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Non-Technical Summary (NTS) in relation to the proposed Malta-Italy Gas Pipeline Interconnection

In line with the requirements of tender document CT3109/2018 for the permitting activities

Non-Technical Summary

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Approval Level	Name	Signature
Internal Check	Sacha Dunlop	
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1.0 Description of the Proposed Development

An Environmental Impact Assessment (EIA) is hereby being presented in relation to the development permit PA 08757/17. The Scheme involves the construction of a gas pipeline between Gela, Sicily and Marsaxlokk, Malta, including the relevant Terminal Plants and other infrastructure. This EIA only covers the works being undertaken in Malta, i.e. the onshore pipeline and the Delimara Terminal Plant, and the offshore pipeline in Maltese waters (Figure 1 and Figure 2).

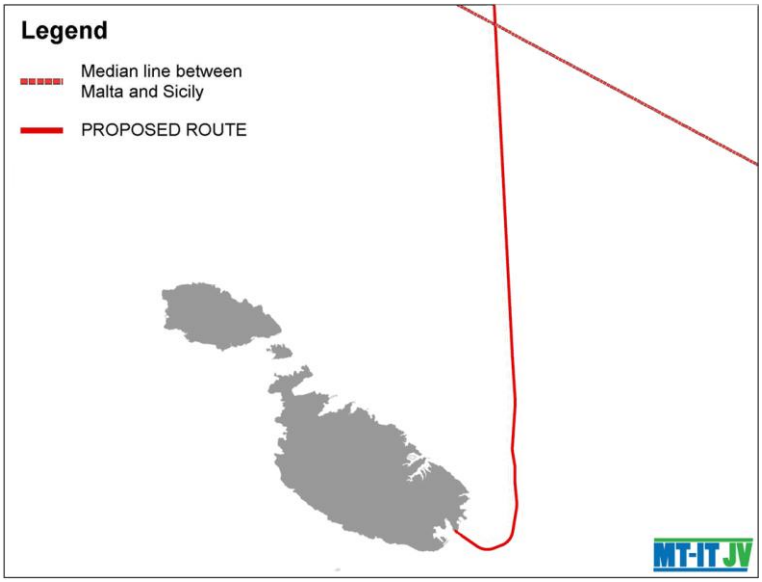

Figure 1: Location of offshore route

Figure 2: Location of onshore route and Delimara Terminal Plant

1.1 Project objectives

The Scheme aims to help Malta to achieve the targets in line with European guidelines, such as the diversification of energy supply countries and routes by connecting Malta's gas infrastructure to the European Transnational Gas Network. In fact, the connection to the European network is one of the primary measures included in the MALTA'S NATIONAL ENERGY EFFICIENCY ACTION PLAN.

The proposed gas pipeline is Malta's main Project of Common Interest (PCI) in line with EU requirements since it:

- Impacts energy markets and market integration in two EU countries;
- Will boost competition on energy markets;
- Help the EU's energy security by diversifying sources; and
- Contribute to the EU's climate and energy goals by integrating renewables.

1.2 Physical characteristics

The proposed system involves an approximately 159km long pipeline between Delimara (Malta) and Gela (Sicily), of which approximately 151km is subsea. The proposed development, hereinafter referred to as the "Scheme", involves the following interventions:

- Construction of a 22" diameter gas pipeline between Delimara and Gela
- Construction of a terminal station at Delimara Power Station
- Excavation and construction of an onshore tunnel route across the Delimara peninsula

The offshore pipeline route is located in relatively shallow waters on the Malta-Sicily underwater ridge, with the water depth ranging up to 158m. The onshore pipeline on the Delimara peninsula will be about 600m long and will connect to a new Terminal Plant. The Power Station needs to be extended in a southern direction to accommodate the new terminal plant and the additional infrastructure. An area of 8,000m^2 will be reclaimed from the sea in order to house the facility, including 4,840m^2 for a rock protection area (i.e. revetment) to minimise wave damage.

The gas pipeline has been designed to operate in a bidirectional mode with the first phase supplying gas from Sicily to Malta. Depending on market developments, the system can in the future be used to supply gas from Malta to Italy. Phase 1 of the pipeline shall have an estimated capacity of approximately 1.2 billion cubic meters per year and a guaranteed flow of 141,000 Sm^3/hour.

