EA 14/13 - Delimara Gas and Power - CCGT (Combined Cycle Gas Turbine Power Plant) and LNG (Liquified Natural Gas) Receiving, Storage and Regasification Facilities, at, Delimara, Marsaxlokk

DIN L-ART HELWA RESPONSE TO THE MALTA ENVIRONMENT AND PLANNING AUTHORITY

JANUARY 2014

The permanent presence of such a large LNG storage tanker, together with a supply ship of the same size, is a threat to the power station, the Freeport, fishing boats, and the lives and health of people in the vicinity. Before taking any decisions, studies must be undertaken to consider all alternatives with more safety distance and less traffic movements. Even if the potential frequency of accidents is once in 10,000 years, it can still happen next week.

Other suggestions for a new gas-fired power station include an offshore platform, a gas pipeline, and a proposal to base the gas storage in an area at Hal Far. Have these options been studied and compared in adequate detail? If so, why have the studies not been made public?

During the hearing it was claimed that mooring outside the bay is not possible, yet many offshore platforms exist which survive harsh weather conditions in the North Sea and elsewhere. More details about this option must be provided before any decisions on the LNG storage location is decided.

The proposed FSU is a conventional LNG tanker that will be moored to the jetty at Delimara and utilized as a permanent power station for 20 years. Design and reliability criteria for a movable LNG tanker and a fixed power station must be different since the tanker can regularly be shut down completely and all components inspected and maintained. A fixed power station will be switched on and all components must work continuously and reliably for 20 years. This raises serious concerns about the long term reliability of components that were not designed for this type of operation and suggests that it would be a safer option to have the FSU and regasification plant on the same platform in a remote offshore location.

The Risk Assessment is preliminary and must be completed before taking any decisions on the location of the storage of LNG. The assessment lacks precise data on the proposed storage ship and the re-gasification installation. Too few technical details on the installation are provided, when the devil for safety is often in the detail.

The assessment also does not adequately consider ship-to-ship collisions, which can cause leaks in the storage tanks on the tanker, and other maritime risks. A full maritime risk analysis must be carried out before any decisions are taken. Collisions can occur between the storage tanker, the incoming LNG tankers, freight ships or fishing vessels.

LNG stored on water allows the unrestrained spread of gas in case of a leak. The outflow of LNG on water causes rapid spreading. The report assumes a maximum spread area but this cannot be taken as an accurate fixed value as there are too many unknown variables. For example the effects of a large gas spill combined with the topology of Marsaxlokk and a low southerly wind blowing directly into the harbour have not been adequately considered. The gas dispersion model applied in the QRA is unfit to describe dispersion with a weak southern wind and the uncertain failure probability values.

The probabilities given for the failure of components such as hoses and loading arms are uncertain and not reliable. A leak may occur through failure of the permanently functioning loading arm between the storage tanker and the re-gasification plant. This has not been adequately considered, and the effectiveness of a safety water curtain on a large gas spill is not known.

The QRA underestimates the most risky scenario of a direct tank breach of either the storage unit or of a supply ship. It estimates the distance 129-133 m based on an assumption from Dutch reports, which are very general and not specific on LNG. On the other hand, from the publications it appears clearly that safety distances for a tank breach are an order of magnitude larger than calculated in the QRA.

The EIS coordinator notes that “making more use of the interconnector and reducing the use of the proposed CCGT may result in less environmental impact”. Din l-Art Helwa’s earlier request, submitted in relation to the draft EIS, to outline the utilisation rates of the proposed CCGT plant, the interconnector and the rest of the Delimara plants, is therefore still relevant and should be answered in the EIS which should address all environmental considerations and scenarios. No satisfactory answer has been provided to this question, which has environmental implications.

The response also notes that the Cost Benefit Analysis is being undertaken as part of the IPPC permit. Once the IPPC permit application is already underway, this information should be brought to the MEPA board for consideration at the same time as the planning application and related EIS. The development planning permit and the environmental permit of this project of national importance should ideally be considered together by the MEPA Board.

Din l-Art Helwa requests that the following points are not grouped and provided with a general answer, but instead that each of these points is answered individually and specifically:

1. RISK ASSESSMENT (QRA)

Din l-Art Helwa is attaching comments from risk analysis expert Prof Hans Pasman and two relevant articles to this document (Appendix A). The main comments are also reproduced below.

