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OFFICE OF THE PRIME MINISTER (Energy & Projects) – Malta

(Company ref: CT3017-2017)

PROVISION OF SERVICES FOR A TECHNICAL STUDY AND COST-BENEFIT ANALYSIS FOR THE DEVELOPMENT OF LNG AS A MARINE FUEL IN MALTA

WORK PACKAGE 1 – TASK 1, 2 AND 3

EXECUTIVE SUMMARY

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The main objective of the project is to meet the 2025 European deadline to have LNG available for bunkering in all core TEN-T ports. The availability of an LNG bunkering facility in Malta, given its position, would ease the development of the whole LNG bunkering infrastructure in the Mediterranean Sea and will be instrumental to enable more ship-owners to switch to LNG as marine fuel.

Key objectives include:

- Establishing an LNG bunkering facility that would cover both Marsaxlokk and Valletta ports by January 2025; and
- Contributing towards establishing a European network of ports where LNG is available as marine fuel.

Other objectives include:

- Maintaining Malta's market share in the bunker business in the Mediterranean sea during and after the transition of part of the fleet to LNG (fleet calling Malta) and hence supporting Malta's economy; and
- Contributing towards the saving of 580,000 tonnes of CO_2 equivalent between 2025 and 2056 (reduction related to the LNG supplied in Malta to the LNG fleet).

As a secondary objective, the storage of LNG increases the energy security for Malta by presenting a back-up source of fuel for Delimara power station in case the NG pipeline from Sicily is out of service (keeping in mind that the plan is that the current FSU will be removed after the pipeline connection).

The main conclusions of Work Package 1 are summarized below with reference to each of the sections covered by the study as follows:

- Demand analysis
- Technical option analysis
- Multi-criteria analysis
- Cost-benefit analysis (including financial, economic and sensitivity / risk analysis)

Demand analysis:

The first part of the study is focused on the estimation of potential bunkering market demand in Malta, considering three different scenarios (LOW, MID and HIGH) covering three phases, Phase I from 2020 to 2024, Phase II from 2025 to 2030 and Phase III from 2031 to 2056.

Results of market study show that LNG bunkering demand in Malta is expected to start from 2025, reaching 31,000 tonnes / year in 2030 and increasing up to 339,000 tonnes / year in 2056 (based on MID scenario) – reference to Figure 1. Before 2025, no demand is expected unless a pilot project takes place, even though based on preliminary meeting with local companies there seems to be currently little interest from shipping companies.

Analysis and explanation are covered in chapter "Demand analysis" of the report "Detailed option analysis and cost benefit analysis".