1.3 Construction works

The following construction activities are proposed in Delimara and in Maltese waters:

- Cliff works, including clearing of the cliff foot and rock cutting
- Construction of new access road
- Land reclamation and construction of the rock protection area
- Delimara Terminal Plant construction, including pre-commissioning and final tie-in
- Onshore underground pipeline construction
- Shore approach construction, including offshore trenching

- Offshore pipeline pre-lay activities
- Offshore pipeline installation works
- Pipeline pre-commissioning activities
- Reinstatement works
- Protection works (Figure 3)

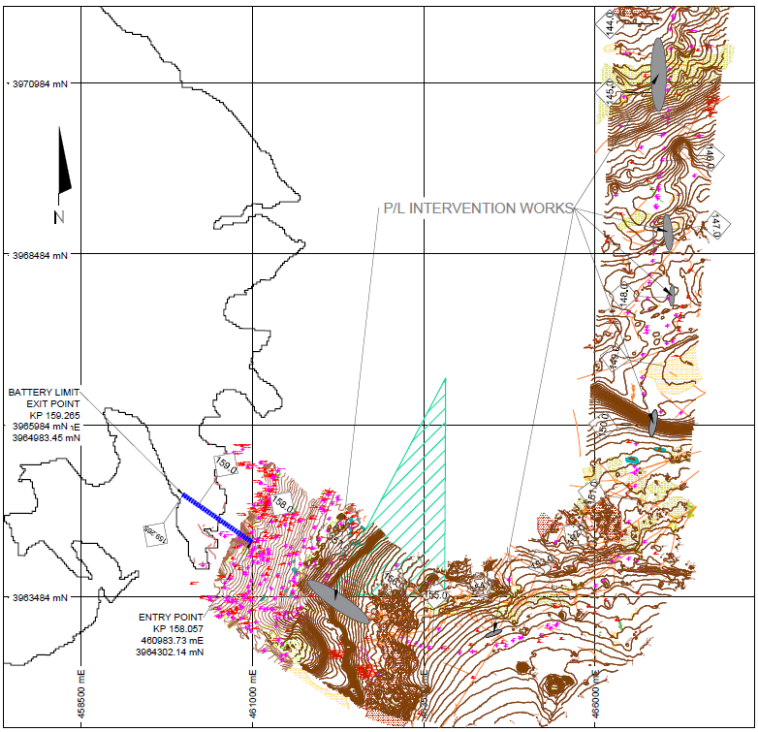

Figure 3: Intervention works with gravel protection

1.4 Waste Management

The majority of the waste generated during the initial phases of the project will be from the cliff works (20,000 tonnes) and the excavation of the tunnel for the pipeline traversing the Delimara peninsula (15,000 tonnes). While the rock material generated from the excavation works is expected to be comprised of crushed rock fragments, the excavated material will be small particles which may have trace amounts of the transport fluid (i.e. water/bentonite). Additional excavated seabed material (9,500m^3) will be produced from the trenching at the shore approach.

The excavation phase will result in a loss of geological material, which is considered to be a moderate adverse impact since a large portion of the material removed from the existing mound south of the regasification station is expected to be reused in the land reclamation works. The reuse of this material will only be considered if the material is found to be non-hazardous by the ongoing chemical tests. Preliminary tests on the upper layers of this material have been completed and show that the material is non-hazardous. Further tests will be undertaken following clearance of the top-most layers.

Additional impacts are envisaged from the transportation of excavation waste resulting in dispersion of particulate matter. This impact is considered to be of moderate significance due to the number of trips required, and can be mitigated by covering the material with a

canvas sheet, wetting the top layers of the materials and making use of arterial roads whenever possible. In view of the waste material that will be generated, a waste management plan (WMP) should be devised to help the works contractor/s minimise and handle the wastes generated during excavation and construction. This may include the application of a waste consignment permit in case testing of the materials will indicate that the mound is composed of hazardous materials.

Impacts from waste generation during the operational phase are considered to be negligible, since waste is only expected to be generated from the maintenance and operation of the Terminal Plant and pipeline. Appropriately registered waste carriers should be used to transport such waste to disposal locations which are approved to accept such waste. If applicable, any hazardous waste transport shall follow the Consignment Note procedure.

2.0 Assessment of Alternatives

2.1 Alternative sites

The facility will be used to receive natural gas from the pipeline and transfer it to the adjacent power station for electricity generation (Figure 4). Alternative sites located further away would have required the construction of additional infrastructure to transport the gas to the power station. Since the site was also identified to be compatible with the relevant Local Plans as part of the basic design stage, no other sites for the Terminal Plant were considered at the subsequent design stage.

