



Additional Financing

Project Number: 46455-004
September 2015

Proposed Administration of Grant Nauru: Electricity Supply Security and Sustainability Project

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Asian Development Bank

CURRENCY EQUIVALENTS

(as of 14 September 2015)

Currency unit	–	Australian dollar/s (A\$)
A\$1.00	=	\$0.71
\$1.00	=	A\$1.41

ABBREVIATIONS

ADB	–	Asian Development Bank
DSC	–	design and supervision consultant
IEE	–	initial environmental examination
kWh	–	kilowatt-hour
kV	–	kilovolt
MW	–	megawatt
NUC	–	Nauru Utilities Corporation
PMU	–	project management unit
TA	–	technical assistance

NOTES

- (i) The fiscal year (FY) of the Government of Nauru ends on 30 June. “FY” before a calendar year denotes the year in which the fiscal year ends, e.g., FY2014 ends on 30 June 2014.
- (ii) In this report, “\$” refers to US dollars, unless otherwise stated.

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PROJECT AT A GLANCE

1. Basic Data		Project Number: 46455-004	
Project Name	Electricity Supply Security and Sustainability - Additional Financing	Department /Division	PARD/PLCO
Country Borrower	Nauru	Executing Agency	Ministry of Finance
2. Sector	Subsector(s)	ADB Financing (\$ million)	
✓ Energy	Electricity transmission and distribution		0.00
		Total	0.00
3. Strategic Agenda	Subcomponents	Climate Change Information	
Inclusive economic growth (IEG) Environmentally sustainable growth (ESG)	Pillar 1: Economic opportunities, including jobs, created and expanded Eco-efficiency	Climate Change impact on the Project	Low
4. Drivers of Change	Components	Gender Equity and Mainstreaming	
Governance and capacity development (GCD) Knowledge solutions (KNS) Partnerships (PAR) Private sector development (PSD)	Institutional development Institutional systems and political economy Knowledge sharing activities Bilateral institutions (not client government) Civil society organizations Official cofinancing Public sector goods and services essential for private sector development	No gender elements (NGE)	✓
5. Poverty Targeting		Location Impact	
Project directly targets poverty	No		
6. Risk Categorization:	Low		
7. Safeguard Categorization	Environment: B Involuntary Resettlement: C Indigenous Peoples: C		
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		0.00	
Cofinancing		4.74	
Australian Grant		4.74	
Counterpart		0.00	
None		0.00	
Total		4.74	
9. Effective Development Cooperation			
Use of country procurement systems		No	
Use of country public financial management systems		No	

I. BACKGROUND

1. Nauru is a Pacific island country with a total population of 10,000 people. The capacity of Nauru's electricity system cannot meet the country's total power demand of about 10.75 megawatts (MW). The electricity supply is unreliable due to underinvestment and poor maintenance of its generation and distribution assets. The installed nameplate capacity of the eight generation units totals 12.90 MW, but available capacity is only 3.70 MW because two units are inoperable and the capacities of the other six have been derated. Current peak load is 3.75 MW. Scheduled curtailments are a constant feature, and unscheduled outages due to faults are frequent. The power house at Nauru Utilities Corporation (NUC) is also in poor condition structurally, and this adds to the vulnerability and insecurity of Nauru's electricity supply. The shortcomings that are making the diesel generation system unreliable and inefficient needed to be urgently addressed to reduce the risk of catastrophic failure of Nauru's power system.

2. The current Nauru Electricity Supply Security and Sustainability Project¹ has three outputs: (i) the installation of a new, medium-speed, 2.6 MW–3.0 MW diesel generator, together with related auxiliary equipment, and the training of NUC personnel in its operation and maintenance; (ii) the repair and/or replacement of the existing asbestos roof of NUC's powerhouse, and structural reinforcement of the building; and (iii) efficient project implementation. NUC will be assisted by a project management unit (PMU) and the services of design and supervision consultants (DSCs) during project implementation.²

3. The project was approved by the Asian Development Bank (ADB) on 7 November 2014. The project is financed by a grant of \$2.00 million from ADB's Asian Development Fund and a cofinancing grant of €2.00 million (\$2.70 million equivalent) from the European Union to be fully administered by ADB.³ Both grants became effective on 16 April 2015. The Government of Nauru will provide counterpart contributions totaling \$0.84 million, comprising an in-kind contribution equivalent to \$0.57 million and tax and duty exemptions of \$0.27 million. The government provided the proceeds of the grants to NUC under the subsidiary grant agreement signed between the government and NUC. The total project cost was estimated at \$5.54 million.

