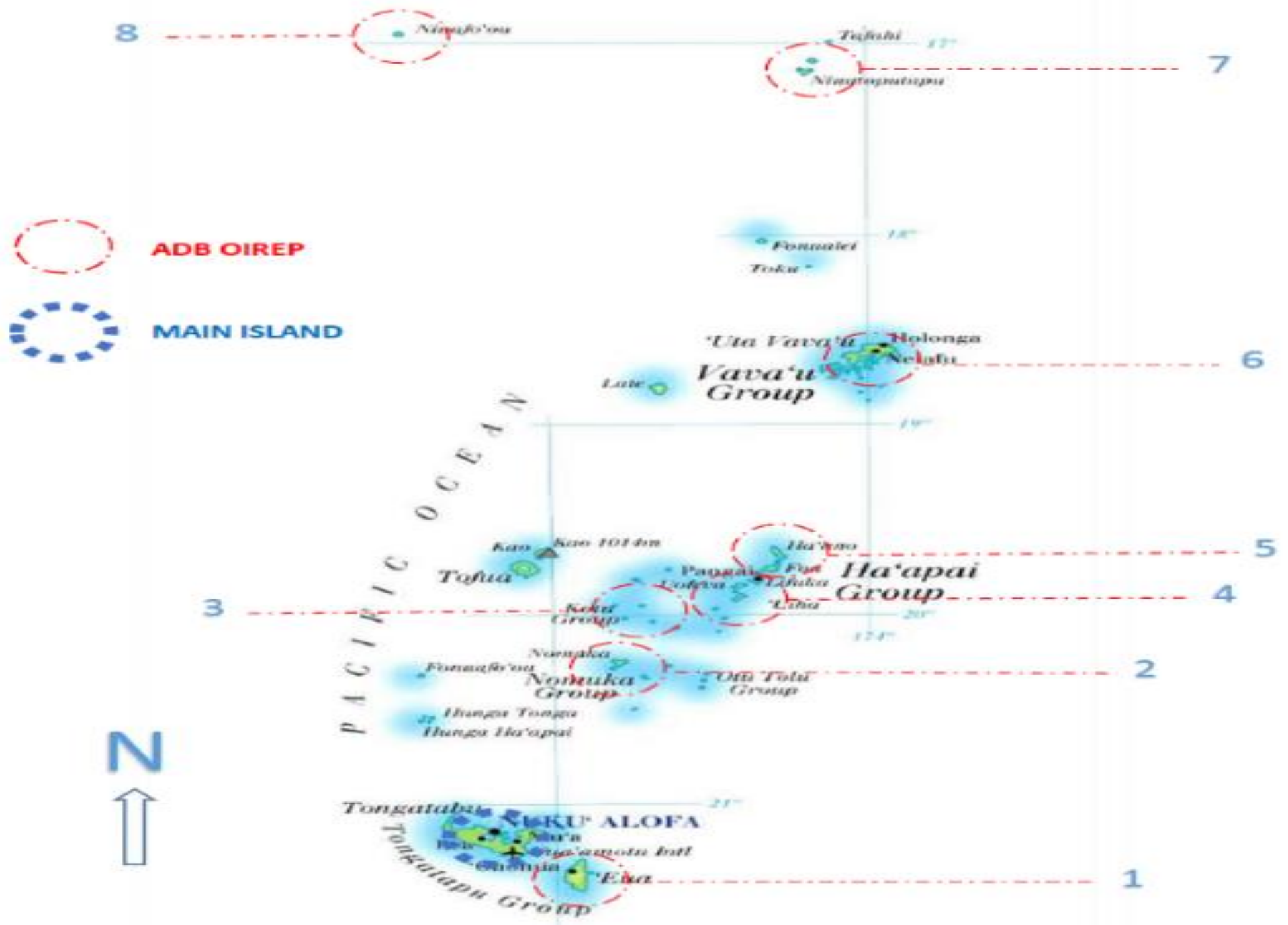
MINISTRY OF METEOROLOGY,
ENERGY, INFORMATION, DISASTER
MANAGEMENT, ENVIRONMENT,
CLIMATE CHANGE AND
COMMUNICATIONS (MEIDECC)
NUKU'ALOFA, TONGA

