NON-TECHNICAL SUMMARY OF THE CLIMATE CHANGE RISK ASSESSMENT: PHYSICAL RISKS AND OPPORTUNITY SCREENING OF MARSA LIQUEFIED NATURAL GAS PROJECT IN SOHAR, SULTANATE OF OMAN.

1. CONTEXT OF PUBLIC DISCLOSURE

This Non-Technical Summary is prepared to fully comply with Equator Principles (2020) Principle 10: Reporting and Transparency in which it requires companies to publicly disclose summaries of the ESIA and made it accessible and available online, including those from Climate Change Risk Assessments. This Non-Technical Summary are derived from the Climate Change Risk Assessment Report carried out by ERM (Nov 2023) and aligned with Climate Change Physical Risk – position paper LNG plant engineering design (Feb 2024), particularly on the alignment of recommended mitigation measures.

It important to note that some aspects of air emissions and mitigation measures that were identified and assessed during ESIA process were already part of the previous public disclosure process for the ESIA. This specific disclosure, however, is intended to demonstrate commitments of Marsa LNG project to transparency and open communications with stakeholders, specifically those related to climate change risks and impacts within the Project Area of Influence. Disclosure of this Non-Technical Summary of Climate Change Risk Assessment (CCRA): Physical Risks and Opportunity Screening is an integrated part of the overall ESIA's public disclosure process.

This public disclosure is facilitated through electronic access with a link [https://totalenergies.com/oman/marsa-lng-project-environmental-and-social-impact-assessment-esia], and email address [esia.grm@totalenergies.com] to communicate any feedback, comments, inputs or suggestions to Marsa LNG project. Also, calling or sending WhatsApp messages to the phone number: 00968 9200 8157 during the entire public disclosure period will be considered.

2. INTRODUCTION

Marsa Liquefied Natural Gas LLC is a single integrated company owned by TotalEnergies EP Oman Development B.V. (80% equity) and Almuzn Liquified Natural Gas LLC (OQ) (20% equity). In this project, Marsa Liquefied Natural Gas LLC is the project proponent, hereby referred as "Marsa LNG".

TotalEnergies is the fourth largest publicly traded integrated international oil and gas company in the world and employs approximately 100,000 people worldwide with operations in more than 130 countries. The company has activities in sectors of the oil and gas industry: including in the upstream (oil and gas exploration, development and production, liquefied natural gas) and downstream (refining, petrochemicals, specialty chemicals, the trading and shipping of crude oil and petroleum products, marketing). In addition, TotalEnergies invests, constructs and operates power generation and renewable energy sectors.

OQ is a global integrated energy company headquartered in Muscat, Sultanate of Oman. OQ operates assets and has investments in 17 countries covering the entire energy value chain from upstream, midstream to downstream refining, petrochemicals, marketing, and alternative energy.

The Project proponent (Marsa LNG project) is planning to develop a Liquefied Natural Gas (LNG) Bunkering facility in the Sultanate of Oman, in Sohar port area, to supply LNG as a fuel to marine vessels (hereafter referred to as the "Project"). This will be the first LNG bunkering facility in the Middle East region with a capacity of 1 million Ton Per Annum (MTPA) liquefaction plant. The LNG plant will be built on reclaimed land in the Sohar Industrial Port Company area (SIPC), located in Liwa, North Al Batinah. The gas to be delivered and processed at Marsa LNG Plant will be supplied through the OQGN network. The volume of feed gas to be liquefied in the LNG Plant corresponds to Marsa LNG LLC's gas equity produced by the upstream Block 10 which is operated by Shell Development Oman (53.4% equity) in a joint venture involving Marsa LNG LLC (33.2% equity) and OQ (13.4% equity). Gas will be treated to remove residual mercury, acid gases, heavy fraction of hydrocarbons, and water content prior

to liquefaction process, and stored in an onshore LNG tank to provide an LNG fuelling (i.e., bunkering) service to marine vessels via a dedicated LNG marine terminal. In future, the LNG plant production capacity may be expanded with a new LNG train.