4. The project's intended impact is increased economic activity. All NUC customers are expected to enjoy supply of electricity with fewer outages, and NUC is to resume supply to commercial and industrial customers that have been without it. The project's outcome is more reliable, sustainable, and cost-efficient power generation in Nauru. The incidence of power outages is expected to decline by 50% by March 2017, and generation efficiency is expected to rise from 3.4 kilowatt-hours (kWh) per liter of fuel consumed to 4.1 kWh per liter.

5. The selection of a DSC firm for the PMU was completed on 29 April 2015, and the consultants are currently working on the detailed engineering design, safeguards requirements, and preparation of bidding documents. ADB's inception mission during 7–10 June 2015 resulted in the signing of a memorandum of understanding between NUC and ADB. Under the latest revised project schedule, the roof and generator contracts will be awarded in February 2016. The completion of the roof contract is expected in August 2016 and that of the generator is scheduled for December 2016.

¹ ADB. 2014. *Report and Recommendation of the President to the Board of Directors on Proposed Grant, Technical Assistance Grant, and Administration of Grant to Nauru for the Electricity Supply Security and Sustainability Project*. Manila.

² The project is included in ADB. 2015. *Country Operations Business Plan: Nauru, 2016–2018*. Manila.

³ Exchange rate for the euro is as of 13 September 2014 per footnote 1.

II. ADDITIONAL FINANCING

A. Rationale

6. The aim of the government's energy road map is to ensure constant electricity supply from the grid with minimal interruptions.⁴ The existing high-speed diesel generators are not ideally suited to supply baseload power, since they consume more diesel per kWh generated and require more maintenance per hour run than medium-speed engines. NUC expects to retire these old, high-speed generators with new medium-speed, fuel-efficient generators. The new medium-speed generator to be installed under the current project will reduce power outages by 50% and allow NUC to retire existing five high-speed generators. Installing a second new medium-speed, 2.6 MW–3.0 MW diesel generator will ensure uninterrupted electricity supply from the generating system overall. This will allow NUC to resume electricity supply to residential, commercial, and industrial customers who are currently connected to the grid but not served due to NUC's unreliable and limited generation capacity. NUC's power system transmits supply around the island at 11 kilovolts (kV). The existing 11 kV switchgear is in very poor condition, which is a significant safety issue for NUC. It requires immediate replacement.

7. At the request of the government, the Government of Australia has agreed to provide additional grant cofinancing of A\$6.4 million (\$4.74 million equivalent at the exchange rate as of 17 August 2015) for the supply and installation of the second medium-speed 2.6–3.0 MW diesel generator and 11 kV switchgear. The government will provide additional counterpart contributions of \$0.36 million in tax and duty exemptions. The additional cofinancing will increase the project investment by 92% from the originally approved \$5.54 million to \$10.64 million. The additional cofinancing grant from the Government of Australia materialized only after ADB's approval of the current project and will be used to expand the scale of the project.

8. The additional cofinancing is consistent with the project's development objectives, the government's priorities under the energy sector road map (footnote 4), and ADB's country operation business plan for Nauru for 2016–2018 (footnote 2).

B. Impacts, Outcome, and Outputs

9. The overall impact and outcome of the project will be enhanced by the additional cofinancing. As a result, unplanned power blackouts are expected to be shorter than anticipated under the original project design, and uninterrupted 24-hour electricity supply is targeted. In addition, NUC will be able to resume electricity supply to currently unserved commercial and industrial customers, and the peak load is expected to increase by 20% from the current 3.75 MW–4.5 MW by 2018 with the installation of the second new generator. The revised outputs under the additional financing include the supply, installation, and commissioning of the second new medium-speed 2.6 MW–3.0 MW diesel generator and an 11 kV switchgear. The revised design and monitoring framework is in the Appendix.

C. Revised Investment and Financing Plans

10. The additional cofinancing grant from the Government of Australia will be denominated in US dollars, pursuant to ADB's standard accounting practices. It will be fully administered by ADB. The disbursement of additional cofinancing will be on a cost-sharing basis. The project

⁴ NUC. 2014. *Nauru Energy Road Map 2014–2020 Implementation Plan for Energy Sector Development*. Nauru.

administration manual has been updated to reflect changes to the financing arrangement of the current project. The revised investment and financing plans are in Tables 1 and 2.

Table 1: Revised Investment Plan (\$ million)

Item	Current Amount ^a	Additional Financing ^b	Total
A. Base Cost^c			
1. Generator contract	3.80 ^d	3.23	7.03 ^d
2. 11 kilovolt switchboard contract	0.00	1.55	1.55
3. Roof replacement contract	0.79	0.00	0.79
4. Design and supervision consultants	0.41	0.09	0.50
Subtotal (A)	5.00	4.87	9.87
B. Contingencies^e	0.54	0.23	0.77
Total (A+B+C)	5.54	5.10	10.64

^a Refers to the original amount, comprising grants from the Asian Development Bank and the European Union and the government contribution. Includes taxes and duties of \$0.27 million to be financed from government resources in the form of tax and duty exemptions.