MINISTRY OF FINANCE (MOF)
NUKU'ALOFA, TONGA

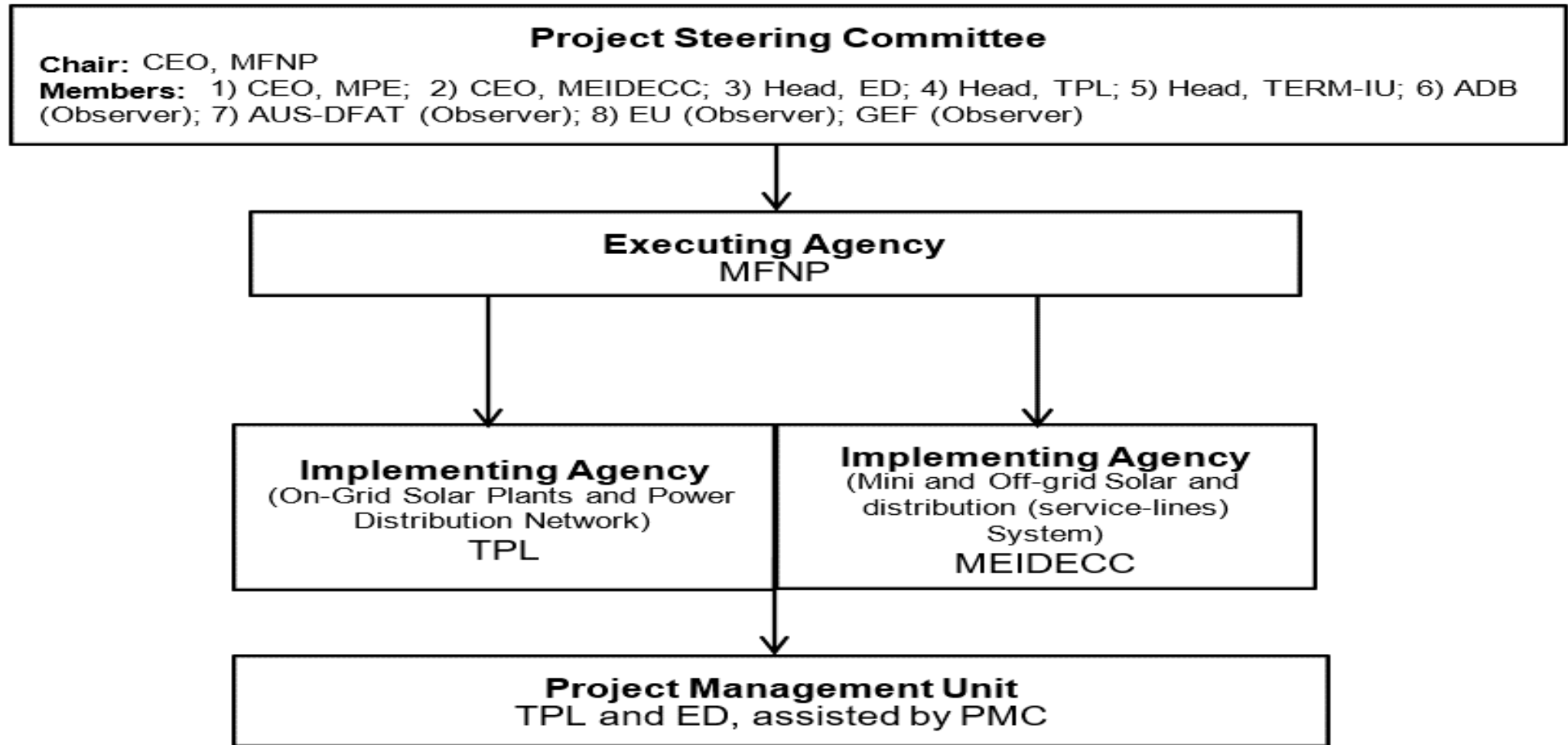
Second Danish
Cooperation Fund

Tonga Outer Island
Electricity Committees
and Communities

OIREP ISLANDS



Graph 1: Project Organizational Structure



ADB = Asian Development Bank, AUS-DFAT = Australian Department of Foreign Affairs and Trade, EA = executing agency, ED = Energy Department, EU = European Union, MEIDECC = Ministry of Energy, Information, Disaster Management, Climate Change and Communications, MFNP = Ministry of Finance and National Planning, MPE = Ministry of Public Enterprises, PMU = project management unit; PMC = project management consultants, TERM-A = Tonga Energy Road Map-Implementation Agency, TERM-IU = Tonga Energy Road Map-Implementation Unit, TPL = Tonga Power Limited. Source: Asian Development Bank estimates.

OVERALL PROJECT FINANCIAL ALLOCATION

G0347(ADB)/G0348(GOA)/G0444(ADB)/G0445(EU)/G0446(SDCF)/G0528(ADB)/L3509(ADB)/G0586(ADB)/G0

587(GEF)/G0588(GOA)/G0768(GOA)-TON: Outer Island Renewable Energy Project

Closing: 31 March/31 July 2022

Project Finances - Donor Summary

In USD

As of 23 August 2021

	Grant/Loan No.	Donor	Financing	Phase	Allocation
1	G0347	ADB	Original	1+Part 2	2,000,000.00
