Delimara Gas and Power

Combined Cycle Gas Turbine

and

Liquefied Natural Gas
receiving, storage, and regasification facilities

Delimara Power Station

Triq il-Power Station – Marsaxlokk

ENVIRONMENTAL IMPACT STATEMENT

Coordinated Assessment Report

Volume Four

Non-technical Summaries
Maltese Language
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prepared by
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Environmental Impact Statement

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Sommarju mhux tekniku

Reviżjoni

Nru	Data	Minn	Raġuni għar-reviżjoni
03	20 ta' Diċ 2013	PG	It-tielet draft sottomess lill-MEPA
01	20 ta' Nov 2013	PG	It-tieni draft
00	02 Sett 2013	PG	L-ewwel draft sottomess lill-Awtorità Maltija għall-Ambjent u l-Ippjanar

WERREJ

1 INTRODUZZJONI

1.1 Din id-dikjarazzjoni dwar l-impatt ambjentali (*Environment Impact Statement*, EIS) teżamina l-impatt probabbli tal-iżvilupp propost mill-Korporazzjoni Enemalta intitolat *Combined Cycle Gas Turbine and Liquified Natural Gas Receiving, Storage, and Regasification Facilities* fuq is-saħħa u l-aspett soċjali. L-EIS ġie ppreparat bi qbil mar-Regoli tal-Istħarriġ tal-Impatt Ambjentali (*Environment Impact Assessment,* EIA), li jdaħħlu fil-liġi Maltija l-*EIA Directive* tal-Unjoni Ewropeja, u skond dak indikat fit-Termini ta' Referenza maħruġa mill-Awtorita Maltija għall-Ambjent u l-Ippjanar.

1.2 L-EIS jikkonsisti f'rapport ta' stħarrig koordinat appoġġjat minn numru ta' rapporti magħrufa aħjar bħala *Environmental Survey Reports* (ESR) ippreparati minn konsulenti speċċjaliżati f'oqsma differenti. It-timijiet tal-EIA huma magħmula minn koordinatur wieħed u għoxrin konsulent kollha speċċjaliżati f'suġġetti speċifiċi bħal ġeoloġija, kwalita tal-arja, analiżi tal-ħsejjes, ekoloġija, grafika diġitali u oħrajn.

2 IL-PROĠETT PROPOST

2.1 L-iżvilupp propost jikkonsisti f'turbina tal-gass *combined cycle* (CCGT) li titħaddem bil-gass naturali. Il-gass se jinżamm storjat f'forma likwida b'temperatura ta' -162ºC (għalhekk l-isem *liquified natural gas* - LNG) f'tankijiet miżmuma fuq dak li jissejjaħ *floating storage unit* (FSU). Dan tal-aħħar ikun vapur li jiġi adattat biex iservi ta' faċilità għall-ħażna. Sabiex ikun jista' jsaħħan it-turbini l-LNG ikun jeħtieġlu li jerġa jsir gas. Dan isir permezz ta' dak li jissesaħ *regasification unit*, li bażikament isaħħan l-LNG sabiex qabel ma dan jasal fis-CCGT.

2.2 Is-CCGT jikkonsisti fi tlett turbini tal-gass u waħda tal-fwar. It turbini tal-gass jitħaddmu bill-gass naturali fil-waqt li dik tal=fwar titħaddem bis-sħana tal-exhaust tat-tlett turbini l-oħra. B'hekk jiħgi ġġenerat aktar elettriku bl-istess ammont ta' *fuel*. It-tlett turbini tal-gass ser jitqabbdu ma' sitt ċumniji, tnejn għal kull turbina tal-gass. Iċ-ċumniji ewlenin ser ikunu 75metru twal fil-waqt li dawk li jissejħu *by-pass stacks* ser ikunu 30 metru twal. Dawn jintużaw meta man tkunx qed taġdem it-turbina tal-fwar. Dan ser jiħri fl-ewwel sitt xhur tal-operat tas-CCGT, meta fil-fatt ser tkun qed taħdem bħala OCGT (open cycle gas turbine)