1. The QRA as performed by SGS is not only preliminary in the sense that it lacks precise data on the construction and sub-systems of storage ship and regasification installation, but it is also seriously incomplete because it does not contain a risk consideration of ship-to-ship collisions and other maritime risks, while the pool formation on water from a leak in one of the 35,000 m^3 tanks is treated very unsatisfactorily. Regrettably, the latter I became aware of after the public meeting, because these scenarios present consequences on the largest distances.

2. In fact, the permanent presence of at maximum 130,000 m^3 LNG in a floating storage unit and the temporary presence of a supply ship with the same amount form a threat to the power station, the container harbour, fishing ships, lives and health of people the vicinity. LNG stored in a water environment allowing unbounded pool formation is inherently much more unsafe than stored on land in a bunded park with double walled tanks.

3. In scenarios B01a and b of a tank wall penetration (gas tanker – release on water) Mr. Roberto Vaccari assumed a maximum pool spread area of 10,000 m^2. This assumption was based on three Dutch references ([21], [22], [25]), all known to me. Apart from the fact that I couldn't find the 10,000 m^2 in the reports, nor any statements where it could be derived from, but it may be implied somewhere, I don't believe it is a fixed value. The area is determined by the leak rate, the spreading rate and the evaporation rate, and in general it will be larger with a larger rate of outflow. Calculation is complex and difficult. Fay (MIT, US) and Webber (HSL, UK) present equations, but CFD would be better. Not all physical properties of LNG are well known. Validation is not well possible, while there are only results of a few, old, small amount tests available.

4. A recent paper in Process Safety Progress (attached) by a renowned American specialist expert (Mike Hightower, at Sandia) in this particular LNG risk aspect (with huge computer power at his disposal and funding by the US Senate) mentions the following distances depending on whether the cloud is ignited and forms a burning pool, or whether all LNG evaporates and a cloud drifts away:
1 m^2 hole, burning pool, Ø = 148 m, injury threshold population (5 kW/m^2) = 554 m

2		209 m	784 m
5		405 m	1579 m
1	, dispersion ,	148 m, distance to explosion limit	1536 m
2		209 m,	1710 m
5		405 m,	2450m

5. The larger the leak hole the shorter the spill time (40 minutes at 1 m^2 to 8 minutes at 5 m^2) The paper does not specify all weather conditions as these will have an effect, but it is clear that the distances in the SGS report of 129, 133 and 138 m of the B01 scenarios (page 65 of 88 in revision 2) are a severe underestimate. The probability of such a hole depends much on the conclusions of a maritime risk analysis.

6. About the dispersion model applied in the TNO Riskcurves software can be mentioned that it is a so-called integral model (2nd generation) taking account of heavy gases such as chlorine. How it behaves with a gas as LNG that is initially heavy, slowly warms up and becomes lighter than air, I don't know. It is certainly not suited for hilly terrain, buildings and *low* wind speeds. The only type of models that can calculate this kind of situations is the 3rd generation Computational Fluid Dynamic (CFD) type. The only CFD model that is rather recently validated and approved by the US authorities, is the Norwegian one I already mentioned and is called FLACS. Attached is the 2010 paper. That the US FERC (Federal Energy Regulatory Commission) approved is important, because in the US the safe distance is dependent on the dispersion and dilution till half the lower explosion limit, which is 2.5%.

7. Low wind speeds, below 2 m/s, create the most hazardous conditions. Figure 4 shows e.g., test MS27 (Maplin Sands near Thames estuary UK in 1980) at 5.5 m/s wind speed a distance to till 2.5% LNG of about 350 m. The release rate was 23 kg/s. Mr. Vaccari mentions for scenario B01, 732 and 856 kg/s, which I think is not too high, only about 1 m^3 per second!!

8. Failure probabilities for the components such as hoses, loading arms, and others are guesses. One cannot rely on it. There is some data collected in the US I expect, but I still have to see a sound data base on LNG components. So, risk figures are rather uncertain.

9. The used model and the risk criteria (individual risk and to a lesser extent societal risk) have to be considered in the Dutch context of Land Use Planning against the background of compromises government-industry. If people really get upset, as in a recent case of carbon dioxide sequestration pilot test at Barendrecht near Rotterdam, the government backed off, although the risk curves were much below criteria. Also there, many uncertainties played a role.