As defined in the Omani regulatory frameworks, Marsa LNG Project requires an environmental permit issued by the Environmental Authority (EA) through the Sohar Industrial Port Company (SIPC) and an approved Environmental and Social Impact Assessment (ESIA) report. Marsa LNG has obtained an Environmental Permit (2023/117) from the Environmental Authority (EA) in July 2024. In addition to the Environment and Social Impact Assessment, ERM was awarded to carry out a Climate Change Risk Assessment for Marsa LNG to comply with the Equator Principles: CCRA Guideline 2023.

The Equator Principles - 4 (2020), hereafter referred as EP4, represent a financial industry benchmark for determining, assessing, and managing environmental and social (E&S) risks in project financing. Under the EP4, companies are expected to conduct an initial broad-level assessment of risks related to climate change of their projects to determine severity risk levels and identify appropriate mitigation measures. Companies are required to incorporate results of this evaluation within the Assessment Documentation, either the Environmental and Social Impact Assessment (ESIA) or other relevant assessments.

During entire construction phase, estimate amount of GHG emissions due to use of construction equipment and power generation plan is about 85.9 kt CO2 eq. During operation phase, considering the electrical power sourced from PV project, the main sources of GHG emissions are classified as Scope 1, such as use fuel gas for flare pilot, thermal regenerative oxidizer for acid gas and nitrogen removal package, and emergency flaring. This ranges from 25.3 kt CO2 eq per year (for base case) and 55.8 kt CO2 eq per year (for high case). Considering the EP Guidance Note on Climate Change Risk Assessment 2023, category of project “A”, and GHG emissions of Marsa LNG during construction and operation phase, Marsa LNG is required to carry out the following to comply with the EP Guidance Note:

- Climate Change Risk Assessment – Physical risk
- Alternative analysis via Best Available Technology Assessment.

In that regard, Marsa LNG fully comply with the EP Guideline 2023. This document represents the Non-Technical Summary of the CCRA and has been developed to support the process of public disclosing of results of the CCRA and the mitigation measures defined for the Project.

○ Background of Project Site

Marsa LNG Project’s location, which was originally planned to be in a future reclaimed land within the industrial area of Sohar, has been changed to land that has already been reclaimed by SIPC (still within the industrial area of Sohar) and it is located approximately 500 m away from the original area. The size of the reclaimed land itself is slightly smaller (44.5 ha) than the original plot which was 45.0 ha.

The slight change in siting and layout of the LNG plant (which will now occupy 44.5 ha of the reclaimed land area) should not have significant impacts on Basis of Design Criteria, hence severity of risks should remain in the same order of magnitude.

○ Project Location and Area of Influence (AoI)

Slight alignment of LNG plant’s location does not affect the overall project area of influence. Marsa LNG project site remains situated within the Sohar Port South development which lies in the Liwa, North Al Batinah. Marsa LNG project area of influence covers the site itself and the surrounding area where potential environmental impacts and risks could occur. Based on that, it has been defined in the ESIA and that includes a buffer of 2 km around the LNG plant and the jetty, as presented in **Figure 1** (dotted

green line). It encompasses the Project components, ancillary facilities, and the expected spatial extent of potential environmental direct impacts from long-term operation.

Figures 1 and **2** below depict the project location and surrounding infrastructures.