^b Refers to the additional financing amount, comprising an additional cofinancing grant from the Government of Australia of \$4.74 million and a government contribution of \$0.36 million in the form of tax and duty exemptions.

^c In 2015 prices.

^d Includes government in-kind contribution of \$0.57 million for administrative costs, logistics, and site works.

^e Physical contingencies computed at 10%. Price contingencies computed at 2.5% on foreign exchange costs and 5% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

Source: Asian Development Bank estimates.

Table 2: Revised Financing Plan

Source	Current ^a		Additional Financing		Total	
	Amount (\$ million)	Share of Total (%)	Amount (\$ million)	Share of Total (%)	Amount (\$ million)	Share of Total (%)
Asian Development Bank	2.00	36.1	0.00	0.0	2.00	18.80
European Union	2.70	48.7	0.00	0.0	2.70	25.39
Government of Australia ^b	0.00	0.0	4.74	92.9	4.74	44.53
Government of Nauru	0.84 ^c	15.2	0.36	7.1	1.20 ^d	11.28
Total	5.54	100.0	5.10	100.0	10.64	100.00

^a Refers to the original amount.

^b Administered by ADB. The amount includes ADB's administration fee, audit cost, bank charges, and provision for foreign exchange fluctuations (if any), to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant contribution by the Government of Australia. The additional cofinancing will cover project-related insurance and local transport costs.

^c Includes taxes and duties of \$0.27 million in the form of tax and duty exemptions.

^d Includes taxes and duties of \$0.63 million in the form of tax and duty exemptions.

Source: Asian Development Bank estimates.

D. Due Diligence

11. Due diligence for the project completed under the project preparatory technical assistance (TA) in October 2014 was reviewed for the scope under the additional cofinancing.⁵

12. **Technical.** The proposed expanded project scope is technically viable and appropriate to NUC's needs and consistent with the country's energy sector road map (footnote 4).

13. **Safeguards. Environment** (category C). The proposed additional generator and switchgear will be installed within the construction footprint already covered by the approved

⁵ NUC. 2014. *Electricity Supply Security and Sustainability Project TA 8524-NAU Project Preparatory Technical Assistance—Final Report by PPA Energy*. Nauru.

initial environmental examination (IEE) for the current project. Any environmental impacts beyond those already identified in the IEE will be minimal.⁶ The environmental implications of the expanded scope have been reviewed and covered through the updating of the environmental monitoring plan from the approved IEE. Based on the preliminary climate risk screening, the project is considered at low risk for climate change impacts. **Involuntary resettlement** (category C). The expanded scope is not expected to involve any physical displacement or relocation of people. All activities will be undertaken at the existing site of NUC's powerhouse and will not require additional land acquisition. No resettlement plan is required by ADB's Safeguard Policy Statement (2009). **Indigenous peoples** (category C). The majority of the people living in the project area are not considered to be distinct from mainstream society. The expanded scope is not expected to affect any distinct and vulnerable group of indigenous peoples, as they are defined by ADB's Safeguard Policy Statement. It does not require an indigenous peoples' plan. The expanded project outputs will be delivered in a culturally appropriate manner.

14. **Financial.** The revised financial management assessment concluded that the overall financial management risk is high. The mitigation measures that are under way or proposed include (i) ADB TA that is being provided for the institutional strengthening of NUC, including the development and implementation of an asset management and maintenance plan and support to improve NUC's accounting systems;⁷ (ii) TA being provided by ADB for tariff and subsidy reform;⁸ and (iii) the inclusion in the DSC team of a financial management specialist to provide project accounting and financial reporting support. Appreciation of the US dollar against the euro and the Australian dollar is considered to be another financial risk. The government confirmed that it will bridge any gap between the project costs and the available financing. Any such gap will be determined after contract awards in December 2015.

15. **Economic.** The economic internal rate of return under the additional cofinancing for the second generator and 11 kV switchboard has been estimated at 13.9%—i.e., above the 12% threshold. It was calculated using a discount rate of 12% over a 25-year project life cycle. The economic benefits will accrue from a reduction in fuel consumption and increased revenue from the incremental electricity consumption by existing consumers and consumers who will revert to NUC due to the increased generation capacity and the more reliable power supply.

E. Implementation Arrangements

16. The implementation arrangements of the expanded scope remain unchanged except that the project implementation period will be extended to 31 December 2016. The Ministry of Finance will be the executing agency and NUC the implementing agency. A project steering committee will oversee project administration and implementation. The NUC will be responsible for implementing the project through a PMU supported by the DSC firm.

