

# Environmental Monitoring Report

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July 2016

## Nauru: Electricity Supply and Sustainability Project

Prepared by Jacobs Group (Australia) Pty Ltd for the Asian Development Bank.

**CURRENCY EQUIVALENTS**

(as of 26 July 2016)

Currency unit	–	Australian dollar (A\$)
A\$1.00	=	\$0.7470
\$1.00	=	A\$1.3387

**ABBREVIATIONS**

ADB	–	Asian Development Bank
ADF	–	Asian Development Fund
DSC	–	design and supervision consultant
EU	–	European Union
kWh	–	kilowatt-hour
MW	–	megawatt
NUC	–	Nauru Utilities Corporation
PPTA	–	Project Preparatory Technical Assistance
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.

In this report, “\$” refers to US dollars, unless otherwise stated

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# **Nauru Utilities Corporation Electricity Supply Security and Sustainability Project**

ADB Grant No.: 0414-NAU

EU Grant No: 0424 NAU

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## **Semi Annual Safeguards and Environmental Monitoring Report**

**Jan 2016 to Jun 2016**

21 July 2016

Rev 1



## Design and Supervision Consultant

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### Document history and status

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## **1. Introduction**

### **1.1 Introduction**

This document reports on the safeguards and environmental monitoring undertaken for the Nauru Utilities Corporation - Electricity Supply Security and Sustainability Project. This report covers the period from January 2016 to June 2016.

### **1.2 Project Purpose and Scope**

The aim of the project is improve the reliability and sustainability of the electricity supply in Nauru. In order to achieve the scope of this project includes:

- Install two new medium speed diesel generators in the existing power station with a nominal capacity of 3 MW each;
- Upgrade and repair required balance of plant systems;
- Installation of new 11kV switchboard;
- Replace the existing Asbestos Containing Material roof structure;
- Structural repairs.