3 GĦANIJIET

3.1 L-iżvilupp li qed jiġi kkunsidrat fl-EIS kien propost lill-MEPA mill-Korporazzjoni Enemalta (permezz ta' Malta Power and Gas Limited) wara deċiżjoni meħuda mill-Gvern ta' Malta li mir-Rebbiegħa 2015, il-generazzjoni tal-elettriku għandha tkun mogħtija lill-Enemalta minn impjant tal-enerġija effiċjenti, *state-of-the art* li jaħdem b'gass naturali (NG). L-impjant huwa ppjanat li jikkontribwixxi favur tnaqqis sostanzjali fit-tniġġiż tal-arja, u l-gass naturali huwa l-aktar *fossil fuel* nadif disponibbli fis-suq. L-impjant il-ġdid tal-enerġija mistenni jaħdem b'aktar effiċjenza minn impjanti mħaddma bil-*gasoil* u *HFO* primarjament għaliex impjanti li jaħdmu bil-gass naturali huma aktar effiċjenti f'termini tal-*fuel* li jużaw.

3.0.1.1 Din l-istrategija mistennija tikkontribwixxi biex jintlaħqu l-miri tal-Unjoni Ewropeja dwar tniġġiż tal-arja u effiċjenza tal-enerġija. Din l-istrateġija għandha tikkumplimenta l-isforzi li qed isiru biex Malta tinvesti f'aktar teknoloġija rinovabbli.

3.0.1.2 L-impjant il-ġdid flimkien mal-impjant tal-enerġija f'Delimara u l-interkonnettur fi Sqallija għandhom jissodisfaw id-domanda għall-elettriku li qed tkun antiċipata b'mod mill-aktar nadif. Filfatt l-impjant li ġie installat riċentement, u li jaħdem bil-HFO għandu jkun mibdul biex jaħdem bil-gass naturali.

4 L-EIS

4.0 Introduzzjoni

4.0.1 Skond it-termini ta' referenza maħruga mill-MEPA, it-tim tal-EIA kellu jipprepara rapporti li jiddiskutu u jeżaminaw l-impatt probabbli tal-iżvilupp propost fuq riżorsi ambjentali speċifiċi u fuq in-nies. Is-segwenti huma s-suġġetti li ġew trattati:

- Użu tal-art
- Pajsaġġ u impatt viżwali
- L-ambjent ġeoloġiku
- Ilma tal-baħar
- Ekoloġija terrestri – fawna vertebrati u ekoloġija marittima
- Art agrikola
- Arkeoloġija tal-baħar
- Kwalita tal-arja
- Storbju
- Infrastruttura u utilitajiet
- Aċċess pubbliku
- Wirt kulturali (terrestri)
- Analiżi ta' riskju
- Studju tal-impatt fuq is-saħħa
- Studju tal-impatt soċjali

4.1 Użu tal-Art

4.1.1 Ir-rapport dwar l-użu tal-art ipprovda deskrizzjoni dettaljata tal-użu varju tal-art u anke' tal-kopertura tal-art kollha tal-peninżula ta' Delimara. L-użu predominant tal-art fuq il-peninżula ta' Delimara huwa l-użu agrikolu, għalkemm hemm ukoll xi djar residenzjali, li ssibhom pjuttost iżolati minn xulxin u jinsabu qrib il-kumpless tal-Power Station. Hemm ukoll tratti ta' abitat naturali u semi-naturali fuq il-peninżula (identifikat fil-mappa bħala komunita ta' bio-tip speċifiku u skond id-dominanza jew il-karateristiċi tal-ispeċi) flimkien ma' elementi storiċi fil-pajsaġġ.

4.1.2 L-użu industrijali maġġuri tal-art fil-Power Station ta' Delimara jirrapreżenta użu distint u kontrastanti għal kollox mal-kumplament tal-kuntest rurali li jiddomina din l-art. Il-peninżula hija kkarateriżżata wkoll min numru ta' forti mibnija mill-Ordni ta' San Ġwann u anke' mill-Ingliżi.