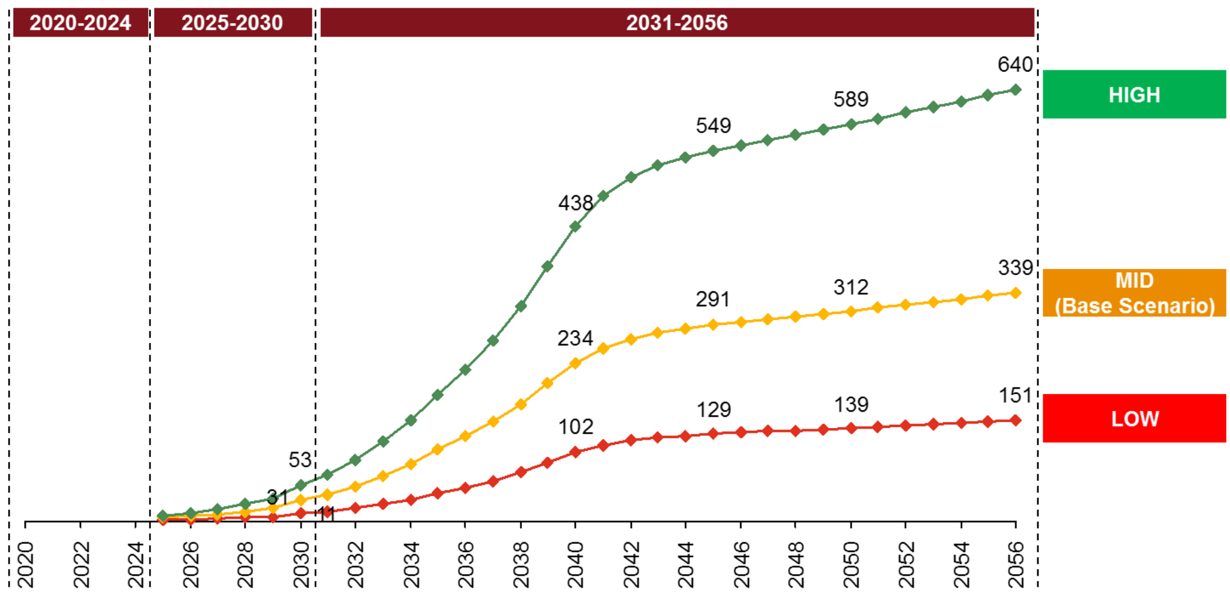

Figure 1 – Total LNG bunkering consumption in Malta by scenario [thousand tonnes / year]

Technical option analysis:

The second part of the study is focused on the identification of technical options, considering both local requirements (e.g. availability of area) and level of demand as estimated from the market study.

In particular, the technical options also include Malta's PCI Phase 1 and PCI Phase 2, considering pipeline from Gela and the use (and the possible future use) of an FSRU as mandated by the ToR document from E&WA Malta (herein after "the Client").

Overall, 7 technical options have been identified as part of the technical option analysis:

- Option 1: Isocontainers
- Option 2: Onshore tank
- Option 3: Liquefaction plant
- Option 4: FSRU
- Option 5: FSU
- Option 6: Offshore tank
- Option 7: Offshore liquefaction plant

In particular, with reference to option 2, it is important to highlight that erection of onshore tanks in Delimara power station may involve some technical issues due to space constraints, and that in general tank's visual impact should be attenuated.

Starting from these 7 solutions, options 6 and 7 have been excluded from further analysis as they are deemed more technologically complex and capex intensive than their onshore counterparts. Further assessment could be performed to assess feasibility of these solutions.

Options one to 5 have been analysed over three time phases (reference to Figure 2):

- Phase I: no technical option is foreseen as no demand is expected in this time period
- Phase II: demand is covered by isocontainers stocked in a dedicated onshore area
- Phase III: four technical options have been identified to cover increasing demand: onshore tank, liquefaction plant and FSRU (as part of Project of Common Interest) and FSU