Figure 1: Project Environment and Social Area of Influence (AoI

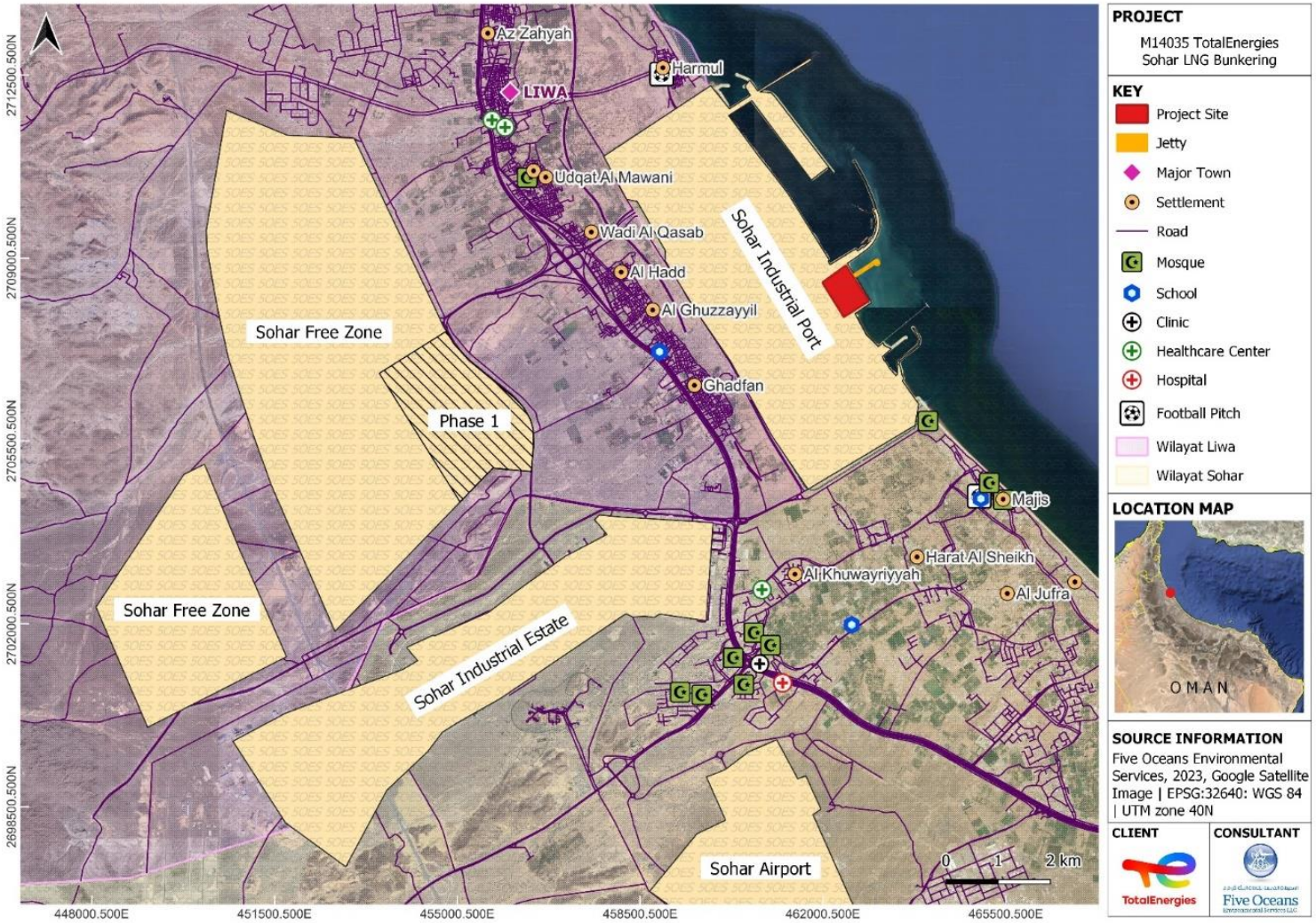

Figure 2: Project location and its surrounding infrastructure

3. REGULATORY FRAMEWORK FOR CLIMATE CHANGE

Sultanate of Oman has established regulatory frameworks to manage national greenhouse gas emissions in line with Oman Vision 2040. This includes:

- *Second National Determine Contribution 2021*. The Sultane of Oman's Carbon Control Target Plan, aligned with Oman Vision 2040 and the National Energy Strategy, aims to facilitate a gradual shift towards a low carbon economy and a significantly reduced carbon emissions energy matrix by 2030. The plan focuses on the extensive adoption of renewable energy and implementing energy efficiency measures as the core pillars to achieve carbon control goals in the country. Oman has engaged through its NDC to reduce its absolute GHG emission by 2% by the year 2030.