4.1.3 Hemm xi espansjonijiet tal-art li huma meħuda minn veġetazzjoni naturali. Ħafna minn dawn jinsabu fuq jew fil-qrib tal-kosta. Numru ta' siġar ukoll ġew innutati.

4.2 Pajsaġġ u studju tal-impatt viżwali

4.2.1 Il-pajsaġġ preżenti fiż-żona huwa karaterriżat minn diversita kbira u użu varjat tal-art, inkluz użu industrijali, agrikoltura, elementi residenzjali u anke' rikreazzjonali. Il-prominenza viżjwali ta' dawn l-elementi differenti tvarja skond il-post. L-impatt tal-iżvilupp propost huwa sa ċertu punt mitigat bil-fatt li hemm numru ta' karateristiċi industrijali diġa eżistenti fuq is-sit u anke' fuq il-pajsaġġ tal-madwar. Minkejja dan, potenzjalment jista' jkun hemm il-possibilta ta' impatt negattiv fuq il-Bajja ta' Marsaxlokk, li jista' jkompli jneħħi l-attenzjoni minn fuq il-karattru rurali tal-peninżula ta' Delimara, minkejja li partijiet sħaħ minn din il-peninżula diġa ġew mħassra għal kollox.

4.3 Ambjent ġeoloġiku

4.3.1 Il-formazzjonijiet ġeoloġiċi prinċipali esposti fuq il-peninżula huma il-ġebla tal-franka (*globigerina limestone)* tan-nofs u ta' fuq.

- Il-ġebla tal-franka tan-nofs hija esposta fil-parti tal-irdum li jifforma konfini fin-naha tal-Lvant mal-Power Station ta' Delimara. Din il-ġebla hija ħoxna 50 metru. Meta esposta ġeneralment tidher bajda imma meta tinqata' tidher ġebla griza li wara ftit tinbidel f'bajda. Il-kontenut tafli tal-ġebla m'huwiex wieħed b'saħħtu ħafna hekk kif l-elementi staġjonali jwasslu biex din il-ġebla tixxarrab u terġa' tinxef, iwasslu biex il-kontenut taffli jespandi u jiċkien b'tali mod li jidhru evidenti qsim fejn il-ġebel hu espost.
- Il-parti ta' fuq tal-ġebla tikkonsisti f'żewġ tipi ta' saffi ta' ħxuna ta' madwar 8 metri l-waħda. Kull saff hu magħmul minn ġebla tal-franka li tidher kanella ċar fil-kulur, ratba u moderament

dgħajfa. Fin-nofs imbagħad hemm saff ieħor ta' madwar 5 metri ħxuna. Il-ġebla tal-franka taflija safra tinqasam malajr meta tkun mikxufa għall-elementi. Is-saff griż huwa impermejabbli u jekk espost jinxef minħabba li jiċkien u jinqasam. Meta jerġa' jixxarrab jitfarrak. Il-ġebla tal-franka ta' fuq (*upper globigerina limestone)* hija pjuttost dgħajfa.

4.3.2 Ir-rapport ġeo-ambjentali jidentifika il-karatteristiċi ġeomorfoloġiċi l-aktar evidenti fiż-żona, li jinkludu l-Ħofra ż-Żgħira li tixbaħ il-forma ta' amiftejatru, dawk li jissejjħu 'cuesta' fuq il-parti ta' fuq tal-promontorju, l-irdum fuq kull naħa tal-peninżula, il-forma ta' żurżieqa bil-ġebla tal-franka tan-nofs fin-naħa ta' fuq tal-Power Station ta' Delimara u l-kosta ta' bejn il-ponta ta' Delimara u l-Ħofra.

4.3.3 Peress li l-ġebla tal-franka tan-nofs hija impermejabbli ma kienx possibbli li jiżviluppa l-akwifer. Fil-fatt iż-żona ma tiffurmax parti miż-żona protetta tal-ilma tas-saff (*ground water)*. F'termini ta' idroloġija, l-ilma li ma jiġix asorbit jispiċċa fil-baħar fil-parti fuq is-*site catchment* (magħmula mis-sit tal-Power Station ta' Delimara u l-akwati tal-madwar).