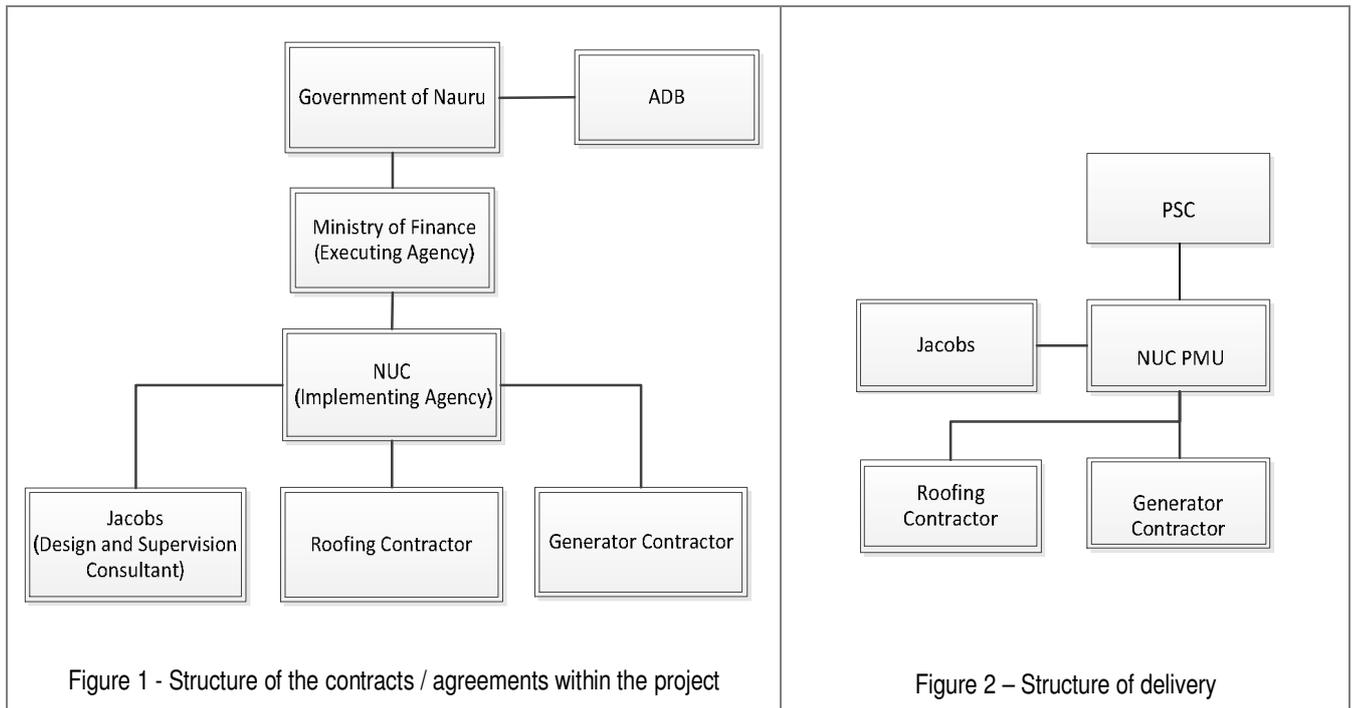
### **1.3 Implementation Plan**

The Project will be implemented through two contracts:

- Package 1 for the Diesel Generator and Ancillary Equipment consisting two generators for and 11kV switchgear.
- Package 2 for Roof replacement of the powerhouse including Asbestos removal.

### **1.4 Organisation and Responsibilities**

Figure 1 shows the structure of the organisations involved with the delivery of the Project. The lines between each organisation represent a contract or agreement that is in place between the associated organisations. Figure 2 shows the reporting and delivery structure associated with the monitoring and performance of the project.



NUC are responsible for all project management activities. Jacobs is the DSC and will assist NUC with project management.

#### 1.4.1 Employer

The Employer (NUC) is responsible for the total (contract) administration of the project and provides, through its representative (CEO of the NUC), overall management direction to the Project Manager on a day-to-day basis.

#### 1.4.2 Project Manager

The Project Manager appointed by the NUC, is responsible for the day-to-day operational management of the project.

The Project Manager is responsible for the full and timely execution of the project. This includes setting procedures between the Contractor and NUC staff for the conduct of the work and ensuring that the requirements of the Contract are followed.

The DSC will carry out reviews of schedule and payment status and will be informed through the Project Manager on any issues in performance and work schedules.

On behalf of NUC the Project Manager will also:

- arrange an initial coordination meeting with the Contractor, under the chairmanship of the Project Manager, to review the scope of work and conditions and terms of the Contract;
- verify that all submissions required by the Contract (insurances, securities, program, etc.) are received within the required time;

- attend periodic meetings with the Contractor and other participants on costs, scheduled progress and contractual and technical problems that may affect the Contractor's performance or ability to meet the Contract objectives;
- verify that the Contractor performs the work in accordance with the requirements of the contract;
- verify that all (NUC) staff assigned to the project carry out their responsibilities and duties;
- have the NUC's CEO or his replacement sign-off on any agreed variations by the contractor; and
- consult the DSC whenever any variations to the project will impact the technical implementation and/or budget.

#### **1.4.3 Design and Supervision Consultant**

The Design and Supervision Consultant is responsible for the following tasks:

- attend site at the start of works and/or installation by the contractor to support the NUC and its appointed Project Manager
- review the Contractor's initial and updated construction, procedure and installation designs, drawings and other relevant documents for compliance with Contract and technical specifications;
- review the Contractor's initial and updated construction programs for compliance with Contract completion dates and ensure that the updated program properly reflects actual delays and awarded extensions of time;
- The DSC will issue quarterly reports to advise on the roof and generators/switchgear projects;
- review and sign interim Payment Certificates and supporting documents;
- sign-off on any agreed variations with the Contractor;
- coordinate final inspection and acceptance of the work; and
- prepare and submit reporting documents in accordance with the agreement between Jacobs and NUC.

#### **1.5 Environmental Management Plan**

An Environmental Management Plan has been prepared for the Project. The latest update of the EMP is included in Appendix A.

The EMP includes a number of mitigation measures which are to be implemented during the project. A checklist has been developed to track how these actions are being implemented in Appendix B.

## **2. Land Acquisition/Resettlement**

The project involves the upgrade of the existing power station only. No additional land is being acquired and no resettlement is being undertaken as part of this project.