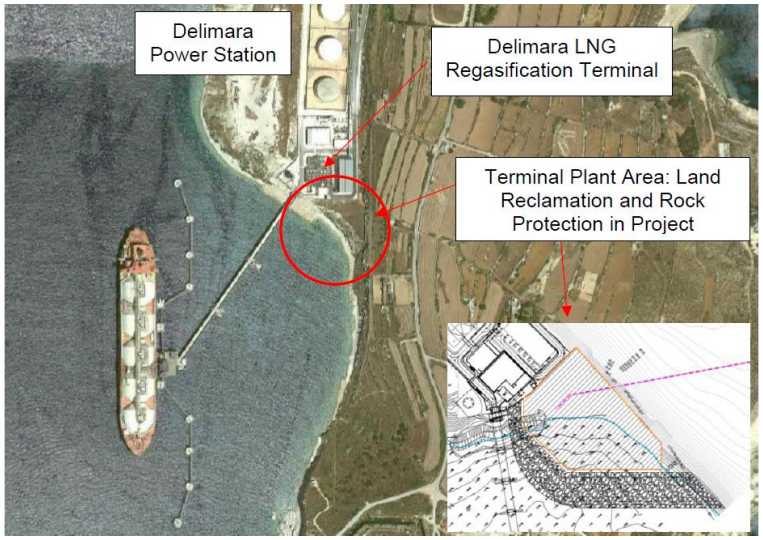

Figure 4: Location of Delimara Terminal Plant and surrounding facilities

2.2 Alternative technologies

When compared to open trenching, trenchless methods were preferred to avoid direct impacts on ecologically sensitive areas and to reduce the social impact associated with open trench methods. Two alternative trenchless drilling methods were considered in detail: Microtunnelling (MT) and Horizontal Directional Drilling (HDD). The FEED Contractors identified MT as the best option, since it:

- Is flexible and reliable for the existing soil composition, lowering the instability risk;
- Does not pose a risk of drill-hole collapses since the tunnel lining is inserted directly behind the tunnel boring machine (TBM);
- Shows a reduced risk of environmental impact; and
- Can be performed well before the pipeline installation pull operations, thereby limiting the possible stand-by time of the offshore spread.

2.3 Alternative layouts

Four major alternative layouts for the Terminal Plant were considered to reduce the size of the Terminal Plant, but were ultimately discarded due to lower work efficiency and/or safety issues.

Many alternative layouts for the onshore pipeline route were considered, but the final design was selected since it:

- Is the shortest possible length
- Optimises crossings with existing structures
- Avoids areas with small scale irregularities
- Avoids contact with restricted areas which may hinder the integrity of the pipeline
- Keeps the level of intrusive work to a minimum
- Conforms to minimum distance regulations through a HAZID study
- Avoids conflict with future projects
- Locates systems in geomorphological suitable areas
- Avoids sloped areas where possible
- Avoids geological and hydro-geologically unstable areas
- Minimises disturbance to agricultural areas
- Avoids and protects ecologically sensitive areas
- Avoids and protects sites of archaeological, historical and cultural interest
- Avoids shore approach from the Marsaxlokk Harbour

A 1.2km wide corridor was intensively surveyed to help choose the proposed offshore pipeline route. The proposed pipeline route has been chosen to:

- Be within the surveyed corridor
- Minimise the route length
- Minimise the risk for human activity and environmental and archaeological impact
- Minimise the number of curves/bends, and slope gradient
- Minimise the interference with possible geohazards
- Minimise free span formation and high bending moment
- Minimise the amount of the expected seabed intervention works

3.0 Land/Sea Cover and Land/Sea Uses

Notable onshore features include the Delimara Power Station, residential areas, agricultural land and garrigue. Dust, noise and vibration impacts generated from the works at the Terminal Plant, as is typical of all construction sites, are likely to affect the nearby land uses. However, the cliff face will somewhat shield the land users on the peninsula from such effects, resulting in adverse impacts of a minor significance. Instability of the cliff face is possible during the rock cutting, which constitutes a major adverse impact which is temporary in nature. This impact will be mitigated by the subsequent restabilisation of the freshly-cut cliff face, thereby reversing the impact to a major beneficial outcome in the long-term. The onshore pipeline is not expected to affect the land uses on the peninsula, since the works will be at least 30m below the surface.

Noteworthy offshore features include the FSU and jetty exclusion zone, SE aquaculture zone, the restricted area for the ORP Kujawiak and Bunkering area 4 (just outside the area of study). The proposed land reclamation works will not affect the existing sea uses in the area, since this site forms part of the FSU exclusion zone and is therefore not open to the public. However, indirect impacts on the jetty (such as dust, noise and vibration) are possible, and the sensitive nature of this structure causes these impacts to be classified as ones of moderate significance. Impacts on publicly documented wrecks are unlikely since they are located at large distances from the pipeline route; further information is provided in Section 8.0. Nevertheless, appropriate permission and guidance should be sought from the Superintendence of Cultural Heritage.