4.4 Studju tal-ilma tal-baħar

4.4.1 L-istudju tal-ilma tal-baħar analiżża l-kwalita tal-ilma eżistenti tal-baħar u d-depożiti li hemm fil-qiegħ taż-żona marittima studjata. Ir-rapport identifika wkoll is-sorsi eżistenti ta' tniġġiż. Irriżulta li l-kwalita tal-ilma f'Marsaxlokk hija raġonevolment tajba għal ħafna mill-parametri, b'mod partikolari meta kkumparat ma' żoni oħra fil-port. Okażżjonalment depożiti fil-qiegħ tal-baħar kienu mniġġża b'livelli baxxi ta' żejt u metalli oħra. Fil-Ħofra ż-Żgħira (li tirċievi ilma li jkessaħ mill-Power Station ta' Delimara), apparti mill-anomaliji termali li wieħed jistenna, ma kienx hemm evidenza ta' xi impatt maġġuri fuq il-kwalita tal-ilma. A bażi tal-informazzjoni disponibbli, ir-rapport ikkonkluda wkoll li l-istatus kimiku tal-ilma jista' jkun proviżorjament meqjus bħala potenzjalment tajjeb.

4.5 Ekoloġija terrestri

4.5.1 Parti kbira miż-żona li se tkun milquta direttament jew indirettament bl-estensjoni proposta għall-Power Station ta' Delimara hija art li jew hi mibnija diġa, jew qed tiġi kkultivata b'mod attiv jew hija art agrikola mitluqa. L-aktar tip ta' kolonja ta' pjanti li tista' tiġi milquta mill-iżvilupp propost hija il-pjanta magħrufa bħala Rdum li hija dominata l-aktar mix-Xebb (*Darniella melitensis,* bl-Ingliż *Maltese Salt-Tree*), (pjanta endemika għall-gżejjer Maltin protetta taħt ir-Regolament 26 tal-Avviż Legali 311/2006) u f'ċertu nħawi il-pjanta Ħalfa (*Lygeum spartum* bl-Ingliż *Esparto Grass*). Ħafna miż-żona proposta għall-iżvilupp għandha kolonji ta' pjanti li huma karatteristika t'artijiet disturbati. Parti minn din iż-żona hija karatteriżata minn ammont ta' *debris* tal-ġebla tal-franka miġbur f'munzelli li fuqhom kien qed jikber element ekoloġiku primarju. Il-veġetazzjoni fuq dawn il-munzelli ta' trab tinkludi speċi ta' pjanti li jikbru mal-ewwel f'art li tkun ġiet disturbata u huma karatteristika ta' pjanti li jikbru fil-fażi inizjali u fażi aktar tardiva f'żoni agrikoli u kostali, iżda jinkludu wkoll ix-Xebb (*Darniella melitensis,* bl-Ingliż *Maltese Salt-Tree*) u l-pjanta magħrufa bħala Lixka Komuni (*Phagnalon graecum* subsp. *Ginzbergeri,* bl-Ingliż *Eastern Phagnalon*).

4.6 Fawna vertebrati

4.6.1 Sar studju tal-fawna terrestri (għasafar, mammiferi nklużi friefet il-lejl, amfibji u rettili) fiż-żona magħrufa bħala il-Ballut ta' Marsaxlokk, li testendi madwar il-Power Station ta' Delimara lejn il-ponta ta' Delimara. L-istudju sar b'rabta mal-proġett propost ta' *Combined Cycle Gas Turbine* (CCGT) u l-faċilitajiet ta' *Liquified Natural Gas* (LNG) li jiffurmaw parti mill-kumpless tal-Power Station ta' Delimara u jagħmlu parti mill-Istudju tal-Impatt Ambjentali għal dan il-proġett.