No safeguards or monitoring are necessary in respect of Land Acquisition/Resettlement.

### **3. Environmental Monitoring**

#### **3.1 Monitoring Activities**

The Environmental monitoring undertaken to date for the project is limited to the baseline environmental monitoring. This monitoring was undertaken by Jacobs during the project inception visit in June 2015. The scope of the environmental monitoring included:

- Ambient Air Quality
- Noise

The results of this baseline monitoring are described in the following reports:

- RO017100-COM-ENV-RP-JGA-0001 - Nauru Power Station Upgrade Project - Preliminary Noise and Vibration Management Plan (See Appendix D)
- RO017100-COM-ENV-RP-JGA-0002 - Nauru Power Station Upgrade Project - Preliminary Air Quality Assessment (See Appendix E)

As site works have yet to commence, monitoring during construction has not yet commenced.

#### **3.2 Works in Progress**

The first shipment of materials and equipment for the roof replacement works has arrived in Nauru. No works have yet commenced on site.

The roof contractor is required to submit a Construction Environmental Management Plan (CEMP) prior to commencing works to describe how they will comply with the overall EMP which is included in the contract. This has yet to be received. Barclays have been requested to progress and provide for approval prior to works commencing.

#### **3.3 Monitoring Results and Actions**

No results and actions yet, Barclays to provide CEMP.

#### **3.4 Summary and Conclusions**

As construction works have yet to commence there has been no further monitoring to the initial baseline monitoring.

Barclays are required to prepare and submit a CEMP for approval prior to commencing construction works. This will be reviewed for adequacy once received.

## Appendix A. Environmental Management Plan

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## Appendix B. Environmental Management Checklist

### Construction Phase

Mitigation Item (from EMP)	Comments	Compliance
ADB-approved IEE and other project documents to be disclosed in accordance with ADB Communications Policy 2011.	Complete	Yes
EMP included in tender documents to ensure that mitigation measures are included in contract budgets and that contractors fully anticipate environmental responsibilities including special requirements for asbestos management during roof replacement	EMP included in Tender Docs and contract with responsible on the Contractors to comply and implement	Yes
Construction is limited to inside-the-fence activities on NUC existing site, with import of a small number of standard shipping containers coming directly to the port adjacent to project site. The containers and any other imported equipment can be moved directly to the site without disturbing adjacent properties, the main road, or nearby residential areas.	Project remains in the boundary of the power plant and deliveries are not expected to impact the main road, or nearby residential areas.	Yes
<ol style="list-style-type: none"> <li>Off-site recycling and disposal of solid wastes. Non-hazardous construction debris can be disposed off-site at landfill.</li> <li>Decommissioned generation units can be stored on-site indefinitely, recycled off-site, or possibly disposed at existing landfill.</li> <li>Contain asbestos waste, and dispose off-site at landfill,).</li> </ol>	Site activities yet to commence.	Yes
<ol style="list-style-type: none"> <li>Install run-on / run-off control including rainwater harvesting, retention basin, and new oil water separator. Waste oil to be used as supplemental fuel at phosphorous mill furnace.</li> <li>Water quality monitoring prior to construction to establish baseline; quarterly monitoring during construction (see Table 8)</li> <li>Deploy spill control booms and dispersant at marine discharge point to control oily wastewater discharge.</li> </ol>	<p>Rain water tanks included in scope of works.</p> <p>Existing upgraded oil water separator will be used.</p> <p>No water is proposed to be discharge to marine water as outlet has been sealed.</p>	Yes

<p>1. Contractor's equipment to meet ADB/World Bank emissions standards for thermal power plants</p> <p>2. Air quality and noise monitoring prior to construction to establish baseline; quarterly monitoring during construction (see Table 8)</p> <p>3. Dust control with water sprays as necessary.</p>	<p>World bank emissions limits are guaranteed by contractor.</p> <p>Baseline monitoring undertaken by Jacobs.</p> <p>Dust control is not likely to be required as no major civil works are proposed.</p>	<p>Yes</p>
<p>1. NUC to implement corporate EHS program including emergency response plan.</p> <p>2. Contractors to implement EHS plan in accordance with good practice, including personal protective equipment for workers.</p> <p>3. Roof replacement contractor to implement mitigation and monitoring in accordance with international best practices</p>	<p>Roof contractor has provided a corporate EHS policy and will develop safe work method statements in accordance with Australian requirements.</p> <p>Roof contractor has submitted an Asbestos Removal Control Plan. This is not yet in accordance with best practice and comments have been submitted to Contractor for action.</p>	<p>Yes</p>