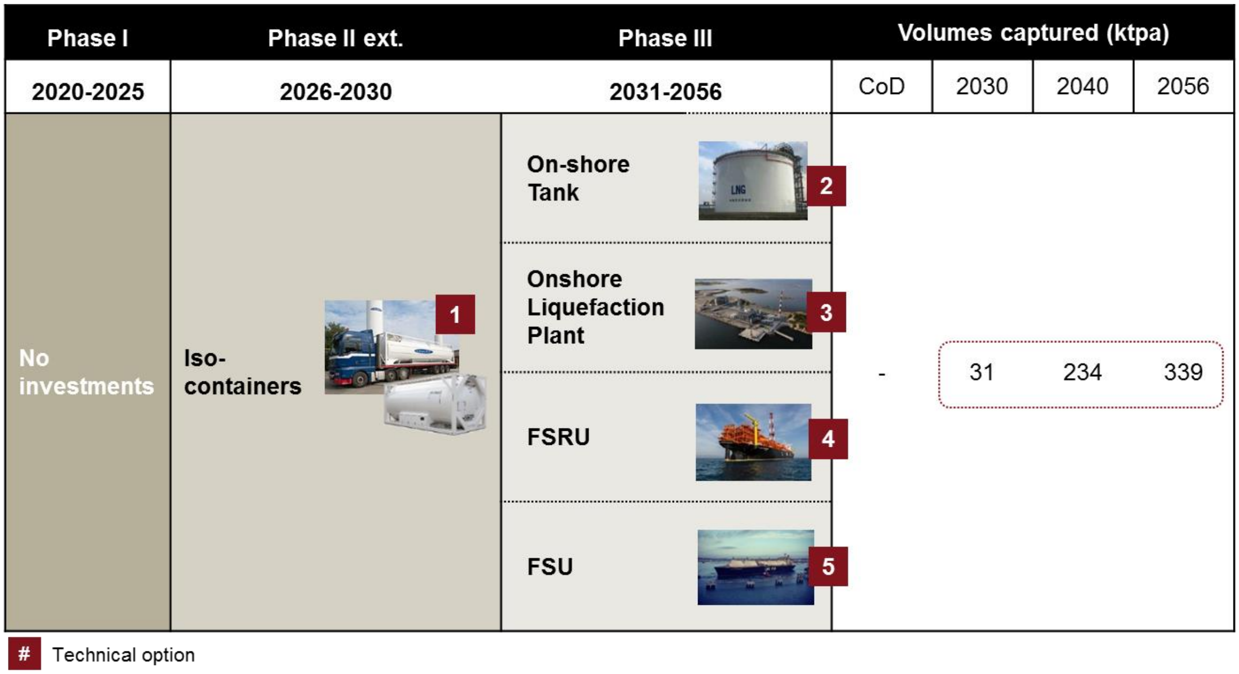

Figure 2 – Summary of technical options

Detailed analysis and explanation are covered in chapter "Technical option analysis" of the report "Detailed option analysis and cost benefit analysis", and in Annex 1 & 2: Task 1 - LNG bunkering market study report and presentation.

Multi-criteria analysis:

In order to identify the highest ranked option, a multi-criteria analysis has been performed, considering main interests and criteria adopted by project's stakeholders, and assigning a score for each technical option.

Results of the analysis show that option 2 "Onshore tank" is the highest ranked option, mainly because of lower operational costs, higher scalability and lower operational risks compared to other options – reference to Table 1. Option 3 "Liquefaction plant" is the lowest ranked option mainly because of high Capex and Opex (e.g. cost of liquefaction process) and significant impact on onshore landscape.

Table 1 – Summary scoring table with results for each technical option

Area	Weight %	Criteria	Weight%	Option 1: Isocont.	Option 2: tanks	Option 3: Liquef.	Option 4: FSRU	Option 5. FSU
Project Attractiveness • Financials • Risk	35%	Feasibility-Permitting	20%	n/a	5	1	2	2
		Feasibility-Technological	10%	n/a	2	4	3	4
		Scalability	25%	n/a	5	4	2	1
		Risk	20%	n/a	5	3	1	2
		Capex	10%	n/a	5	2	1	4
		Opex	15%	n/a	5	3	1	4
			100%					
Environmental Impact	35%	Carbon Footprint	10%	n/a	3	5	1	5
		Visual Impact	50%	n/a	3	2	5	5
		Impact on land and sea	40%	n/a	1	2	4	5
			100%					
Competitiveness of LNG bunkering operations	20%	LNG delivered cost	60%	n/a	4	3	5	5
		Flexibility	40%	n/a	5	4	3	2
			100%					
Security of supply	10%	Security of supply	100%	n/a	4	3	5	1
			100%					
Total scoring	100%			n/a	4,1	3,1	3,9	3,6

Detailed analysis and explanation are covered in Chapter “Multi-criteria analysis” of the report “Detailed option analysis and cost benefit analysis”.

Cost-benefit analysis:

Finally, a cost-benefit analysis has been performed considering all possible combinations of the technical options identified for each market phase and not dropped during the technical analysis. In particular, as already mentioned in Phase I no option is considered due to absence of demand, in Phase II limited demand is covered by option 1 “Isocontainers”, and in Phase III covers increasing demand through either option 2 “onshore tank”, option 3 “liquefaction plant”, option 4 “FSRU” or option 5 “FSU”. Considering Phase I and II together renders a total of four technical combinations as follows:

- **Combination 1**: Option 1 “Isocontainer” for Phase II (2026-2030) + Option 2 “Onshore tank” for Phase III (2031-2056) – no technical option in 2020-2025
- **Combination 2**: Option 1 “Isocontainer” for Phase II (2026-2030) + Option 3 “Liquefaction plant” for Phase III (2031-2056) – no technical option in 2020-2025
- **Combination 3**: Option 1 “Isocontainer” for Phase II (2026-2030) + Option 4 “FSRU” for Phase III (2031-2056) – no technical option in 2020-2025
- **Combination 4:** Option 1 “Isocontainer” for Phase II (2026-2030) + Option 5 “FSU” for Phase III (2031-2056) – no technical option in 2020-2025

Results of the cost-benefit analysis are summarized in Figure 3.

Technical option		Financial analysis (1)						Economic analysis (2)			Financial support needs (3)	
Phase II	**Phase III**	**CAPEX (P.II-III)**	**FNPV(C) @6.5%**	**FRR(C)**	**FNPV(K) @6.5%**	**FRR(K)**	**Operating Losses**	**ENPV @5%**	**ERR (%)**	**B/C**	**EU Grant**	**Subventions**
ISOCONTAINERS	ONSHORE TANK	211 Mn€	-56 Mn€	**3.5%**	-17 Mn€	5.4%	-21 Mn€	970 Mn€	**21.0%**	5.14	63 Mn€	21 Mn€
	LIQUEFACTION PLANT	499 Mn€	**-425 Mn€**	n/a	-336 Mn€	n/a	**-493 Mn€**	372 Mn€	9.8%	1.67	150 Mn€	493 Mn€
	FSRU	540 Mn€	**-375 Mn€**	-10%	-278 Mn€	n/a	**-143 Mn€**	432 Mn€	9.8%	1.71	162 Mn€	143 Mn€
	FSU	394 Mn€	**-317 Mn€**	n/a	-246 Mn€	n/a	**-201 Mn€**	453 Mn€	10.9%	1.83	118 Mn€	201 Mn€

Figure 3 – Summary of economic and financial results for each technical option

Financial analysis:

Financial performance is negative for each combination (i.e. Financial Net Present Value is negative), meaning that in each case the project is not self-sustainable from a financial point of view, and therefore needs additional funding to cover both Capex and operating losses.

Project Capex are assumed to be covered in part from EU grant (up to 30% of total value) and the remaining part from private investors, while operating losses are assumed to be covered by either public subventions and / or financing loans.

In particular, the issue of financial sustainability is minor for combination 1 (total cumulated deficit 21 Mn € related to Phase I – “isocontainers”), and can be addressed by provision of public subventions or financing from a loan – reference to Figure 4. On the other hand, for combinations 2, 3 and 4, the issue is heightened as the cumulated deficit is significantly higher (i.e. 493 € Mn for liquefaction, 143 € Mn for FSRU and 201 € Mn for FSU).

Technical option		Financial analysis					
Phase II	Phase III	CAPEX (P.II-III)	FNPV(C) @6.5%	FRR(C)	FNPV(K) @6.5%	FRR(K)	Operating Losses
ISOCONTAINERS	ONSHORE TANK	211 Mn€	-56 Mn€	3.5%	-17 Mn€	5.4%	-21 Mn€
	LIQUEFACTION PLANT	499 Mn€	**-425 Mn€**	n/a	-336 Mn€	n/a	**-493 Mn€**
	FSRU	540 Mn€	**-375 Mn€**	-10%	-278 Mn€	n/a	**-143 Mn€**
	FSU	394 Mn€	**-317 Mn€**	n/a	-246 Mn€	n/a	**-201 Mn€**

High Capex for options 2 to 4 have an impact on financial analysis

High Opex for options 2 to 4 have an impact on financial sustainability

Figure 4 – Summary results for financial analysis

Detailed analysis and explanation are covered in Chapter “Financial analysis” of the report “Detailed option analysis and cost benefit analysis”.

Economic analysis:

Economic analysis shows positive performance for each combination (i.e. Economic Net Present Value is positive), implying that each option provides economic benefits for society which are higher than economic costs. Positive economic performance is mainly driven by environmental benefits (i.e. reduction in emissions of greenhouse gas and air pollutants), as well as consumer and producer surplus generated by the use of LNG – reference to

Figure 5.