4.6.2 L-istudju inkluda sew *fieldwork* u anke' analiżi ta' materjal eżistenti. L-istudju ta' materjal eżistenti kien ibbażat fuq *data* miġbura minn osservazzjonijiet għal tul ta' żmien fuq speċi residenti u anke' speċi migratorji kif ukoll informazzjoni miġbura minn publikazzjonijiet lokali. Studju ieħor sar permezz ta' *fieldwork* fuq il-post bejn Mejju u Ġunju 2013 biex tkun irreġistrata l-imġieba tal-għasafar meta jgħammru fiż-żona u biex tirrikonferma l-preżenza ta' vertebrati irreġistrati fis-snin ta' qabel. Osservazzjonijiet diretti matul il-ġurnata u tard filgħaxija intużaw meta kien qed isir l-istħarriġ dwar l-għasafar. Stħarrig dwar friefet il-lejl u mammiferi

oħra inkludew it-twaħħil ta' nasses *Longworth* biex jirreġistraw il-preżenza ta' mammiferi żgħar ħafna (*micro*) li ma jtirux jew huma terrestri, l-użu ta' *detector* ta' friefet il-lejl biex ikunu lokaliżżati friefet il-lejl li jtiru, u stħarriġ fuq l-art bil-mixi tul linji stabilliti minn qabel biex ikunu reġistrati xi fawna.

4.7 Ekoloġija marittima

4.7.1 L-istudju ekoloġiku marittimu sar billi saru osservazzjonijiet diretti minn grupp ta' xjentisti li huma bugħaddasa, bil-għan ewlieni li jkunu prodotti mapep li juru d-distribuzzjoni ta' abitat ta' qiegħ il-baħar u biex jistabilixxi l-preżenza ta' abitat u speċi li huma protetti u/jew li għandhom valur għoli ta' konservazzjoni. Ir-riżultati tal-istudji indikaw li b'mod ġenerali, fl-assjem tagħhom l-abitat u l-fawna li nstabu fuq il-kosta u fil-baħar (inkluż ħut) huma tipiċi ta' bajjiet oħra f'Malta. In ġenerali, l-abitat li nstab fiż-żewg żoni li ġew studjati huwa influwenzat minn fatturi fiżiċi ta' qiegħ il-baħar u l-karatteristiċi tal-kwalita tal-ilma. F'partijiet taż-żoni li ġew studjati, kien hemm varjanza sħiħa ta' tipi differenti li tirriżulta mid-differenza eżistenti tal-karatteristiċi fiżiċi ta' qiegħ il-baħar. L-abitat u l-fawna dehru fi stat aħjar fil-Ħofra ż-Żgħira meta mqabbel ma' Delimara. Dan deher evidenti fil-każ tal-alka (*Cymodocea nodosa* u *Posidonia oceanica*) li kienet fi stat ferm aħjar fil-Ħofra ż-Żgħira meta mqabbel ma' Delimara.

4.7.2 Tip wiehed t'abitat, *Posidonia*, kien irreġistrat fiż-żewġ siti studjati u dan huwa mniżżel f'Annex I tal-*Habitats Directive,* u huwa inkluż ukoll fi Skeda I tal-*Flora, Fauna and Natural Habitats Protection Regulations, 2006,* u għalhekk huwa meqjus bħala abitat li għandu jingħata prijorita. L-ebda speċi mniżżla f'*Annex II, IV and V tal-Habitats Directive* ma nstabu fiż-żewg siti studjati. Speċi li huma protetti jew li huma ta' nteress li jkunu konservati permezz ta' leġiżlazzjoni lokali jew internazzjonali apparti l-*Habitas Directive* u l-*Flora, Fauna and Natural Habitats Protection Regulations, 2006,* u li nstabu f'waħda jew fiż-żewg żoni investigati jinkludu: l-alka *Cystoseira foeniculacea*, l-alka *Posidonia oceanica* u *Cymodocea nodosa*, u r-rizzi *Paracentrotus lividus.*