When the offshore pipeline laying approaches the SE Aquaculture Zone, disruption of farmed fish is possible. Since the works will be at least 600m away from the Zone, this temporary impact is minor. Fishing activity is also common along the pipeline route, which will be inhibited by temporary exclusion zones which will be present during pipeline laying. Only minor impacts are expected during the pipeline laying since the exclusion zones will be confined to the area around the laybarge, and will be moved in tandem with the work.

Operational adverse impacts on land/sea uses are limited to the permanent loss of shore and sea area from the land reclamation. Since this area is not accessible to the public due to the exclusion zone, it constitutes a permanent impact of minor significance. A 100m right-of-way will be sought from the Lands Authority and the pipeline registered on navigational charts for safety reasons.

One of the primary objectives of the project is to decommission the existing FSU and regasification plant, which constitute the following major beneficial impacts:

1. Improvement in visual amenity on the peninsula;
2. Increased energy supply security, thereby improving Malta's electricity supply network; and
3. Modification/reduction of the existing FSU exclusion zone which would increase accessibility.

4.0 Landscape Character and Visual Amenity

Six viewpoints were assessed to determine the existing visual amenity conditions:

- VP 1: Carpark overlooking Delimara Power Station;
- VP 2: Ponta tat-Tawwalija, Delimara;
- VP 3: Ponta tal-Gidien, Delimara;
- VP 4: Ponta tal-Ħofra, Delimara;
- VP 5: Dawret il-Qalb Mqaddsa, Birżebbuġa; and
- VP 6: Triq it-Tramuntana, Marsaxlokk.

The impacts on the viewpoints during the construction phase would occur from the presence of construction machinery/cranes and the removal of vegetation and existing structures. These adverse impacts range from minor to major significance, with the worst impacts affecting viewpoints 2 and 3. The impacts during the construction phase are considered as temporary and reversible since the impacts cease once the machinery is removed. Nevertheless, construction works should be monitored for noise, air quality and traffic to ensure that environmentally sound construction practices are properly implemented.

During the operational phase, some adverse impacts originate from the new Terminal Plant. These impacts range from minor to moderate, with the most significant being viewpoints 1, 5 and 6. However, from the majority of the viewpoints, the long-term impacts are likely to improve beneficial significance due to the eventual decommissioning and removal of the existing FSU. Additionally, the newly exposed cliff face following the rock cutting and shotcreting exercises will be landscaped.

5.0 Geology, Geomorphology, Hydrogeology and Soils

The geological, geomorphological and structural features of the onshore area of study were identified, described and mapped by means of a desktop study followed by field surveys. The offshore features were investigated through a literature review of studies carried out by a third-party contractor along the pipeline route:

- A deep borehole survey;
- Multibeam echosounder survey;
- Side-scan sonar survey;
- Sub-bottom profiles;
- Seafloor imagery; and
- Seafloor samples.

During the construction phase, likely onshore impacts include bedrock collapse from microtunnelling and destabilisation of terrain from cliff works, both of which cause permanent impacts of major significance. Mitigation includes carrying out geotechnical modelling and stabilisation of the coastal cliff face with steel mesh and shotcreting soon after cliff works are completed. The loss of soil and mineral resource during excavation is one of permanent but minor significance due to the low quality of material which will be removed. The envisaged reuse of the excavated material generated from the mound clearance is expected to reduce this impact.

The seafloor integrity may deteriorate if the bedrock collapses during the nearshore microtunnelling (major significance). Detailed offshore geophysical surveys are in progress to identify and avoid cavities during works. Furthermore, the offshore installation of the pipeline & gravel protection works (minor significance), trenching (major significance) and land reclamation (major significance) are guaranteed to cause deterioration of seabed integrity. These impacts cannot be mitigated any further since the route has already been optimised to limit damage to environmental sensitive areas and geologically important features such as outcrops.

During the operational phase, additional loss of mineral resource, deterioration of seafloor integrity and changes to seafloor morphology may occur during maintenance works; these are all of minor significance due to their limited extent. The mitigation measures implemented during the construction phase should be applied during relevant maintenance works to further reduce the impacts. New habitats are also expected to be created along the new seafloor structures, which is a beneficial impact of minor significance.

6.0 Terrestrial and Marine Water Bodies

The impacts on relevant terrestrial and marine water bodies were evaluated through the assessment of onshore hydrology and hydrogeology studies; seawater quality analyses; and seafloor investigations.

Marine impacts which may arise during the construction phase include deterioration of coastal water quality due to mud fluid spread during punchout of the TBM and sediment suspension during pipe laying, gravel protection, nearshore trenching, land reclamation and contamination from onshore works. All such impacts are considered to be of minor significance since they are temporary in nature and will be limited in extent to the immediate surroundings.