Technical option		Economic analysis					
Phase II	Phase III	Emission reduction @2056	Producer surplus @2056	Consumer surplus @2056	ENPV @5%	ERR (%)	B/C ratio
ISOCONTAINERS	ONSHORE TANK	202 Mn€	22 Mn€	9 Mn€	970 Mn€	21.0%	5.14
	LIQUEFACTION PLANT	202 Mn€	- 25 Mn€	9 Mn€	372 Mn€	9.8%	1.67
	FSRU	202 Mn€	2 Mn€	9 Mn€	432 Mn€	9.8%	1.71
	FSU	202 Mn€	- 2 Mn€	9 Mn€	453 Mn€	10.9%	1.83

Highest value for onshore tank, due to lower operating costs vs other options

Figure 5 – Summary results for economic analysis

On the basis of this analysis, combination 1 provides the highest economic rate of return which is 21% compared to lower rates for the other combinations.

Detailed analysis and explanation are covered in Chapter “Economic analysis” of the report “Detailed option analysis and cost benefit analysis”.

Sensitivity and risk analysis:

Sensitivity analysis has been performed on the most economically viable option, that is, combination 1 (isocontainer + onshore tank).

Results of the sensitivity analysis show that economic performance remains positive in all scenarios analysed, proving that the solution is robust from an economic point of view – reference to Figure 6.

Variable	Scenario	Δ FNPV	FNPV Mn €	FRR %	Δ ENPV	ENPV Mn €	ERR %
Volume	**LOW**	-130%	**-124**	**-3.1%**	-73%	**265**	**11.3%**
	HIGH	+35%	**-35**	**5.4%**	98%	**1930**	**23.6%**
Capex	**+25%**	-73%	**-93**	**2.2%**	-5%	**923**	**18.7%**
	-25%	+72%	**-15**	**5.6%**	5%	**1030**	**24.5%**
Opex	**+25%**	-32%	**-71**	**2.7%**	-4%	**933**	**20.2%**
	-25%	+31%	**-37**	**4.6%**	4%	**1020**	**22.1%**
LNG Commodity Cost	**+25%**	-156%	**-138**	**-5.2%**	-12%	**859**	**19.7%**
	-25%	+158%	**31**	**7.8%**	12%	**1094**	**22.5%**
LNG Price	**+25%**	+223%	**66**	**9.1%**	0%	**976**	**21.1%**
	-25%	-223%	**-174**	**n/a**	0%	**976**	**21.1%**

Figure 6 – Results of the sensitivity analysis for “Onshore tank” technical option

In addition, risk analysis has been performed highlighting commercial risks potentially affecting the project, identifying most relevant mitigation strategies that, if implemented, would lead to acceptable levels of residual risk – reference to Table 2.

Table 2 – Mitigation matrix

Risk description	Probability (P)	Severity (S)	Risk level	Prevention / mitigation measures	Residual risk
Demand for LNG bunkering is lower than foreseen in market study	C	V	**High**	Infrastructure for LNG bunkering should be put in place only when certain conditions are met, in particular: – Regulatory framework is clearly defined and applied across EU area – Pilot projects / contracts are in place with ship owners – Competitive landscape does not compromise sustainable business for Malta	**Moderate** (acceptable)
Increase in Capex / Opex	C	IV	**High**	Capex and Opex values are going to be identified with a higher level of accuracy during further engineering phases (e.g. FEED)	**Low** (acceptable)
Higher than expected LNG commodity cost	C	IV	**High**	Increase in commodity cost can be mitigated by developing long-term contracts with molecule suppliers and / or by hedging	**Low** (acceptable)
Lower than expected LNG bunkering price	C	IV	**High**	Decrease in LNG bunkering price can be mitigated by developing long-term contracts with ship owners and / or by hedging	**Low** (acceptable)

- **C: Is a probability for the risk to happen about as likely as not (33 – 66% probability)**
- **IV: is a risk of Critical Severity**
- **V: is a risk of Catastrophic Severity**

Detailed analysis and explanation are covered in Chapter "Sensitivity analysis and risk assessment" of the report "Detailed option analysis and cost benefit analysis".