2	G0348	Government of Australia			4,500,000.00
3	G0444	ADB	AF1	3+Consultants	1,440,000.00
4	G0445	European Union			3,570,000.00
5	G0446	Second Danish Cooperation Fund for Renewable Energy and Energy Efficiency for Rural Areas			750,000.00
6	G0528	ADB	AF2	3	2,500,000.00
7	L3509	ADB			2,559,962.85
8	G0586	ADB	AF3	Parts 2+4 Consultants	5,500,000.00
9	G0587	Global Environment Facility			2,639,269.00
10	G0588	Government of Australia			740,000.00
11	G0768	Government of Australia	AF4	3+Consultants	1,912,000.00
	Total				\$ 28,111,231.85

OVERALL PROJECT FINANCIAL ALLOCATION

Table 1. The Indicative Overall Project Financial Investment to the various OIREP islands (indicative and rounded figures in US\$M)

No.	Island	Phase 1 (on-grid Gen.) US\$M	Phase 2 (mini-grid Gen.) US\$M	Phase 3 (on-grid Dist.) US\$M	Phase 4 (mini-grid Dist.) US\$M	TOTALS per Island. US\$M
1	Lifuka	2.20				2.20
2	'Eua	0.75		4.00		4.75
3	Vava'u	0.05		6.00		6.05
4	Nomuka		0.7		0.61	1.31
5	Ha'afeva		0.5		0.32	0.82
6	'Uiha		0.7		0.42	1.12
7	Ha'ano		0.7		0.44	1.14
8	NTT		1.0		4.2	5.2
9	NFO		0.2			0.2
10	Overheads	0.275	0.275	0.275	0.275	1.1
11	Contingencies					1.93
TOTALS =		3.275	4.075	10.275	6.265	25.82

PROJECT FINANCIALS (PER ISLAND)

Total Investment per Island (US\$M)