Using a submersible pump and sealing the punchout hole with bags of sand and clay would reduce the discharge of mud fluid and offshore works should be done in calm weather. All rock material (including excavation waste and rocks for land reclamation) should be properly handled to minimise accidental dispersion, while land reclamation material should be cleaned before works to minimise contamination of surrounding water bodies. Land reclamation works should also be enclosed in a silt curtain to minimise dispersion of fine material. Works should also be monitored to ensure appropriate work practices are followed.

During the operational phase, deterioration of coastal water quality may occur from pollution of water bodies or sediment resuspension from maintenance works. Both impacts are temporary in nature, reversible and have a local extent, meaning they are of minor significance. The aforementioned construction mitigation measures should also be appropriately applied during operational maintenance works, wherever applicable.

7.0 Ecology (including Terrestrial, Marine and Avifauna)

The ecology section of this EIA was split into marine, terrestrial and avifaunal ecology, each of which is described separately below.

7.1 Marine ecology

The marine ecology aspect was assessed through the review of field sampling data produced by a third-party contractor, including ROV surveys, water sampling and sediment sampling.

During the construction phase, marine impacts are expected to occur from land reclamation (major significance), excavation of the transition pit (major significance), pipeline laying (major significance), submarine noise (moderate significance), anchoring (moderate significance), discharge of drilling fluids (minor significance) and resuspension of fine benthic sediment (major significance).

Various mitigation measures can be implemented to reduce the impact significance. Loss of benthic habitats from land reclamation, excavation of transition pit and pipeline laying cannot be further mitigated against since the pipeline route has already been optimised to avoid important habitats. Submarine noise can be mitigated through the deployment of air bubble screens during high noise generating activities. The use of anchoring stabilisation systems should be minimised whenever possible. The deployment of a silt curtain in nearshore works will help to reduce dispersion and scouring of nearby habitats from sediment resuspension. Working during periods of calm weather would also reduce the risk of any accidents leading to an environmental impact.

During the operational phase, similar impacts albeit to a smaller degree, are envisaged during maintenance works of the offshore pipeline. Applicable mitigation measures should be implemented wherever possible. Over time, colonisation of the laid pipeline by epibiota is envisaged, which constitutes a beneficial ecological impact of moderate significance.

7.2 Terrestrial ecology

The terrestrial ecology segment was carried out by a broad-brush terrestrial ecology survey along the footprint of the proposed Delimara Terminal Plant and access road.

During the construction phase, protected shrub species Maltese Salt Tree must be removed from the cliff face to allow for the rock cutting works, which constitutes a permanent impact of major significance. Following the restabilisation of the cliff, landscaping with this species is proposed to reduce the impact significance to moderate. No other protected terrestrial species are expected to be affected during the construction phase since the majority of the works will be at least 30m below ground level.

No impacts are envisaged over the operational phase.

7.3 Avifauna

The avifauna study comprised of a literature review of existing data from the onshore and offshore area of study. This approach was taken since a wealth of avian studies have been carried out in the past, and spot bird-watching exercises may lead to skewed/misleading

results. Three Special Protection Areas (i.e. Natura 2000 sites designated by the EU for their importance for birds, also termed “SPAs”) exist along the offshore pipeline route, as shown in Figure 5.

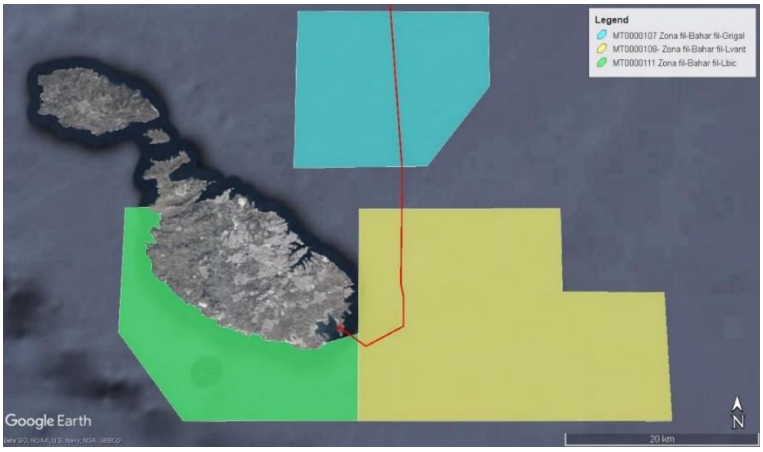

Figure 5: Aerial view showing SPAs around gas pipeline route

During the construction phase, avifauna may be affected by the increase in noise (minor to moderate significance), illumination (moderate to major significance), water column silting (minor to moderate significance) and disturbance during tunnelling (minor to moderate significance). Mitigation measures to reduce the impact significance mostly include the implementation of good working management practices, most notably using mufflers to attenuate noise, limiting night-time illumination whenever possible and deploying a silt curtain to limit dispersion of resuspended sediment. Works should also be limited to outside the breeding season whenever possible.