### **Operational Phase**

<b>Mitigation Item (from EMP)</b>	<b>Comments</b>	<b>Compliance</b>
<p>Generation units will be operated within existing NUC site: no direct impact on surrounding physical resources and no imminent health and safety risks due to the project.</p> <p>Benefits include improved power supply quality and reliability for all consumers.</p>	<p>No change.</p>	
<p>Temporary on-site storage or off-site disposal at landfill.</p> <p>Used equipment may be refurbished and reused at other sites if possible. Scrap metal may be sold into recycling markets.</p>	<p>NUC to comply.</p>	
<p>Operation and maintenance of storm water runoff control and oil-water separator system:</p> <p>(i) Recovered waste oil to be used as supplemental fuel at phosphorous mill furnace;</p> <p>(ii) Recovered storm water used for dust control on site and/or disposed through marine outlet.</p> <p>Quarterly monitoring during first 3 years of operations (see Table 8); frequency may be reduced after year 1 if results are satisfactory.</p>	<p>Existing NUC oil water separator system will be utilised.</p> <p>NUC to comply with monitoring.</p>	
<p>Generation units to meet established emissions guidelines for small thermal power generation (3 MW – World Bank guidance). Overall generation efficiency will be improved, reducing emissions intensity.</p>	<p>NUC to monitor noise and air emissions.</p>	

<p>Noise limit of 60 dB(A) at nearest off-site residential receptor.</p> <p>Quarterly air quality and noise monitoring during first 3 years of operations (see Table 8); frequency may be reduced after year 1 if results are satisfactory.</p>		
<p>NUC to implement corporate EHS program in accordance with best practices.</p>	<p>NUC to implement.</p>	

## Appendix C. Environmental Monitoring Checklist

Parameter and Standard <sup>a</sup>	Location	Method <sup>b</sup>	Timing and Frequency	Responsibility <sup>c</sup>	Complete
<b>Asbestos</b>	NUC powerhouse	Visual	Daily during removal	NUC, roof replacement contractors including asbestos management specialist(s)	Roof Contractor to implement.
<b>Noise</b>	NUC site boundary and nearest receptor	Portable noise meter	At least 1 event prior to construction to establish baseline	NUC with support from project implementation consultants (and/or CIE)	Baseline has been undertaken.  NUC to undertake monitoring after commissioning.
<b>Ambient Air Quality:</b>  PM <sub>10</sub>	Down-wind station at site boundary –	Portable air monitoring device  Sulfur content in fuel from NUC's suppliers	At least 1 event prior to construction to establish baseline  Daily during construction	NUC with support from project implementation consultants  Responsibility should transfer to CIE or 3 <sup>rd</sup> party with sufficient monitoring capacity and expertise at end of project.	Baseline has been undertaken.  Contractor to implement during construction.
<b>Storm water quality:</b> <sup>d</sup>  pH BOD COD Oil & grease TSS	Storm water retention basin and marine discharge outlet	Field monitoring kits	At least 1 event prior to construction to establish baseline  Weekly while discharge is operational  Semi-annually during first 3 years of operations (frequency may be reduced if results are satisfactory)	NUC with support from project implementation consultants  Responsibility should transfer to CIE or 3 <sup>rd</sup> party with sufficient monitoring capacity and expertise by end of year 1 of operational period	Discharge is not operational.
<b>Solid waste</b>	NUC powerhouse and surrounding premises	Visual	Daily / weekly during construction and routine operations	NUC	NUC to undertake visual inspection during construction and operation.

## **Appendix D. Preliminary Noise and Vibration Management Plan**

## **Appendix E. Preliminary Air Quality Assessment**