LNG Hazards

The risks of LNG operations are large scale spills on water and land, rapid evaporation, cloud formation and further consequences such as flash or pool fire with strong radiant heat effects over large distance. Explosion is usually not considered as methane is a relative low-reactive hydrocarbon which does not explode in the open, but only in confined space. LNG contains however small quantities of the more reactive ethane and propane hydrocarbons. After a spill of LNG, evaporated gas is at first heavier than air but when warming up it becomes lighter and disperses easily. However, as accidents with gasoline and other hydrocarbons have shown, large masses can make a large difference and strong, destructive explosion blast effects have been observed (e.g., Buncefield, UK, Dec. 2005; Jaipur, India, Oct. 2009). A flashing flame accelerates to high velocity but details of the mechanism of the explosions are still unclear. Experiments with LNG with relative small amounts compared to a tank content of 35000 m^3 did not show any blast when ignited.

Occupational hazards are asphyxiation and cold burns. Leaks in contact with normal steel cause embrittlement and loss of structural strength, which on a larger scale can impact a structure's stability. Boiling Liquid Expanding Vapor Explosion (BLEVE) in case of fire around a tank cannot be excluded but is less probable. Rapid Phase Transitions while boiling on water have so far not posed any threat. SGS considers all this. The report contains a number of statements which show the precarious character of the whole set-up/lay-out, e.g., on page 83 of 88 Conclusions, first paragraph, which highly recommends maritime risk assessments. Indeed, this can also be the summary of the comments made here: do not decide yet, but perform maritime risk assessment and look for alternatives offering more safety distance and less traffic movements. LNG accidents so far have been few, so it can be handled safely, but it is a hazardous substance and a good past record is no guarantee for the future.

1. *Accuracy of QRA studies*
   SGS performed the EIS land use risk assessment applying established methods. QRA is the best way to investigate a safety situation. However, the results have little absolute value, only relative; that is, it is useful to compare options but not more (In Annex 1 the 2000 EU study ASSURANCE is briefly summarized). Failure rates can easily be off a factor of ten or hundred. It are probabilities which can only be validated if many of the same kind of components exist, fail in the same mode, effect of local conditions can be included and the data can be treated in a statistically sound way. For the components applied here it is not very likely that such a data base exists. And even then, if a frequency can be established as lying in a certain range with an average of once in 10,000 years it can still happen next week. If, the risk source is that close to various kinds of vulnerable receptors as is here the case safety distances are also of interest. Hence, consequence analysis as SGS has performed, provides insight in the distances hazardous effects can reach. The weakness there is that any experimental evidence with amounts as large as a tank content (35000 m^3) does not exist (the largest spill in an experiment was not even 70 m^3). The effects can be stronger or weaker than predicted. But for the time being we don't have any other information. However, to state that the maximum extension of a flashing cloud is 962 m (scenario 03.a in the revision 2 of December 2013, see also Drawing #13) is suggesting an accuracy that is not justified. Are you safe at 963 m? What is the opinion of SGS in this matter?

2. *Possible scenario of damaging the CCGT installation*
   QRAs are focused on calculating fatalities. A real large hazard in this case is however also the ingestion of leaked natural gas by the combustion devices of the power station. These become uncontrolled due to the fuel that appears all of a sudden in the air intake, even if the concentration in the air is below the explosion limit. This may lead to turbines getting out of control which may end in power failure and further escalation. If the concentration in the cloud is

above the explosion limit, it may also cause strong ignition of the cloud. The mechanism of revving up a combustion engine has played a major role in several catastrophic accidents initiated by fuel leakages. SGS did only consider the hazard of a cloud being ignited at the site of the power station which would also cause heavy damage. How much margin is available in the present plan between edge of a possible cloud and air intakes (in view of drawing 13)? Has the topology of the hills surrounding the location been taken in account at a spill in case of a southern wind of low velocity?

3. *Reliability and effectiveness of protective/mitigative measures*
   The largest probability of a leak is the failure of the permanently functioning loading arm between FU and the regasification plant. What experience has been collected with the special safeguards (ERC Emergency Release Couplings) to protect against the failure of a loading hose as mentioned on page 65 of 88 about the ElectroGas proposal and in Annex C? Unreliability of a possibly sticking valve is not included. And what shall be the reliability and the effectiveness of a water curtain, more sophisticatedly called hydro-shield, in relation to scenario 03.a on page 65? Water curtains have been tested only on small scale LNG clouds and the effectiveness depends on many factors which can only be investigated by experiment. Does SGS have an answer?