- *Oman National Strategy for an Orderly Transition to Net Zero (2022).* The strategy aims to achieve carbon neutrality by 2050 and reduce the overall carbon budget. The strategy involves a gradual approach, prioritizing cost-effective decarbonization measures and employing six main technologies to address around 90% of emissions reduction. The remaining gap to achieve net zero will be bridged through natural negative emissions, and behavioral changes. The Oman Sustainability Center established through RD 30/2015 will be responsible for governance, progress tracking, stakeholder engagement, and investment planning.

- MD 18/2012 - MD 20/2016: *Regulations for the Management of Climate Affairs*.

- MD 107/2013 - MD 37/2001 – MD 243/2005: *Prohibition of Ozone depleting substances (ODS*).

- MD 107/2018: *Related to Energy Labelling and Energy Performance Requirements.*

- RD 107/2004: *Ratification of Kyoto Protocol on Climate Change*.

- RD 73/1998: *Ratification of Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer.*

4. PROJECT DESCRIPTION

Marsa LNG Project consists of an onshore plant treating feed gas to produce LNG, primarily dedicated to LNG bunkering activities but also to load LNG carrier vessels calling at Sohar Port. The LNG plant will be built on reclaimed land protected by a shoreline protection and leased by SIPC.

○ Project Key Components and Associated Facilities

Marsa LNG project consists of the following key components:

- LNG Plant: consisting of a series of equipment and processes through an LNG Train and related auxiliary equipment to liquefy Natural Gas and produce LNG.

- Condensate Export Pipeline: comprising a short pipeline (< 1 km) that will supply condensate (a by-product of the LNG Plant production) to ADVARIO's tank farm (former Oil Taking Terminal - OTT) for future use by another industry within the Sohar Port (i.e., OQ Refineries and Petroleum Industries LLC - OQRPI).

- Electrical Transmission Line: comprising an approximately 3.5 km-long buried electrical cable that will connect the Marsa LNG substation with the existing substation operated by Oman Electricity Transmission Company (OETC) within the Sohar Port. The installation, termination, and connection between the two substations will be undertaken by Marsa LNG Project's EPC Contractor. Operation and maintenance of the LNG substation as well as the underground transmission line will be the responsibility of Marsa LNG Project.

- Topside of the LNG Export Jetty: the jetty subsea foundation and access road will be designed and built by SIPC. However, the jetty topsides (operational area) will be completed by Marsa LNG's EPC Contractor and falls within the Project's scope. The topside elements are required for loading include a pipe rack, process manifolds, LNG loading arms, safety measures, and a jetty control station.

In addition, the following associated facilities[1] are considered for the Project:

- An extension to the OQ Gas Networks S.A.O.C (OQGN) feed gas pipeline: the existing OQGN network will be extended by approximately 2.5 km, to feed the LNG Plant with natural gas up to a Receiver Station operated by OQGN nearby the LNG Plant. The 20" pipeline extension will be buried and will run within an existing pipeline corridor within the port. The construction, operation and maintenance of the Pipeline will be performed by OQGN and is not part of the Project's scope.
- The marine component of the Jetty: the subsea part of the Jetty (i.e., foundation and structure) will be designed and built by SIPC and is not part of the Project's scope. It is anticipated to be around 450m-500m long and equipped with a 4-m wide road. The top site of the jetty will be designed, installed, constructed, operated and maintained by Marsa LNG project and that it is part of the project's scope.
- A solar plant is planned to be constructed on a separate plot to supply power to the LNG Plant during operation. The solar plant will be connected to the grid network and from there, energy will be procured for the LNG Plant. The LNG plant will consume around 44% of the energy produced by the Solar Plant during the day through power wheeling agreements with OETC for usage of their grid network for power supply. Nighttime electricity will be procured from the OETC Grid through the same dedicated power connection. Since the Solar plant will be producing the entire energy needs of the LNG plant during the day itself, there will be an excess of around 56% during the day which will be sold on the Omani spot market. The solar plant is not part of the Project's scope, and it will be evaluated in a separate and dedicated ESIA. However, considering that it is built as an offset GHG Scope 2 emission solution for the Project, the potential cumulative impacts associated with GHG emissions have been assessed as part of the Project's impact assessment.