4.8 Art agrikola

4.8.1 Parti kbira miż-żona fejn sar l-istudju agrikolu hija kkaratteriżata minn art agrikola marġinali ta' daqs żgħir u mtarrġa li qed tistrieħ fuq ġebla tal-franka (*Globigerina limestone*). Numru konsiderevoli t'għelieqi fiż-żona fejn sar l-istudju ma jintużawx għall-biedja u wħud minnhom għandhom abitat semi-naturali. Is-sentiment ġenerali huwa li l-art agrikola li hemm tintuża għall-użu sekondarju jew inkella tikkumplimenta l-insib tal-għasafar jew il-kaċċa. B'mod ġenerali, iż-żona hija karatteriżata minn koperturi limitati ta' ħamrija, b'kappar u ftit siġar fuq il-ħitan tas-sejjieħ li jdawru l-egħlieqi. Il-preżenza limitata ta' siġar tal-ħarrub, *Ceratonia siliqua* hija notevoli.

4.8.2 L-istudju jindika li l-użu primarju tal-art agrikola fl-inħawi huwa biex jitkabbar il-qamħ – kif evidenti miz-zokk li tħalla fl-egħlieqi. Il-ftit każijiet fejn inżergħu legumi saru biex tisaħħaħ ir-rotazzjoni tal-ħxejjex, iżda dawn il-ħxejjex ma rnexxewx u tħallew fl-egħlieqi. Aktar notevoli huma żewg okażżjonijiet fejn il-qamħ baqa' sa' Lulju. Fl-istess ħin għad hemm art fejn ir-rotazzjoni tal-ħxejjex tiġi pprattikata. Kien hemm ukoll il-preżenza ta' ftit vinji tal-għeneb u ftit siġar taż-żebbuġ. L-uniċi ħxejjex tas-Sajf huma l-qamħ, fuq linja unika ta' għaxar metri flimkien ma' rokna f'għalqa fejn kienu qed jitkabbru l-ward tax-xemx (*sunflower*). Kien hemm għalqa mhux ikkultivata b'numru ta' tankijiet zgħar tal-irrigazzjoni flimkien ma' pajpijiet t'irrigazzjoni qrib *reservoir* nofsu mimli bl-ilma fejn kien mizrugħ il-ful.

4.8.3 Is-sistema agrikola ewlenija hija l-biedja tradizzjonali b'intensita baxxa li hija influwenzata primarjament minn ftit ħamrija u riħ mgħobbi bil-melħ. F'ċertu żoni eqreb tal-kosta, hemm ukoll problem t'aċċessibilita.

4.9 Arkeologija marittima

4.9.1 Ix-xogħol li sar jinkludi stħarriġ manjetometriku (*magnetometer survey)* fil-baħar flimkien ma' stħarriġ magħruf bħala *sub bottom profiler.* Informazzjoni batimetrika (*bathymetric data) single beam* inġabret mill-ewwel riflettur f'qiegħ il-baħar hekk kif irreġistrat mis-*sub bottom profiler.*

4.9.2 L-istħarriġ sar fuq perjodu ta' jumejn, fil-bidu t'Awissu 2013. Informazzjoni minn 27 linja ta' *sub bottom profiler* ġiet miġbura. Dawn ġew tradotti f'27814.90 metri linejari ta' informazzjoni. Bl-istess mod,

inġabru 21 linja ta' informazzjoni manjetometrika fil-baħar. L-informazzjoni miġbura kienet ta' kwalita tajba u rifletturi f'qiegħ il-baħar u anomaliji manjetiċi ġew innutati.

4.9.3 Kienu rreġistrati anqas linji manjetometriċi minn *sub bottom profiler* hekk kif il-livell baxx tal-baħar fin-naħa tat-tramuntana taż-żona li giet mistħarrġa fissru li hemm potenzjal akbar għall-ħsarat lill-manjetometru. Konsegwnza ta' dan, il-linji manjetometriċi ippjanati għal din iż-żona ma sarux.

