



**Rovuma**  
**LNG**

**ENVIRONMENTAL AND SOCIAL  
REQUIREMENTS FOR CONTRACTORS:  
ANNEX 11 – LIGHTING AND VISUAL IMPACT**

**ROVUMA LNG PROJECT**


**MZLN-EL-RBENV-00-0001**

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## 1. PURPOSE AND SCOPE

This document is one of a series of topic-specific supporting annexes contained in the overarching document: Environmental and Social Requirements for Contractors: Environmental and Social Management System (ESMS).

These annexes define the processes that need to be followed and the control measures that must be applied to ensure the delivery and approval of a topic-specific Contractor Implementation Plan (CIP) and other implementation deliverables ahead of commencing activity.

Where the final design basis or execution strategy has not been determined and alternatives exist, an analysis of alternatives (taking environmental and social (E&S) factors into account) shall be undertaken. This analysis shall be based on an accurate characterisation of the local setting using up-to-date baseline data and an assessment of the risks and impacts related to each alternative.

Where the project base case has already been determined, additional baseline information may be required to inform an up-to-date / site-specific E&S risks and impacts evaluation. This evaluation may result in a refinement of control measures relative to the local conditions and licensing requirements.

### 1.1. Objectives

The overall objective of this document is to set out all the E&S requirements that need to be fulfilled in order to prevent and manage potential E&S risks and impacts associated with Lighting and Visual Impacts.

### 1.2. Scope

For the purposes of this document Lighting and Visual Impacts includes execution measures to limit the light pollution and reduce the visual impact of the project on environmental and socio-economic receptors. The document only considers onshore and nearshore lighting and visual impacts.

This document follows the overall Scope definition outlined in the E&S Management System Requirements for Contractors described in Section 2.2 of that document.

### 1.3. Linkage to Other Contractor Requirements

This document is an overarching document which is supported by a number of topic-specific annexes. It also needs to be read in conjunction with Section D (Scope of Work) and Section F (Coordination Procedure) to provide a holistic view of E&S requirements.

This document should be read specifically in conjunction with Site Development, Construction and Reinstatement Annex.

### 1.4. Background Context

As stated in the Anadarko / Eni EIA (2014), the project is likely to cause several significant impacts on the surrounding landscape, both during construction and operational phases. Vulnerable stakeholders may include local communities, the tourism industry, and workers housed on the project site.


In line with this, this document provides the Contractor with requirements and control measures to manage the lighting and visual impacts to the project site.

### 1.5. E&S Risks and Potential Impacts

Table 1-1 outlines the E&S risks and potential impacts identified to date associated with Lighting and Visual Impact. This table is meant to provide insight to the risks and potential impacts which are possible and a guide for additional assessment activities required by Section 2.1 of this document. It also provides a reference to the control measures tables (Table 2-1).

**Table 1-1: A Guide to Activities, Consequences, Risks and Potential Impacts**

ACTIVITY	POTENTIAL CONSEQUENCE	RISKS AND POTENTIAL IMPACTS
Presence of project infrastructure	Avoidance of lighting and visual disturbance	Community disturbance / nuisance (C1)
		Visual Impact (P11)
		Disturbance of important environmentally sensitive receptors (NR7)

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## 2. REQUIREMENTS

### 2.1. E&S Assessment and Evaluation and CIP Development

As discussed in the overarching Environmental and Social Requirements for Contractors: Environmental and Social Management System (Section 2), due to the further refinement of the design since the EIA was prepared, and due to the Project seeking finance (which requires compliance with the International Finance Corporation (IFC) E&S requirements), it is anticipated that additional E&S assessment will be required for some topics which may result in the addition or refinement of E&S controls specified to date. This assessment, as outlined in the overarching ESMS document, includes three stages:

- Stage 1: Analysis of Alternatives
- Stage 2: E&S risk and impact evaluation of the project base case and refinement of control measures
- Stage 3: CIP development (based on the refined control measures).

For the Lighting and Visual Impacts, only stage 3 is required.

#### 2.1.1. Stage 3 – Contractor Implementation Plan

The Contractor shall develop a CIP which outlines how they propose to implement the control measures in Table 2-1 (including any proposed additions or refinements as applicable to the update and finalisation of the design and execution strategy), and how they propose to implement the management system requirements (as outlined in the E&S Management System Requirements for Contractors) which relate specifically to the topic of this document, in a way that conforms to E&S requirements.

### 2.2. E&S Control Measures

The control measures in Table 2-1 have been defined ahead of the site-specific risk / impact evaluations defined in Section 2.1. The Contractor shall apply these or seek agreement to apply a refined list, with justification for all changes based on the outcomes of assessments described in Section 2.1.

Where these requirements originate from the Anadarko / Eni EIA (2014), henceforth called the EIA, the EIA section reference is included. Similarly, the Government-approved Environmental Management Plans (EMPs) references are included for those relevant controls. As noted in the overarching ESMS requirements document, a number of additional controls have been identified as being required to meet lender expectations. As such, the EIA / EMP controls have been supplemented by good practice design and control requirements where practicable and appropriate, however, where any overlap is present, the EMP (and EIA) commitments should be considered paramount over good practice guidance in the hierarchy of adoption of such controls.