4. *Cloud dispersion aspects*
   Page 38 of 88: With respect to prediction of cloud dispersion with the topological conditions mentioned (30 m high hills in all directions except West), it would make sense to make separately cloud dispersion calculations with a validated CFD code, e.g., FLACS, because the cloud dispersion models in EFFECTS (or DNV’s Phast) are integral models and are unreliable for close-in effects and interaction with obstacles and hills. Especially with heavy gas cloud and low wind this can be very important. Cloud dispersion is slowest during windless night condition and high stability, p. 36. The most favorable conditions for long stretching clouds are usually the presence of inversion layers. Please, comment.

5. *Ship-to-ship collisions*
   How will the incoming tanker manoeuver? On page 67 of 88 SGS considers in a very rudimentary way the risks of ship-ship collisions in the relative narrow and busy waterways near Marsaxlokk; why not asking this to an institute experienced in investigating ship-ship collisions and grounding? Collisions can occur between the storage tanker (floating storage unit, FSU) or incoming tank ships and departing freighters and fishing vessels, passing ships etc. Outflow of LNG on water causes rapid spreading and violent boil-off. SGS did calculate in scenarios B01.a and .b the consequence of a tank of 35000 m^3 emptying after having sustained a hole of 0.36 m^2 and reports a flash fire maximum distance of 129 and 133 m. Hightower et al. (Sandia report 2004-

6258)[1], probably world's best experts on LNG risks, expect that even at very low speed and the most safe double walled tanker construction, a 90^{o} collision will result in a tank been pierced. (Up to 4.5 knots the tank will not be penetrated, but at 6 knots collision speed the opening in the tank becomes already 5 m^2, although there is a chance that the two ships do not separate after the collision.) An opening of 1 m^2 will be sufficient to extend the distance to the lower explosion limit to 1.5 km in case the LNG does not ignite immediately! In Boston and Rotterdam harbors stringent precautions are taken to control traffic when a tank ship arrives, but there is no permanently present FSU moored which increases the probability considerably. For a new LNG terminal in Rotterdam harbor in 2008-9 extensive maritime port safety risk assessments have been performed by the Dutch MARIN institute with long-time experience in ship collision prediction resulting in a detailed admission policy. We appreciate SGS's conclusion with respect to maritime risk assessment but what will be its comments to ship-to-ship collision consequences?

6. *Possible flame acceleration generating blast*
   It is mentioned on page 66 of 88 that as can be expected, a cloud drifting towards the regasification and further to the power station will find an ignition source. The report does not mention flame acceleration due to congestion, but that is the mechanism that makes clouds not only flashing but producing destructive blast. Pipework, fences, greenery, columns and smaller buildings provide congestion. Hence, we agree with the statement that ignition of a cloud drifted inside the plant area shall have to be prevented at all times. SGS suggested to increase the distance between the FSU and the plant. But how far is far enough? The consultant takes as the edge of the cloud the 5% lower explosion limit concentration. But pockets of gas can still be flammable below that average concentration and therefore one takes usually 60% of LEL. What is SGS' comment?

7. *Event frequency increasing human factors*
   The reports confine themselves to a generic land use planning safety aspect and do not consider the effects of operational safety. Organizational and human factors in operation and maintenance have a strong effect on the mentioned failure rates and event frequencies. The reports base themselves on Seveso II and the 2003 Amendment. These directives introduce, besides others, the safety management system and process safety performance indicator metrics. Implementing and maintaining this requires local process safety competence and in view of the complexity of the installation of relatively high expertise level. Meanwhile Seveso III is into force

[1] Mike Hightower, Louis Gritzo, Anay Luketa-Hanlin, John Covan, Sheldon Tieszen, Gerry Wellman, Mike Irwin, Mike Kaneshige, Brian Melof, Charles Morrow, Don Ragland, *Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water*, Sandia-2004-6258, December 2004

(2012/18/EU) emphasizing the requirement of drawing up internal Enemalta emergency plans and providing data for external community plans, while inspection/auditing requirements are further strengthened. Are there any preparations from the side of Enemalta for the safe operation of the installations, since it needs considerable time to establish this for a complex Seveso top-tier plant? Indeed, the present QRA study can only be considered as preliminary. SGS states at page 41 of 88 commenting on further hazard identification techniques as HazOp: " Experience teaches us that for highly automated and controlled processes, these techniques add no additional credible scenarios Too few details are available to make more refined analysis." Our comment is, it may not add new scenarios but it usually can increase significantly the expected frequency of existing scenarios. In case of large safety space this would not be a problem, but in view of the small distances to population, other ship traffic and industrial activities it is a problem, and a definite answer to the question is it safe enough can hardly be given. How do you comment?