III. THE PRESIDENT'S RECOMMENDATION

17. The President recommends that the Board approve ADB administering a grant not exceeding A\$6,400,000 to Nauru for the additional financing of the Electricity Supply Security and Sustainability Project, to be provided by the Government of Australia.

⁶ NUC. 2014. *Initial Environmental Examination Nauru Electricity Supply Security and Stability Project*. Nauru.

⁷ ADB. 2014. *Technical Assistance to Nauru for Institutional Strengthening of the Nauru Utilities Corporation*. Manila.

⁸ ADB. 2014. *Technical Assistance to Nauru for the Electricity Supply Security and Sustainability Project - Tariff and Subsidy Policy Reform*. Manila (TA 8754-NAU). As covenanted in the grant agreement of the original project.

REVISED DESIGN AND MONITORING FRAMEWORK

Impact the Project is Aligned with			
Current project Increased economic activity			
Overall project Unchanged			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Outcome Current project Increased reliability, lower cost, and greater sustainability of power generation in Nauru Overall project Unchanged	Current project a. Frequency and duration of unplanned generation outages reduced by 50% ^a (January–September 2015 baseline) b. Fuel efficiency of NUC's generators increased to 4.1 kWh/liter of diesel consumed (2013 baseline: 3.4 kWh/liter of diesel consumed) c. Tariffs cover 50% of operational costs (2012 baseline: tariffs cover 20% of operational costs) Overall project a. Frequency and duration of unplanned generation outages reduced by more than 50% (January–September 2015 baseline) b. - c. Unchanged d. Peak load is increased by 20% in 2018 and resume electricity supply to currently unserved commercial and industrial customers. (2014 baseline: 3.75 MW)	a. NUC service logs b. NUC service logs c. NUC annual audited financial statements a.- c. Unchanged d. NUC service logs and audited financial statements for increase in revenue	Cessation of delivery of government-subsidized fuel to NUC while NUC unable to generate revenue to purchase fuel on commercial basis
Outputs Output 1 Current project New diesel-fired generation put into service Overall project	Current project 1a. By December 2016: 2.6 MW–3.0 MW of new diesel-fired generation commissioned (2014 baseline: not installed) Overall project	1a. Progress and/or completion reports of DSC; acceptance report of NUC	Site preparation delayed because of unforeseen complications. Institutional and legislative reforms could be delayed.

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Unchanged	1a. By December 2016: Two new each 2.6 MW–3.0 MW diesel-fired generators and 11 kV switchboard commissioned (2014 baseline: not installed)	1a. Unchanged	
Output 2 Current project Repair and/or replacement of existing roof and structural reinforcements of NUC's powerhouse Overall project Unchanged	Current project 2a. By December 2016: Roof will be repaired. (2014 baseline: roof is in poor condition and leaks during rain) Overall project 2a. Unchanged	2a. Progress and completion reports of DSC; acceptance report of NUC 2a. Unchanged	More extensive repair requirements discovered; hazardous material problems exceed expectations.
Output 3 Current project Efficient project implementation Overall project Unchanged	Current project 3a. PMU meets target contract awards and disbursements. Works are completed on schedule. Overall project 3a. Unchanged	3a. Progress and completion reports of DSC; acceptance report of NUC 3a. Unchanged	
Key Activities and Milestones			
<ol style="list-style-type: none"> 1. New generation units and 11 kV switchboard <ol style="list-style-type: none"> 1.1 Establish specifications by August 2015 1.2 Tender and award contract by February 2016 1.3 Deliver to Nauru by October 2016 1.4 Install and commission by December 2016 2. Powerhouse roof and structure repairs <ol style="list-style-type: none"> 2.1 Inspect powerhouse and confirm repair scope and contract specifications by August 2015 2.2 Tender and award contract by February 2016 2.3 Complete repair work by August 2016 3. Project management services <ol style="list-style-type: none"> 3.1 Establish PMU within NUC by September 2014 3.2 Short-list DSCs by November 2014 3.3 Award DSC contract by April 2015 3.4 Field DSCs by June 2015 			
Inputs			
	ADB	European Union	Government of Australia
	\$2,000,000 (current)	\$2,700,000 (current)	\$840,000 (current)
			\$4,736,000 (additional)
	\$2,000,000 (overall)	\$2,700,000 (overall)	\$4,736,000 (overall)
			\$1,200,000 (overall)
Assumptions for Partner Financing			
Current project Not applicable			
Overall project Not applicable			

ADB = Asian Development Bank, DSC = design and supervision consultant; kWh = kilowatt-hour, kV = kilovolt, MW = megawatt, NUC = Nauru Utilities Corporation, PMU = project management unit.

^a System average interruption duration index and system average interruption frequency index will be used to indicate performance.

Source: Asian Development Bank.