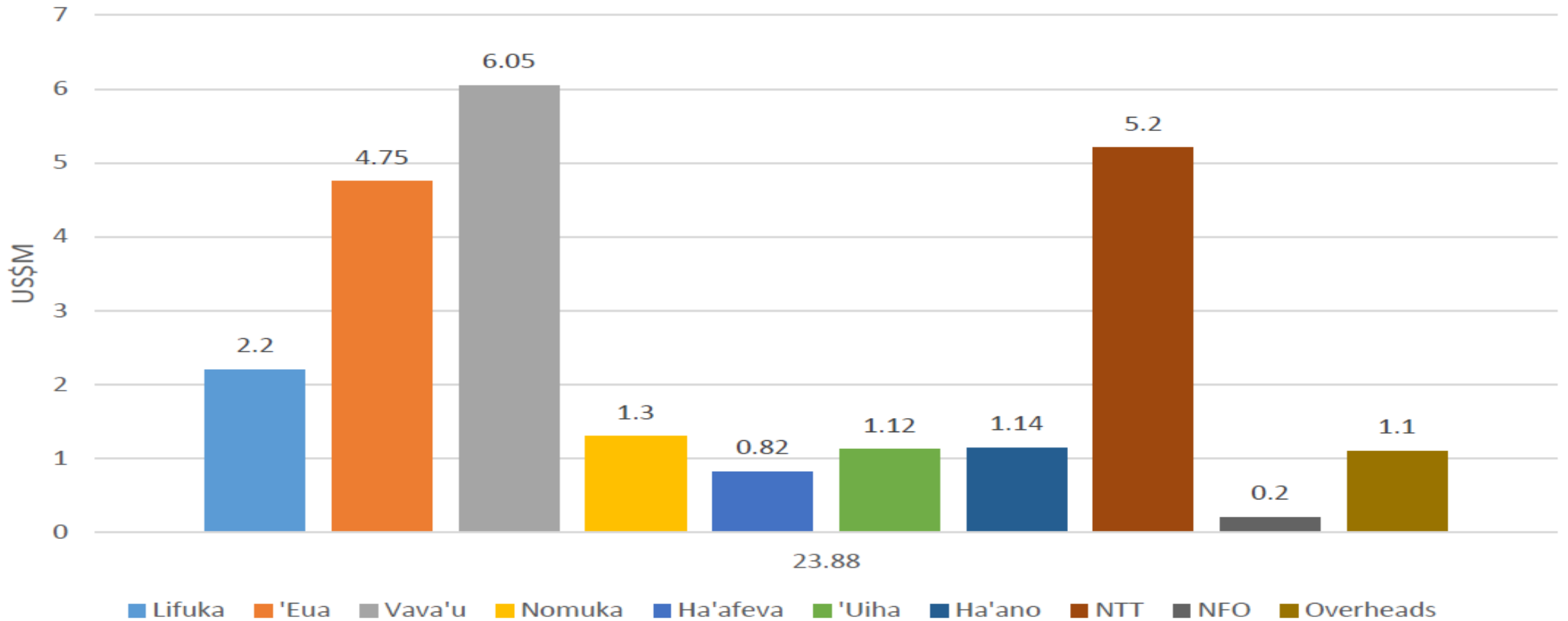


Figure 1. A graphical representation of the Project Financial Investment to the various OIREP islands.

OBJECTIVES OF OIREP

- Help meet the GoT target under TERM (OIREP shall contribute 3.3% due to the relatively small diesel consumption of the outer islands).
- Help meet the GoT target of increased accessibility to electricity under TERM (OIREP achieves 100% on each of its 9 islands).
- Help meet the GoT target on improved energy efficiency (line losses) (OIREP reduced line losses from approx. 15% to the 7% target on each of its 9 islands).
- Help meet the GoT target of a cheaper tariff (OIREP shall make the tariff more affordable on each of its 9 islands, but the exact amount depends on the operating regime that the islands uses).
- To achieve this, the OIREP Project is split into 4 separate Phases (each with its own outputs explained in following slides);
 - Phase 1: On Grid Generation (solar and batteries).
 - Phase 2: Mini Grid Generation (thermal generation, solar and batteries)
 - Phase 3: Distribution (Network Rehabilitation)
 - Phase 4: Distribution Network & Residential House Wiring
 - Overall cost is approx. ≈US\$28M spread over 6 years.
 - Estimated spend directly in Tonga is approx. ≈US\$4M (TOP\$8M).