**Table 2-1: E&S Control Measures**

ACTIVITY / SOURCE OF POTENTIAL IMPACT	CONTROL MEASURE	IMPACT / RISK BEING ADDRESSED	SOURCE			Notes
			EIA	EMP	Other	
<b>Design Requirements</b>						
Lighting	Directional lighting will be used to limit light spill (ie spread of light outwards from where it is needed into adjacent areas).	C1, P11, NR7	12.5.3	Area 4 VI 4 Shared VI 4 LNGMT VI 4 MOF VI 4		
	Reduce exterior lighting to that necessary for safe operation, and implement operational strategies to reduce spill light.	C1, P11, NR7	12.11.3 12.12.3	Area 4 HE 16 Shared HE 15		
	Use non-ultraviolet (UV) lights, where possible.	C1, P11, NR7	12.11.3	Area 4 HE 17 Shared HE 16 LNGMT HE 2 MOF HE 2		
	Design lighting strategies that address or minimise items such as degree of spill light, use of "up lights" and use of lights with red wavelengths. Down lighting is preferred as is lights with blue or green wavelengths.	C1, P11, NR7	12.12.3	Area 4 AV 9 Shared AV 9 LNGMT AV 9 MOF AV 9		



ACTIVITY / SOURCE OF POTENTIAL IMPACT	CONTROL MEASURE	IMPACT / RISK BEING ADDRESSED	SOURCE			Notes
			EIA	EMP	Other	
	Where possible, the Project will design its facilities such that there is less visual intrusion on the tourism receptors.	C1, P11, NR7	13.3.1	Area 4 SE 2 Shared SE 1 LNGMT SE 1 MOF SE 1		
	Minimise lighting impacts of all temporary and permanent light installations to the extent reasonably practicable by:				A	
	<ul style="list-style-type: none"> <li>Using down lighting or directional lighting rather than up lighting</li> </ul>				A	
	<ul style="list-style-type: none"> <li>Using lights with blue or green wavelengths rather than red</li> </ul>				A	
	<ul style="list-style-type: none"> <li>Using non-UV lights</li> </ul>				A	
	Avoid or reduce lighting on beaches where reasonably practicable, subject to safety and security constraints and requirements.	C1, P11, NR7			A	
	Avoiding or reducing lighting which is visible to tourism sites where reasonably practicable.	C1, P11, NR7			A	
Visual Impact	Paint structures and buildings with colours that blend in with surrounding environment as far as practical to minimize visual impact to adjacent areas.	C1, P11, NR7	EIA 12.5.3	Area 4 VI 8 Shared VI 9 LNGMT VI 9 MOF VI 9		
	Use non-reflective surface treatments to the extent reasonably practicable.	C1, P11, NR7			A	



ACTIVITY / SOURCE OF POTENTIAL IMPACT	CONTROL MEASURE	IMPACT / RISK BEING ADDRESSED	SOURCE			Notes
			EIA	EMP	Other	
	Develop and implement a landscaping plan that allows for visual screening by indigenous vegetation, and give consideration to the natural contours of the land, subject to security constraints and requirements.	C1, P11, NR7	EIA 12.5.3	Area 4 VI 6 Shared VI 6 LNGMT VI 6 MOF VI 6		
	Design fencing to follow the contour of natural and planned vegetation to maximum visual screening to the extent practicable, subject to security constraints and requirements.			Shared VI 8		
<b>Execution Requirements</b>						
Lighting	Restrict lighting outside normal working hours to the minimum required for safety and security.	C1, P11, NR7	12.5.3	Area 4 VI 2 Shared VI 2 LNGMT VI 2, HE 1 MOF VI 2, HE 1		
	Directional lighting will be used to limit light spill (ie spread of light outwards from where it is needed into adjacent areas).	C1, P11, NR7	12.5.3	Area 4 VI 4 Shared VI 4 LNGMT VI 4 MOF VI 4		
	Reduce exterior lighting and implement operational strategies to reduce spill light.	C1, P11, NR7	12.11.3 12.12.3	Area 4 AV 8 Shared AV 8 LNGMT AV 8 MOF AV 8		





ACTIVITY / SOURCE OF POTENTIAL IMPACT	CONTROL MEASURE	IMPACT / RISK BEING ADDRESSED	SOURCE			Notes
			EIA	EMP	Other	
	Use non-ultraviolet (UV) lights, where possible.	C1, P11, NR7	12.11.3	Area 4 HE 17 Shared HE 16 LNGMT HE 2 MOF HE 2		
	Design lighting strategies that address or minimise items such as degree of spill light, use of "up lights" and use of lights with red wavelengths. Down lighting is preferred as is lights with blue or green wavelengths.	C1, P11, NR7	12.12.3	Area 4 AV 9 Shared AV 9 LNGMT AV 9 MOF AV 9		
	Minimise non-essential lighting on vessels, and shield and/or reduce the number of lights shining directly onto the water as far as possible.	C1, P11, NR7	11.7.2	Area 4 ME 16 LNGMT ME 6 MOF ME 6		

### 3. DELIVERABLES

The following deliverables are associated with Lighting and Visual Impacts. Contractor deliverables shall be submitted to the Company for Company approval.

**Table 3-1: Summary of Deliverables**

SECTION REFERENCE	DELIVERABLE	RESPONSIBILITY	DELIVERABLE DATE
<b>STAGE 3</b>			
Section 2.1.1	Topic-Specific CIP, which as a minimum includes: <ol style="list-style-type: none"> <li>1) Approved list of E&amp;S control measures</li> <li>2) Details of how the approved control measures will be implemented (including linkage to other Project plans and procedures, where necessary, to demonstrate the implementation of the E&amp;S controls committed to)</li> <li>3) Details of the monitoring, reporting and assessment.</li> </ol>	Contractor	To be agreed on contract award