During the operational phase, avifauna may be affected by the increase in illumination of the new Delimara Terminal Plant, which constitutes a permanent impact of moderate-major significance. This impact can be mitigated by limiting the number of light fixtures, positioning lighting strategically to reduce light dispersion to sea and implementing intelligent lighting solutions. Offshore impacts similar to those of the construction phase may occur during pipeline maintenance, as described above; the relevant mitigation measures should also be applied during maintenance.

8.0 Architectural, Archaeological, Historical & Cultural Heritage

An intensive desktop study was undertaken in accordance with SCH requirements to identify the known and potential cultural heritage sites in the onshore and offshore area of study. The onshore desktop survey was corroborated by a walkover survey to confirm the findings of the desktop survey and identify any other cultural/historical features in the area that may be affected by the proposed development. The offshore portion was further assessed by a review of the results from the surveying exercise carried out by a third-party contractor.

Onshore features of cultural importance were limited to rubble walls and saltpans. Fort Delimara was not assessed since it is outside the study area limit. Neither of the two onshore cultural features are expected to be impacted by the proposed onshore works since tunnelling will be at least 30m below these features. Instability of the onshore rocks from microtunnelling is unlikely since the TBM has various systems to stabilise the freshly tunnelled rock and monitor surrounding soil movements.

238 targets were identified in the offshore areas, including airplanes, wrecks and 8 unexploded ordnances (UXOs). 148 targets were identified in the nearshore area close to Malta, most notably anchors and discarded objects such as tyres. Of these, 7 targets are considered to be of cultural heritage interest.

2 Targets are located about 56m and 75m from the pipeline route, respectively. This invaluable underwater cultural heritage must be considered when planning the lay barge anchoring pattern, catenaries' positions and the dead man anchor system. If not possible, a minimum clearance will have to be implemented in order to ensure their protection. The removal of known and possible UXOs should also feature in the project.

9.0 Noise, Vibrations and Exterior Lighting

This chapter involved the analysis of both the onshore and underwater noise, vibrations and exterior lighting baseline conditions to identify impacts which could arise from the construction and operation of the pipeline and Delimara Terminal Plant.

Onshore noise is expected to occur from the machinery used during the construction of the access road and plant; land reclamation works; and onshore landing point, which may affect nearby residents and birds. Nevertheless, the construction noise at the eight assessed monitoring points is not expected to increase significantly during the works over and above the noise produced by the adjacent power station. Vibrational impacts may be generated from piling and microtunnelling, both of which are considered to be minor in significance. Nearby sensitive receptors should be kept informed of construction works.

In general, underwater noise impacts on marine fauna species may be divided into two categories, behavioural impacts and physiological impacts. The impacts range between minor and moderate significance. Such impacts can be mitigated through the adoption of good construction practices throughout the works, which would reduce the significance to negligible.

External lighting during construction may affect nearby sensitive receptors (onshore) and avifauna (both onshore and offshore), but such impacts are expected to be of minor significance. Night-time works should be limited in the onshore portion and in offshore SPAs whenever possible.

During operations, no major onshore or offshore noise and vibration is expected. Light pollution is possible (minor significance), and night-time works should be limited whenever possible to mitigate against such impacts.

10.0 Infrastructure and Utilities

Impacts on existing onshore and offshore infrastructure were identified in this study. The most noteworthy impact which may occur during construction is damage to existing features belonging to the various operators at the Delimara Power Station. Regular meetings will be held with the stakeholders involved (Enemalta plc, Electrogas Ltd and Delimara 3 Power Generation Ltd) to agree on precautionary measures and coordinate any action. Damage to the infrastructure, while unlikely, constitutes an adverse impact of moderate significance due to the sensitivity of the features. Since the pipeline drilling will be done at least 30m below ground level, no other onshore infrastructure is expected to be affected.

Offshore infrastructure may be directly damaged during the laying of the pipeline, particularly at infrastructural crossings. Such impacts will be minimised through the installation of mattresses (made of concrete fabric or bitumen) and/or gravel perpendicular to the existing infrastructure. Once operational, the pipeline may be damaged through anchors, and other marine activities. To mitigate against such occurrences, additional gravel coverings will be installed on top of the pipeline in high-risk areas at six locations (Figure 3).

Two beneficial impacts of major significance are envisaged on the infrastructure and utilities of Malta on a national scale, namely the increase in security of the natural gas supply when compared to the existing FSU and regasification system; and the reduction in various operational risks and hazards due to the lower vulnerability of the pipeline when compared to the existing system.