To minimize environmental footprint of Project, a Carbon Footprint Reduction exercise has been carried out to identify GHG reduction initiatives for the Marsa LNG project. Among the solutions that have been selected at a design stage of the Project are:

- The plant has been designed as a zero-flaring plant, where all normal flaring base line emitters (flare header purging, compressor seal gas vents) have been eliminated and replaced with nitrogen. In addition, the following design solutions have been considered:
  - ✓ to reduce the natural gas flaring and purging by using nitrogen gas. This approach has greatest benefit during the plant's initial start-up but will also be used after every major shutdown. The methodology consists of starting up the facility under nitrogen and to perform defrosting operations with it.
  - ✓ to reduce the requirement for flaring, Marsa LNG has implemented the recovery of its compressor seal gas for major compressors which use seal gas.
  - ✓ The proposed design will include the best-in-class passing valve design and will implement the latest guidance on passing valve identification/ repair. Any identified passing valves can be repaired promptly online using temporary operating procedures.

[1] Associated Facilities (AFs) to the Project are facilities (i.e. infrastructure developments) that are not funded by the Project and that would not have been constructed, installed, modified or expanded if the Project did not exist, and without which the Project would not be viable.

- A thermal oxidizer has been selected to combust traces of methane remaining in the vented nitrogen of the Nitrogen Recovery Unit. The methane will then be converted into CO_2, significantly reducing GHG emissions.
- Mixed refrigerant composition adjustment valves will not be routed to the flare but will be sent back to the process which will also prevent flaring in case the Main Cryogenic Heat Exchanger develops leaks as these will be recovered and returned into LNG production system instead of being sent to the flare.
- All compressors in the LNG plant will be driven by electric motors with the electricity being drawn from the existing OETC's substation from the solar plant through the national electrical transmission grid.
- The cooling system selected for the Project will use air instead of water due to water scarcity in the Project area.

○ Project Schedule

The Project schedule comprises of the following three phases:

- *Construction, pre-commissioning and commissioning phase* includes civil works, construction of buildings and installation of temporary site facilities, as well as mechanical and electrical works. The LNG Plant construction activities are planned to take approximately 34 months including pre-commissioning and commissioning phases. Currently it is foreseen that temporary site facilities and site preparation will start in the third quarter of 2024, followed by the main construction activities in Q2 2025 and will be concluded with the start-up of the plant in Q4-2027. The commissioning phase will last 15 months and will start by the first quarter of 2026.
- *Operations and maintenance phase:* From the LNG plant start-up, operation will commence and involve periodic maintenance activities at the Project site facilities and associated infrastructure. The design life of the LNG plant is 25 years.
- *Decommissioning phase:* At the end of the planned operational lifetime, the operation of the Project facilities and associated infrastructure will be reviewed and either extended or decommissioned. Decommissioning will involve the removal and reuse / recycling / disposal of surface structures and the reinstatement and restoration of the site.

5. OBJECTIVES

This CCRA has been prepared primarily for the regulatory permitting process to align with the Oman Regulations for the Management of Climate Affairs[2]. As outlined in the 'Guidelines for the Preparation of Climate Affairs Chapter in the Environmental Impact Assessment (EIA) Study for the projects', this assessment covers:

- Consideration of climate change risk & vulnerabilities (e.g., temperature, extreme rainfall, storms and high winds etc.).
- Assessment of historical and current climate-related trends.
- Assessment of future projected climate change impacts (using climate scenarios).
- Assessment and prioritisation of key future climate change risks.
- A high-level overview of each relevant inherent risks to the Project with associated materiality ratings.

[2] Omani Ministry of Environment and Climate Affairs (2013).

This assessment is also aimed to comply with the Equator Principles 4 (EP4) Guidance Note for CCRA's (initially EP4 published its CCRA guidance in September 2020, which has since been superseded with updated guidance being published in May 2023).

6. ASSESSMENT METHODOLOGY

Assessment methodology used in this assessment is aligned with EP4 2023 Guidance Notes for CCRA. This assessment represents the risk and opportunity screening stage of the CCRA, in which it will:

- Assess and summarise exposures and vulnerabilities of the Project to physical climate related risks.
- Collection and analysis of baseline and future projected physical climate data at the project location.
- Identification of inherent climate related risks which have the potential to be material to the project.
- Definition of high-level mitigation measures.
- Prioritization of physical risks which are material in relation to the project.