In conclusion, the cost-benefit analysis shows that combination 1 (isocontainer + onshore tank) renders the highest economic rate of return. From a financial perspective, the option renders a negative return but its strong positive economic return would render the project viable to tap into funds. Sensitivity analysis also shows that for this combination economic performance is robust and that potential commercial risks can be mitigated with specific actions, in particular:

- Development of pilot projects to ensure development of initial market phase
- Development of further detailed engineering studies to increase accuracy of Capex and Opex levels
- Establishment of long-term contracts with molecule suppliers to mitigate increase in commodity costs
- Establishment of long-term contracts with ship-owners to secure LNG bunkering price

On the contrary, all other combinations (including PCI phase 1 and phase 2) render lower economic rates of return and stronger negative financial performance therefore cannot be considered as feasible solutions compared to combination 1.

Optimal Solution: Combination 1 (Option 1 isocontainer + Option 2 onshore tank)

Optimal solution foresees use of isocontainers to cover for the initial development of the market (i.e. phase II) and subsequent installation of an onshore tank to cover for increase in demand in phase III.

In particular, infrastructure for the onshore tank option is mainly composed of:

- Loading arms
- New transfer line
- New platform for LNGc on existing FSU jetty
- 1 Storage tank with 25,000 m^3 capacity sited instead of an existing gasoil storage tank (plan to be dismantle 1 of the 4 tanks)
- Truck loading station in area to be defined - 1+(1) loading bay

While mobile assets include:

- 2 LNG tanker trucks
- LNG carrier (10,000 m^3)
- LNG bunker vessel (7,000 m^3)

Actual site for this option's facilities shall be either considered within Delimara Complex or in other existing port (e.g. Freeport, Valletta port). Regarding the Comprehensive ports of Malta (Cirkewwa & Mgarr) it can be possible to develop LNG ship refuelling services, using LNG truck tanker (loaded with LNG in Delimara) to fuel LNG to the ship.

TTS (truck to ship) LNG refuelling can be evaluated as a berth service for LNG fuelled passenger and RORO ships. This option doesn't need large spaces on quay to be developed.

The minimum area dimensions required for this technical solution are:

- 40 x 70 m for the truck loading station
- Existing storage tank area

Financial analysis overall shows negative values for both FNPV(C) and FNPV(K), which means that EU financing (tot 63 €M) is not sufficient to provide for a positive financial return (in fact both FRR(C) and FRR(K) are lower than 6.5%). In any case, higher EU co-financing rates (e.g. 60% co-financing from EU commission) would yield a rate of return of 8.3%, higher than 6.5%.

Looking at financial sustainability, the project shows an initial period of cumulated net negative cash flows (i.e. cash deficit) from 2025 to 2032, attributed to the fact that in phase II (2025-2030) revenues from the sale of LNG are not sufficient to cover for operating costs related to isocontainers.

Total value of cash deficit that needs to be covered in order for the project to be sustainable is equal to 21 €M. In this regard, it is foreseen that required funding will be provided either by public subventions or by debt financing (e.g. a loan). Based on this assumption, onshore tank option is therefore deemed to be financially sustainable.

Economic analysis overall shows a positive ENPV (976 €M) and an Economic Rate of Return of 21.1%, higher than the Social Discount Rate (i.e. 5%), which means that the project generates positive economic performance.

It is also worth noting that, on the conservative side, indirect benefits related to phase 1 and phase 2 of the PCI have not been included in the analysis. These indirect benefits are:

- Use of the pipeline as a source of gas for Malta's power plant and the national inland market
- Market integration, competition and sustainability
- Possibility of supplying natural gas to the Italian gas grid, and potentially to other European countries
- Use of LNG storage as a security of supply for Malta. This benefit relates only to options 2 "onshore tank", 3 "liquefaction plant" and 4 "FSRU". In fact, option 5 "FSU" is not connected onshore and cannot be used as a security of supply in case of emergency.