However, the proposed pipeline fails to address two existing limitations in Malta's national energy supply, namely:

- The insecurity associated with gas supply from overseas; and
- Although the pipeline has been designed to enable the supply of gas produced from renewable sources (ex: biomethane), the conversion to renewables is dependent on foreign authorities. Therefore, the project will not address the near-absolute reliance (97.3%) of Malta's national energy production on imported non-renewable fossil fuels, which are finite in nature.[1]

The above points do not constitute adverse impacts of the proposed pipeline, but are considered to be shortcomings of our national energy supply which will not be addressed by the Scheme.

[1] *European Commission (2017). Energy Union Factsheet Malta. https://ec.europa.eu/commission/sites/beta-political/files/energy-union-factsheet-malta_en.pdf.*

11.0 Public Access

The public access study identified a number of impacts which may arise during the construction phase of the development. The increase in heavy vehicle traffic in the area constitutes an impact of minor significance on the surrounding area, since such vehicles will make use of Triq il-Power Station which is already transited by such vehicles. No onshore impacts are expected to arise from the microtunnelling since the equipment will be confined to the Delimara Terminal Plant.

Since the marine area to be reclaimed is located in the FSU exclusion zone, no public access impacts are envisaged from this phase of the development. Ultimately, once the FSU and regasification plant are decommissioned, the exclusion zone is likely to be reduced/modified. This is a beneficial impact on public access in the area of minor significance.

Temporary exclusion zone around the laybarge and other work vessels will be necessary during the nearshore trenching works and offshore pipeline laying. Adverse impacts on the accessibility of the surrounding sea area are therefore expected. Wherever reasonably possible, such exclusion zones will be limited to the area around the vessels and will be moved in tandem with the pipeline laying works.

12.0 Other impacts

12.1 Climate change and climate change adaptation

Greenhouse gases (GHGs) are naturally occurring gases which sustain the earth's atmospheric temperature to levels above freezing (about 33°C at natural levels). The major GHGs are carbon dioxide, methane, water vapour and ozone. Since the industrial revolution, GHGs have been emitted by anthropogenic activities at an unprecedented rate.

The construction phase will inevitably bring about adverse impacts on climate change through a direct increase in GHGs from energy consumption for:

1. Construction material extraction and production;
2. Manufacture of raw materials and machinery;
3. Transportation of raw materials and/or machinery from foreign countries;
4. Operation of machinery and vessels during construction; and
5. Marine traffic during the offshore works, particularly pipeline laying.

Indirect increases in GHG emissions are likely to occur as a result of this project through the loss of marine carbon sinks (i.e. anything that absorbs and stores GHGs over an indefinite time period), such as *P. oceanica*, biogenic reefs and maerl assemblages. Since these habitats are efficient mitigators against climate change since they absorb a significant amount of dissolved carbon, their loss indirectly contributes to accelerating climate change. Since the pipeline will simply be laid on the seabed, the affected footprint will be relatively small. Seagrasses will eventually grow around the pipe, thereby lessening the impact effects.

The Scheme will introduce a permanent link between Malta and the European Trans-European gas network, effectively eliminating the need of the existing FSU and regasification plant. In 2017, Malta's GHG emissions predominantly (75.1%) originated from the energy sector, and the overall emissions are on the rise due to increased energy consumption from non-renewable energy sources. The overall GHGs from the proposed gas system are expected to reduce in the operational phase since the transportation of LNG to Malta will no longer be necessary, which constitutes a minor beneficial impact.

The type of gas which is supplied through the pipeline during pipeline operation will determine the climate change impacts from its incineration at the Power Station. If the gas originates from natural/non-renewable sources, then the pipeline will retain more or less the same impacts as the existing scenario. However, the pipeline can also supply renewable natural gas (RNG) such as biomethane, which is produced from biomass (generally plant material). Since the carbon emitted by its combustion would have been recently absorbed from the atmosphere by the plant, the process is considered to be carbon neutral. In this scenario, Malta's national carbon footprint would be reduced.

12.2 Environmental Risk

The environmental risk study assesses possible environmental risks which include major-accident scenarios like contamination, emissions, flooding and major spillages, which could

originate during the excavation, construction, operational and decommissioning phases of the proposed Scheme.

The preliminary environmental risk assessment identified thirteen potential environmental threats or sources of contamination identified throughout the duration of this EIA, as listed hereunder:

One-time environmental risks

1. Contamination of geological layers through spillage of oil or fuels
2. Contamination of the mean sea level aquifer through spillage of oil or fuels
3. Contamination of the marine environment through spillage of oil or fuels
4. Generation of dust from works which may affect surrounding sensitive receptors
5. Rock/soil instability which could impact nearby ecological/agricultural features or land uses
6. Spillage of excavated material during transportation
7. Dust emissions from transportation of waste rock material
8. Loss of protected endemic vegetation species through trampling and cliff works
9. Loss of protected benthic habitats through land reclamation and trenching
10. Loss of protected marine habitats/species during maintenance work through equipment failure, dropped anchors/objects, etc.