Climate data was collected, primarily using ERM's Climate Impact Platform (CIP) (and supplemented by additional freely available online sources of data), across the Project's spatial extents for a full range of climate hazards. According to best-practice guidance, including the EP4 and Task Force on Climate-Related Financial Disclosures (TCFD), forward looking CCRA's should assess the potential impact of climate change in relation to a Project under a variety of plausible futures. As a result, this assessment incorporates climate data for two potential future scenarios – termed Shared Socio-Economic Pathways (SSP):

- **SSP1-2.6 (referred to as the low emissions scenario in this report):** A low emissions scenario that stays below 2°C warming by 2100, aligned to the current commitments under the Paris Agreement; and
- **SSP5-8.5 (referred to as the high emissions scenario in this report):** A high emissions scenario which follows a 'business as usual' trajectory, assuming no additional climate policy and a mean annual temperature increase by 2100 compared to pre-industrial averages of +4.4°C compared to pre-industrial levels.

Similarly, climate data was collected across a range time horizons including:

- **Baseline:** It is used to represent the current level of risk posed during the construction phase of the Project.
- **2030:** It is used to represent the level of risk posed to the Project at the beginning of the operational phase of the Project; and
- **2050:** It is used to represent the level of risk posed to the Project at the end of the operational phase of the Project.

Construction phase as the baseline period will be during 2024/2025. The license to operate Marsa LNG is valid for 25 years. As such, the range of time horizon is considered acceptable to cover until 2050.

7. TREND ANALYSIS AND RISK REVIEW

7.1 General Climate of the Project area

The Project is located in Sohar, North Al Batinah. Oman has in general a subtropical, dry climate with summer monsoons and hot dusty winds[3]. The hot season in Sohar is from May to September with mean temperatures ranging from 31 to 33°C, whilst the cold season lasts from December to February with

[3] Oman - Climatology | Climate Change Knowledge Portal (worldbank.org)

temperatures ranging from 20 to 21°C. The rainy period lasts from February to March with an average monthly rainfall of 13mm. May to October are noted as the driest months with average monthly rainfall being recorded between 1.5 and 2.2 mm. It is noted that in the past Oman has experienced tropical depressions and tropical cyclones in recent decades - which typically occur during the pre and post monsoonal months (May/June and October/November).

7.2 Physical Hazards Assessed in Risk Assessment

This physical hazard baseline and projected values are derived using ERM's Climate Impact Platform CIP and baseline data collected from secondary data and site data. ERM's CIP, supported by other secondary data, generates the following forecasted values and projected effects:

7.2.1 Extreme Heat

The study indicates there will be increase in *mean daily maximum temperatures* from a baseline value of 34.3°C, by +0.9 C in 2030 and by +2 C in 2050 for lower and higher emission scenario, respectively. This increment has been observed in recent data in 2015[4]. Similar observation is valid for the *daily maximum temperatures,* with the baseline value of 47.5C, it will increase by +1.1 to +1.2C by 2030 and +1.9 by 2050. The annual number of days where temperatures exceed 51°C is projected to increase from a baseline of 24.5 days by +20.5 to +14.5 days by 2030; and +23 days to +54 days by 2050.

Risks of impacts:

- **Extreme heat impacts to LNG plant and Jetty operation.** With increasing temperature, LNG production declines when the power constraints are reached. However, Marsa LNG plant being designed for P95 temperature which means that production models is based on a constant production until this temperature and declining production above that. So, an increase in temperature will only impact LNG production in the high temperature range, i.e. 2 C temperature increase will impact only <0.5% of annual production. It is therefore recommended when the temperature increases in future result in unacceptable production decreasing, then Marsa LNG to implement mitigation measures that will enable LNG plant to continue to operate at the required capacity.
- **Extreme heat impacts on site personnel health and safety.** Extreme heat events have the potential to pose risks to the health and safety of personnel working on-site during the construction and operational phases of the Project, namely dehydration, heat stress, heat exhaustion and, heat stroke. ***Proposed mitigation measures*:** Ensure the HSE plans submitted by contractors are adequate to protect the health and safety of site personnel during periods of extreme heat e.g., ensure personnel have adequate shaded or air-conditioned rest areas, heat stress management and relevant training, appropriate PPE including installation of water moisture cooling fans, sufficient access to drinking water, and define work-rest cycle depending on the ambient heat index.