Phase 1 Scope and Output;

- **Scope = 550kWp of solar with 300kWh of energy storage on Lifuka. Output = This has brought the island to 50% RE penetration.**
- **Scope = 200kWp of solar (no batteries) on 'Eua. Output = This has brought the island to 20% RE penetration.**
- **Total Contract Value = US\$3M.**
- **Timeline = Ran from 2016 to 2017.**

Phase 2 Scope and Output;

- **Scope = Solar, batteries and a back up diesel on 5 outer islands. Output = This shall bring those islands to 50% RE penetration.**
- **Scope = Solar home systems on Niuafo'ou. Output = This has brought the island to over 50% RE penetration.**
- **Total Contract Value = US\$3.9M.**
- **Timeline = Anticipated Completion in Q4 2021.**

- **Phase 3 Scope and Output;**

- **Scope = 100% Distribution network upgrade on 'Eua. Output = Improved energy efficiency with 100% accessibility to electricity.**
- **Scope = 75% Distribution network upgrade on Vava'u. Output = Improved energy efficiency with 100% accessibility to electricity.**
- **Total Contract Value = US\$12.7M.**
- **Timeline = 'Eua ran from mid-2016 to mid-2017. Vava'u running from mid-2017 to Q3 2022.**

- **Phase 4 Scope and Output;**

- **Scope = 100% rebuild of existing min-grid networks and household wiring on 4 outer islands. Output = Improved energy efficiency with 100% accessibility to electricity.**
- **Scope = 100% Brand new mini-grid on Niuatoputapu including new house wiring. Output = Improved energy efficiency with 100% accessibility to electricity.**
- **Total Contract Value = US\$8.8M.**
- **Timeline = Procurement Contract Complete, Hardware & Equipment arriving with the crew on the ground in Q3 2021 for 13 months.**

SAFEGUARDS

- **Environmental: all EIA's and building permits achieved.**
- **Social: Community consultations achieved. No involuntary resettlement.**
- **Gender: achieved between 30% and 50% female workforce and community participation.**
- **Land: all the land was either bought or gifted. All the necessary paperwork, leases and permitry achieved.**

PHOTOS (PHASE 1)



PHOTOS (PHASE 2)



PHOTOS (PHASE 3 SCOPE)



Photos (Phase 3 Safety)



Photos (Phase 3 Works)



Photos (Phase 3 Works)



Photos (Phase 3 Materials)



PHOTOS (PHASE 4)



PHOTOS (PHASE 4)



CHALLENGES / LESSONS LEARNED:

- **Phase 1:**
 - Time required to develop the project with stakeholders. Mitigation = seek a bigger scope and start earlier.
- **Phase 2:**
 - Land related delays. Mitigation = start the land transfer process earlier or buy the land.
 - Sustainable O&M. Mitigation = better support, O&M contracts and early sign-ups.
 - Holes and ambiguities in the Tender Docs and Contract. Mitigation = plug the holes and repair the docs.
 - IA responsibilities and actions. Mitigation = Get them to stick to their obligations.
- **Phase 3:**
 - Material delivery delays. Mitigation = use less procurement packages but bigger. Also order the materials earlier.
- **Phase 4:**
 - Material procurement delays. Mitigation = use less procurement packages but bigger. Also order the materials earlier.
- **Covid-19 & Capacity Building:**
 - Contractors mobilization delays (Local & International). Mitigation = Options of remote commissioning, Repatriation, Close coordination with Contractors and Suppliers
 - Capacity Building. Mitigation = Training & Ongoing Workshops to build Local Capacity & Proficiency



Q&A.

MALO 'AUPITO.