Recurrent environmental risks

11. Corrosion of the pipeline

Exceptional environmental risks

12. Instability of the infrastructure, including the pipeline itself, due to earthquakes
13. Flooding or water damage to the Terminal Plant caused by heavy rainfall

The majority of the risks evaluated as part of this assessment are considered to be of moderate significance, excluding the effect of:

a. contamination on geological layers through spillage of oil or fuels (low);
b. loss of protected endemic vegetation species through trampling and cliff works (high);
c. loss of protected benthic habitats through land reclamation and trenching (high);
d. corrosion of the pipeline (low).

Risks b. and c. are one-time environmental risks associated with construction activities; however, their mitigation is impossible since the impacts are directly tied to the proposed works. Planting of additional salt water plants is proposed in order to facilitate recolonization of the freshly cut rock. The final risk d. is unlikely to materialise due to the extensive corrosion prevention systems proposed, and the frequent monitoring to be undertaken on the pipeline.

Based on the information gathered during the environmental risk assessment, the environmental risk associated with the project is overall considered to be of moderate

significance, particularly due to the severity of impacts, where they occur. The various risks and their associated impact significance can be reduced further as discussed in their respective chapters.

12.3 Human Populations

A number of impacts on human populations have been identified, as listed hereunder:

Construction phase

- Reduced air quality for nearby residents, most notably individuals who suffer from respiratory conditions.
- A minor increase in noise is expected during construction of the Terminal Plant which may affect Power Station personnel and surrounding residential receptors.
- Accessibility to certain areas on the Delimara peninsula will be reduced during the construction phase due to increased heavy vehicle commutes.
- Accessibility to certain areas along the pipeline route will be reduced during the construction phase during offshore works such as trenching and pipe laying. This may affect fishermen or other maritime traffic.

Operational phase

- Noise will likely improve in the long-term due to the expected decommissioning of the regasification plant. However, this is very minor since the most significant noise originates from the nearby power station, which will not be affected.
- The potential for the pipeline to supply biogas for the combustion in the power station would reduce the overall GHGs emitted on a national scale.
- Since the pipeline will replace the existing FSU system which requires back and forth travel between Sicily and Malta, the GHGs emitted by the vessels would no longer be emitted.
- The supply of natural gas via a pipeline instead of the FSU system will improve the security of the supply.
- Although the removal of the FSU and regasification plant does not fall within the proposed works, their decommissioning is likely to occur as a direct result of the successful pipeline operation. Such removal may involve the revision of the existing marine and terrestrial exclusion zones.

Mitigation measures for the above impacts are discussed in their respective sections.

12.4 Transboundary effects

Since the Melita TransGas Project will connect Malta and Sicily by means of a subsea pipe, some project activities may generate transboundary impacts, which may arise from those project activities which traverse country boundaries, or impacts that are generated within the borders of one country, but may extend across national borders.

Impacts expected to arise from the project are listed hereunder:

Adverse transboundary impacts

- Interference with international fishing fleets
- Air emissions generated from vessels
- Underwater noise generated from vessels
- Production of waste from vessels
- Movement of suspended sediment
- Water discharge due to offshore pipeline hydrotesting
- Unplanned events

In order to minimise transboundary impacts, the following steps are recommended according to the CONVENTION ON ENVIRONMENTAL IMPACT ASSESSMENT IN A TRANSBOUNDARY CONTEXT:

- Step 1: Notification of transmittal and information
- Step 2: Determination of the content and extent of the matters of the EIA information scoping
- Step 3: Preparation of the EIA information/report by the developer
- Step 4: Public participation – information and consultation
- Step 5: Consultation between concerned Parties
- Step 6: Decision-making: examination of the information gathered and final decision
- Step 7: Information on final decision

All of the above steps are currently being followed by the project proponents in order to ensure the project does not impose any transboundary effects.

Beneficial transboundary impacts

Transboundary potential positive effects of Melita TransGas Project are to:

- End the isolation of Malta from EU energy and gas network;
- Contribute to the overall flexibility and interoperability of the system as it will provide capacity for reverse flows in the future (from Malta to Italy);
- Reduce Malta's CO_2 emissions, contributing to reduce global CO_2 emission of EU; and
- Eliminate any global impact related to the operation of the existing LNG shipment for electricity generation in Malta.