7.2.2 Flood

Due to the nature of Marsa LNG project, the project site must be located at the coastline, for marine transportation, easy access for LNG loading facility and access to customers. However, it also presents risks related to floods due to the rise of seawater level, and landfall of cyclones. It is noteworthy that risks of flash floods associated with wadi flooding are limited in the project area across all time horizons and scenarios, and therefore coastal flooding and extreme rainfall flooding are the focus.

The study indicates an increase in extreme rainfall flooding depths, from a baseline of 30cm by 0 to -3cm by 2030, and +6 to -2cm by 2050 for a lower and higher emissions scenario, respectively. For

[4] Garland et al. (2015), Regional Projections of Extreme Apparent Temperature Days in Africa and the Related Potential Risk to Human Health. Available at: Regional Projections of Extreme Apparent Temperature Days in Africa and the Related Potential Risk to Human Health - PMC (nih.gov)

coastal flooding, the study indicates an increase in coastal flooding inundation depths, from a baseline of 1.76m by +18 to +19cm by 2030; and +32 to +38cm by 2050 for a lower and higher emissions scenario, respectively. The projected increase of rainfall flooding is significant.

- **Coastal flooding impacts on process and jetty areas.** Company practice is to design facility for 100 years return period for the coastal flooding event. This results in overall sea level rise of 1.04m MSL which is very unlikely event, combining the highest astronomical tide (+1.41m MSL), 100-year atmospheric surge (+0.23m) and civil and structural design for the sea rise (+0.4m). For shoreline protection and jetty, SIPC adopts conservative value of 4.18m. ***Mitigation measures***: For the LNG plant, project basis of design adopted and included 40cm of seawater level rise in the design basis. As such, it is considered that the project is not at risk of coastal flooding during the construction and operation phase. Storm water channel at the perimeter of Plot 52 will be constructed to direct to seawater outfalls at the east side of Plat 52 to ensure the risks of flash flood is minimized.
- **Flooding impacts on worker health.** Coastal and extreme rainfall flooding have the potential to pose health and safety risks to personnel working on site during the construction and operational phases of the Project. Floodwaters may be contaminated by pathogens, wastewater and sewage which could cause a range of infectious diseases. Extreme rainfall and flooding could also cause an increase in slip hazards, standing water, and safety issues if water encountered electrical equipment. ***Mitigation measures***: Ensure the HSE plans for construction and operation phase are sufficient to protect the health and safety of site personnel during flooding events.
- **Flooding impacts on pipeline and cable integrity.** Under and overground pipeline or cable are at risk of physical damage due to seawater rise and extreme rainfall flooding. Flood waters could result in land instability, erosion, scour, slide and subsidence which could, in turn, damage the pipelines and cables. ***Mitigation measures***: Underground Pipeline and cable has been designed with improved resilience of the pipelines and cables and ensure risk of erosion, scour, subsidence hence soil instability is taken to reduce the impacts of flooding on pipelines (e.g., ensure coatings are efficient at protecting pipelines from corrosion).

7.2.3 Extreme Wind

The study projects an increase in maximum sustained windspeeds associated to cyclone from a baseline value of 70 knots, by +4.1 to +4.4 knots in 2030 and +4.7 to +6.6 knots in 2050, for a lower and higher emission scenario, respectively.