A dedicated annex has been developed with reference to this last point on security of supply (reference to Annex V - "Estimation of additional benefits: security of supply"). It is shown in this annex that security of supply's benefit could range from a minimum of 142 M€ (one week - off peak period) to a maximum of 1.17 Bn € (one full month - peak period). These values suggest that in the light of security of supply for Malta considering the LNG storage is also economically beneficial from a quantitative perspective.

In conclusion, onshore tanks option 2 is considered as a **win-win scenario** for both LNG bunkering and power generation considering:

- Malta's Strategic Position
- Present and Future Fuel Bunkering Market
- Marsaxlokk and Valletta ports as Core Network Points
- Costlier Offshore Scenarios (offshore FSU/FSRU);
- Back-up supply in case of gas supply disruption from pipeline – Excluding use for bunkering, and assuming a gas quality similar to the current specifications, 2 X 25,000m^3 storage may provide fuel for D3's and D4's plant for around 16 days of full output (around 22 days in case DF engines are switched to gasoil).
- N-1 infrastructure requirement as obligatory in the Gas SoS Regulation is complied with.
- Source of revenue from LNG bunkering market
- Source of revenue from future inland markets, example industry, hotels, and road transport
- Possibility of exporting gas to Italy (reverse flow through pipeline) in case of gas disruption (an additional compressor station is required for such scenario)

PCI Phase 1 solution: Combination 2 (Option 1 "Isocontainer" + Option 3 "Liquefaction plant")

In relation to PCI Phase 1 solution (i.e. Combination 2) where LNG is sourced from Phase 1 of the Malta-Italy gas pipeline interconnection through a liquefaction plant & storage, the total CAPEX of Combination 2 has been estimated at 499.3 million Euros with an operational cost of 3 million Euros in 2025 increasing to 29 million Euros in 2056. From the financial analysis it was evident that such a solution proves to be financially unsustainable, yielding negative results for both FNPV(C) and FNPV(K), meaning that not even EU funding at 30% co-financing rate (i.e.150 €M) would be sufficient to provide for a positive financial return. In fact, both FRR(C) and FRR(K) are lower than 6.5%. The project shows an irreversible trend of cash deficit since annual revenues from LNG sales are not sufficient to cover operating costs. This is mainly due to operating costs for the liquefaction plant being very high as the liquefaction process is very energy intensive and is disadvantaged from lack of economies for scale. The total value of the cash deficit that needs to be covered in order for the project to be sustainable is equal to 493 €M; a value that is not expected to be covered by either higher EU funding rates, public subventions nor by debt financing (e.g. a loan).

PCI Phase 2 solution: Combination 3 (Option 1 "Isocontainer" + Option 4 "FSRU")

In relation to the PCI Phase 2 (Combination 3) which relates to the "offshore FSRU solution", the study has identified the optimum sizing of the infrastructure as an FSRU with a capacity of 60,000 cubic meters. The capital investment of the Option#4 solution is 520 million Euros with an operational cost of 3 million Euros in 2025 rising to 27.1 million in 2056. The size of the FSRU has been defined considering maximum potential demand in Malta (i.e. HIGH scenario). Even though MID scenario is considered as the most representative scenario, technical options should be scalable to reach up to the maximum potential demand. In addition, currently there are existing LNG carriers available that could be converted to an FSRU, with a size close to 60,000 m^3.

With reference to the financial analysis, the overall results show negative values for both FNPV(C) and FNPV(K). A 30% EU co-financing rate (i.e. 162 €M) is not sufficient to provide for a positive financial return. In fact, both FRR(C) and FRR(K) are lower than 6.5%. Looking at financial sustainability, this solution shows an irreversible cash deficit trend since in each year, revenues from LNG sales are not sufficient to cover operating costs. This is mainly due to operating costs of an FSRU being very high. Total value of cash deficit that needs to be covered in order for the project to be sustainable is equal to 143 €M, a value that is not expected to be covered either by public subventions or by debt financing (e.g. a loan).