8. *Operation of resupplying the FSU and of feeding the regasification unit*
   The arrival of fresh supply by LNG tanker and unloading operations are another risk source. In line with the previous point this is a rather frequent operation giving cause to leakages and spills. In itself these spills may not be large, but in case of ignition by lightning or static electricity the problem is possible escalation. The ship structures provide confinement/congestion to spilled gas. The scenarios pertain all to component failures. Why are errors in the human operations not considered? What overfilling precautions have been taken from resupply ship to FSU? How is the continuous LNG flow from FSU to regasification plant controlled? What about loss of power and emergency shutdown e.g., in case of fire? Are any fast acting valves foreseen in case of breaking loose of any of the unloading arms?

9. *Threats to the FSU due to events elsewhere in the bay area*
   Threats to the FSU due to events elsewhere are not considered. What about a hydrocarbon spill in the bay due to a collision between for example a gasoline tanker and another freight ship, causing the gasoline to ignite? What are the operations at the dolphin in the bay? The storage tanker is an easy target for malevolent action, since it is in the field of view from many land position directions. A hole in a tank of 5-7 m^2 is not that difficult to obtain. Are any security measures considered? Why are domino effects by other Seveso installations in the area not considered?

10. *Construction of the FSU*
   To what specification is the FSU built? Single or double walled? How are the tanks insulated? With what materials? (Some insulating materials lose their insulating properties in case of external fire and may even themselves be combustible). At what pressures are the pressure relief valves set? How

frequently can roll-overs be expected? Where is in such case the escaping vapor being led to?

11. *Stability of the FSU, its maintenance and its connection with the regasification unit*
    How is the mooring stability assured? How are the motions of the FSU relative to the fixed wall position compensated? How flexible is the connection with the on land installation and how its endurance? How will the maintenance of the FSU be handled? Is there a reserve FSU available? As there is no buffer on land, there should be a continuous supply of gas to the turbines to guarantee power supply. How will the unloading arm, the feed pump etc. behave when permanently loaded? Has there been a reliability and availability study of these parts continuously in contact with the cryogenic?

12. *Emergency planning*
    A QRA and scenario analysis serve too for emergency planning. In fact, has there already a preliminary emergency plan drafted for the whole installation? Only small fires will be extinguishable. How will alarming and evacuation of workers and near-by population be organized? Emergency response will have also to come from the community, short response time is essential, how will the local councils cater for that?

13. *Need for technical details to appreciate the safety situation*
    We understand that so far few technical details on the installation are provided. However the devil for safety is often in the detail. So, when can more information be expected?

14. *Some detail questions:*
    Page 19 of 88: What purpose serves the propane system? P. 37: Releases on the jetty: 'pipeline from ship to storage tank'. What tank? There is no LNG tank on land, or is there?

N.B. There is an extensive Annex D on acceptance criteria, which can also trigger quite a few questions and comments, but I assume Malta does not have quantitative risk criteria cast in law and acceptance will be on adequacy of design, site positioning, lay-out and risk reducing measures taken including the ALARP (as low as reasonably practical). Hence, this annex may not be relevant at this time. SGS does mention in the annex US Department of Energy but not the US FERC acceptance regulation for LNG (exclusion zoning), which is on radiant heat threshold (5 kW/m^2) and vapor concentration (50% LEL) limits.

2. <u>NATIONAL ENERGY POLICY</u>

2.1 The Coordinated Assessment of the EIS (p.54) states that,

> 1.1.1.23 … the SEA states that the Government was to make a decision regarding the preferred infrastructural system [and therefore technology] for gas, which decision would then be evaluated through an EIA, risk assessment and so on:
> *At Government level, the type of infrastructure has not yet been identified. Once a decision is taken, detailed assessments including EIA, risk assessment etc would have to be carried out to identify and address any site specific issues. (ADI, 2012, p. 137)*

The complete quote from the SEA is actually as follows:

"7.121. The use of natural gas for the generation of electricity will result in a reduction in the emissions because this fuel has lower emission factors than the fuels currently used for electricity generation. All types of technologies considered require either the building of infrastructure or some sort of intervention. The LNG Terminal has the largest land based requirements whereas impacts from the floating terminal and the pipeline are mainly marine based. ***The information available at this stage is not sufficient to point to a preferred option, even from an environmental point of view. More detailed studies are required****.* ***At Government level, the type of infrastructure has not yet been identified.*** *Once a decision is taken, detailed assessments including EIA, risk assessment etc would have to be carried out to identify and address any site specific issues"* (p. 137)

It is clear in the full quote that the SEA first calls for detailed studies to decide on a preferred option, including from an environmental point of view. It is only <u>once these studies have been finalised and a decision is taken</u>, that "detailed assessments including an EIA, risk assessment etc would have to be carried out to identify and address any site-specific issues."

Yet the required studies and environmental assessment identifying the preferred choice between an LNG terminal and an LNG gas pipeline <u>have not been presented to the public</u> <u>and do not appear to have been carried out at all.</u>

As the EIS quotes paragraph 7.121 from the SEA, Din l-Art Helwa requests that EIS should address the points raised in paragraph 7.121 comprehensively and provide an explanation on why the required detailed studies have not been carried out.

Din l-Art Helwa maintains that these studies should have been carried out as part of an update to the National Energy Policy, which would also have ensured that structured and objective public consultation takes place on all options for gas infrastructure.

2.2 The comments on the QRA attached to this document in Appendix One, call for caution in choosing the final option, and requests that all marine-based options should be assessed further. Other comments received by Din l-Art Helwa include a gas pipeline, and a proposal to base the gas storage in an area at Hal Far. Have these options been studied and compared in adequate detail? If so, why have the studies not been made public?

2.3 The EIS has not provided an adequate answer to the following query made by Din l-Art Helwa in relation to the draft EIS:
" 5. The Project Description Statement states that the Delimara3 extension (when converted to gas) is only expected to have a utilisation rate of 50% once the proposed CCGT plant is operational. What are the expected utilisation rates of the proposed CCGT plant, the Interconnector, and the rest of the Delimara plants, from 2015 to 2020? What will be the "default pecking order" of the various power plants and the Interconnector? This analysis must be included in the EIS."
The EIS coordinator response is as follows: "*The EIS covers an application for a new CCGT and assumes that such CCGT will be utilised to satisfy base load requirements. Other considerations such as making more use of the interconnector and reducing the use of the proposed CCGT may result in less environmental impact, but such a decision is not only taken on the environmental impact but on a range of other considerations including but not limited to economic issues. Such considerations are being dealt with in the CBA which will form part of the IPPC permit as requested by MEPA."*

The EIS coordinator notes that "making more use of the interconnector and reducing the use of the proposed CCGT may result in less environmental impact". Din l-Art Helwa's earlier question, submitted in relation to the draft EIS, to outline the utilisation rates of the proposed CCGT plant, the interconnector and the rest of the Delimara plants, is clearly relevant and should be answered in the EIS which should address all environmental considerations and scenarios. No satisfactory answer has yet been provided to this question, which has environmental implications.

The response also notes that the Cost Benefit Analysis is being undertaken as part of the IPPC permit. Once the IPPC permit application is already underway, this information should be brought to the MEPA Board for consideration at the same time as the planning application and related EIS. The development planning permit and the environmental permit of this project of national importance should ideally be considered together by the Board.

3. SOCIAL IMPACT ASSESSMENT

Din l-Art Helwa had specifically requested in the previous round of consultation that stakeholders in the area would be shown photomontages of the project during the Social Impact Assessment.

Yet the Social Impact Assessment for this EIS was carried out in July 2013, well before the photomontages of the final option were available, so stakeholders have not had the opportunity to view any images of the proposed layout and visual impact.

Why have stakeholders not been shown up-to-date photomontages of the project, when it is clear that visual impact is a major concern? Why was the Social Impact Assessment not updated?

4. NOISE IMPACT ASSESSMENT

The Noise Impact Assessment recommends that development in certain areas of Marsaxlokk should be restricted, especially building heights, due to possible noise impacts. This is in line with the mitigation measures proposed in the national Noise Action Plan. Yet this recommendation does not appear to be included in the Coordinated Assessment of the EIS – why has it been left out? How will this issue be addressed and what detailed mitigation measures are being proposed?