According to the National Oceanic and Atmospheric Administration (NOAA), wind speeds of this magnitude are understood as having the potential hazards to people and have the potential to cause damage to infrastructures and facilities[5]. Damages could include roof structure damage of well-constructed building (which could impact safety of site personnel), high installation such flare stack, regenerative thermal oxidizer stack, or extensive damage to power lines and poles which could likely result in power outages that could last a few to several days (which could impact Project construction/operations. There is evidence that destructive tropical depressions and tropical cyclonic storms have reached Oman in recent decades from the north Indian Ocean and the Arabian Sea during pre-monsoon (May – June) and post-monsoon (October – November) in Muscat and Al Wusta areas. Though Sohar is located at 220 km away from Muscat, it is important to take into accounts the mitigation in the design of the LNG plant.

- **Extreme wind impacts on the LNG plant and Jetty operation.** Extreme winds could also lead to unsafe working conditions at the LNG plant/jetty. Extreme winds associated with tropical cyclones could also cause disruptions to process upstream from the LNG operations which could reduce the Project's production of LNG and revenue.

[5] Saffir-Simpson Hurricane Wind Scale (noaa.gov)

- **Extreme wind impacts on electricity supply (including the Solar Plant).** Extreme winds potentially cause direct damage to solar plant and disruption to the electrical transmission lines and substations connecting to the LNG plant operated by the Oman Electrical Transmission Company (OETC). Damaged transmission lines or substation will reduce production of the LNG plant and disrupt the overall operation.

  Mitigation for the above risks: Taking into accounts the hazards of extreme winds in the operation of Marsa LNG for loading operation of LNG cargos and bunkering vessel operation through close monitoring of weather conditions and addressing it in the operation plan.

7.2.4 Water stress and draught

Like all Gulf countries, water stress and draught are the common threats to sustainability. Water Resources Institute (WRI) projected that water stress category will increase from 'High' at the baseline to "Extremely High" classification in 2030 and continue to "Extremely High" in 2050.

- Water stress and draught impact to LNG plant operation. Impacts to LNG plant operation is considered limited as it is operated based on air cooling system rather than water cooling system. However, impacts may occur on the supply of water for domestic purpose for site personnel due to the disruption in desalination plants of Majis Industrial Services Company (MISC). For the construction and commissioning phase, the impacts are considered limited as the project will use filtered seawater.

Proposed mitigation measures: Consider alternative sources for domestic potable water sources to ensure that a potable water supply is maintained throughout the construction and operation of Marsa LNG, in the event of a Majis water plant desalination failure.

8 HAZARD EXCLUSION

This section discusses hazards which excluded from the CCRA based on the site location and construction and operational context of Marsa LNG project.

Climate Hazard	Rationale for exclusion
Extreme Cold	▪ For extreme cold, minimum daily temperatures have been collected at the location of the LNG plant associated with the Project. Under baseline conditions, minimum daily temperatures are recorded at +9.4°C. As a result, under baseline conditions extreme cold is not anticipated to be likely to pose a material risk to the Project. ▪ Future projections (across all future scenarios/timeframes) indicate an increase in minimum daily temperatures, representing a decrease in an already low baseline level of risk posed by extreme cold. ▪ Therefore, extreme cold is not anticipated to be likely to pose a material risk to the Project under any time horizon associated with the Project.
Landslides	▪ For both baseline and future projections, the risk of rainfall-induced landslides is minimal and unlikely to be material based on the Rainfall-Induced Landslides Index. Data. ▪ It is anticipated that the LNG plant will be built on terrain with an elevation of 0m. As a result, the risk from landslide activity is not anticipated to be significant.

Climate Hazard	Rationale for exclusion
Coastal erosion	▪ Plot 52 is already protected with coastal erosion stone structure, and that will be reinforced with tetrapod concrete structures to strengthen the shoreline from erosion and scours due to waves. Structure will be similar to the breakwater located next to the Plot 52. ▪ With that planned, it is considered that the risks of coastal erosion are negligible.

9 CONCLUSION

All relevant physical risk highlighted for the LNG plant and jetty have been already incorporated in the LNG plant design or in the design of the Port of Sohar for the jetty and drainage. It is concluded that the risks have already been mitigated through the appropriate design value by the project. Other mitigation measures related to establishment of contracts with other parties and HSE management requirements will be addressed during construction and operation phase.