<u>Indirect Benefits</u>

List of indirect benefits related to phase 1 and phase 2 of the PCI (not included in the CBA) comprise the following:

- Use of the pipeline as a source of gas for Malta's power plant and the national inland market
- Market integration, competition and sustainability

- Possibility of supplying natural gas to the Italian gas grid, and potentially to other European countries

Use of LNG storage as a security of supply for Malta. This benefit relates only to options 2 “onshore tank”, 3 “liquefaction plant” and 4 “FSRU”. In fact, option 5 “FSU” is not connected onshore and cannot be used as a security of supply in case of emergency. Given that all four Phase III options (i.e. Option 2 “Onshore tank”, Option 3 “Liquefaction plant”, Option 4 “FSRU”) offer some type of storage infrastructure with a capacity >50,000 cubic metres, such storage can be utilized not only for supplying the LNG bunkering market but will also have a secondary but important benefit of providing security of supply for power generation in the case of disruption of gas flow from the pipeline interconnection. The rationale is that in the case of a MT-IT pipeline shut down, Malta can use the LNG storage to supply fuel to Delimara gas-fired power plant through the present on-shore regasification which will remain operational, therefore avoiding the loss of load. This has been specifically addressed in Annex V report and such security of energy supply benefit has been quantified for the highest-ranked solution being that of Option 2 “On-shore tanks”. In view of these benefits, such an option may be eligible to PCI status under the TEN-E Regulation and it is thus recommended that the Project Promoter takes up informal discussion with the European Commission on such a possibility.

It is to be noted that the maximum 30% co-financing rate which has been assumed in all the financial analysis is the current applicable co-financing rate for proposals submitted under CEF- Transport “Motorways of the Seas”. In May 2018, the European Commission clearly indicated that it will budget €24.5 billion on transport, energy and digital infrastructure projects between 2021 and 2027 as part of a second Connecting Europe Facility under the next Multiannual Financial Framework. About €12.8 billion will be made available for transport projects, €8.7 billion for energy projects and the remaining €3 billion for digital services. Part of the transport funding will also fall under the umbrella of the Cohesion Fund with that cash earmarked for use in poorer countries in Central Europe and the EU’s southern island members. The aim of the second CEF program is to look at bridging the gap between the three sectors.

“The future program will better exploit the synergies between transport, digital and energy infrastructure, for example through developing alternative fuels infrastructure or sustainable and smart grids,” the Commission said.

Hence, the Commission has clearly indicated that priority will be given to Synergy Actions between Energy and Transport with specific reference to alternative fuel infrastructure. In this respect, the sole CEF-Synergy Call which was issued in 2016 under the current programming period had a co-financing rate of maximum for 60%. The indications are that such action will be eligible to the highest co-funding rate of the sectors concerned.

In the likelihood that future Synergy Calls in the next programming period of 2021-2027 will have a co-financing rate of 50% or higher instead of the present 30% applicable for Motorways of the Seas, the funding through the Programme for Combination 1 (isocontainer + onshore tank) will become even more attractive to finance the investment cost of the project leading to a higher return on national capital. It is however to be noted that the co-financing rate applies to the investment cost and therefore shortfalls in operational costs would have to be funded through the provision of a loan or national sources subject to competitive considerations.

Hence, it is recommended:

- To pursue discussions with the relevant stakeholders to explore the possibilities of applying for PCI status for the "On-shore Tanks" solution in the 5th PCI list selection process of 2020/2021.
- To conduct further detailed studies on the Combination 1 solution – ISO containers + On-shore Tanks (i.e. basic design, location, optimal sizing, permitting, etc.).
- LNG bunkering infrastructure (specifically the on-shore tanks) may be eligible for future CEF Synergy grants for studies and works during the next programming period (i.e. 2021-2027). Priority is being given to such actions.
- ISO containers, truck loading facility and bunker barge may also be eligible for funding under CEF Transport.
- The timing of implementation of the infrastructure is highly dependent on the development of the LNG bunkering market post 2025.