4.9.4 Mis-27 tracca tas-*sub bottom profiler* li ġew investigati kienu nnutati total ta' 8 anomaliji f'qiegħ il-baħar. Dawn varjaw minn possibilment fatturi zgħar fis-sottostrat għal anomaliji akbar. In-natura u l-forom tal-anomaliji ma kienux differenti mit-traċċi ta' profil u allura investigazzjoni ulterjuri tista' tkun meħtieġa. Numru minn dawn l-anomaliji huma simili għal dawk manjetiċi imma l-ebda waħda minn dawn ma tikkonċidi b'mod dirett. Hemm il-possibilita li erbgħa anomaliji huma ikkawżati minn anomaliji manjetiċi li hemm fil-viċin. Konsegwentement, għandha tingħata prijorita lil dawn l-anomaliji.

4.9.5 Il-manjetometriku tal-baħar għandu sensittivita għolja ħafna. Dan irreġistra numru kbir ta' sinjali manjetiċi u numru minnhom instabu qrib l-anomaliji tas-*sub bottom profiler*.

4.9.6 Kawża tal-passaġġ ta' vapuri li jgħaddu mill-viċin u l-preżenza ta' oġġetti kbar mettaliċi fiż-żona li ġiet studjata u anke' madwar din l-istess żona, il-miri manjetometriċi jistgħu ma jkunux rappreżentattivi ta' depożiti tal-ħadid li m'humiex metalliċi.

4.10 Kwalita tal-Arja

4.10.1 Studju dwar il-kwalità tal-arja huwa intiż biex jiddentifika l-istat kurrenti tal-kwalita tal-arja f'Malta. Fl-2008 l-emissjonijiet NOx madwar Malta u Għawdex kienu ta' medja ta' 28.7µg/m3, li hija anqas mill-limitu mniżżel fl-Istandards tal-Unjoni Ewropea dwar il-Kwalita tal-Arja għall-2010, li jistabilixxi limitu ta' 40µg/m3 fuq sena. Dan il-livell iżda ġieli jinqabeż f'ċertu lokalitajiet. Livelli tlett darbiet l-ammont massimu stabbilit mill-Unjoni Ewropeja ġew irreġistrati: l-ogħla livell mill-2007 kien irreġistrat fil-Floriana fejn livell ta' 129µg/m3 kien irreġistrat f'Awissu 2008. Tniġġiz minn *particulate matter* huwa diffiċilment stabbilit minħabba l-influwenza tad-deżert fl-Afrika ta' fuq, raxx tal-baħar u oħrajn.

4.11 Storbju

4.11.1 Partijiet ta' Marsaxlokk, b'mod partikolari it-toroq mal-kosta bejn Triq il-Barrakki u Triq San Piju V bħalissa huma soġġetti għall-livelli ta' bejn 35 u 40 dB L_{Aeq} matul il-ġurnata jew il-lejl. Dan il-livell ma jiġix innutat barra matul il-gurnata imma jista' jinstema matul il-lejl jekk ikun hemm il-kundizzjonijiet adegwati biex isir dan. Wieħed irid iżomm f'moħħu li l-informazzjoni dwar ir-riħ ma ġietx assenjata u allura kull riċevitur awtomatikament jirċievi livelli ta' storbju daqs li kieku l-kundizzjonijiet tar-riħ huma tali li jgħinu il-firxa mis-sors għar-riċevitur, skond IS09613-2, u għalhekk jisupplixxi informazzjoni meħud l-agħar xenarju possibbli (*worst case scenario)* f'kull riċevitur.

4.12 Infrastruttura u utilitajiet

4.12.1 L-Enemalta ipprovdiet dissinji tal-infrastruttura eżistenti fis-sit tal-Power Station ta' Delimara.

4.13 Aċċess Pubbliku

4.13.1 Is-sit tal-Power Station ta' Delimara hu u għandu jkun magħluq għall-pubbliku nġenerali.

4.14 Wirt kulturali (fuq l-art)

4.14.1 Il-wirt kulturali li jinsab fil-peninżula ta' Delimara jikkonsisti f'wirt rurali marbut man-natura agrikola taż-żona, li ħafna minnu jikkonsisti fi kmamar fl-egħlieqi, ħitan tas-sejjieħ u disinn tal-egħlieqi li jmur lura għas-seklu 19 jew qabel flimkien ma' strutturi ta' difiża. Għalkemm il-barra miż-żona milquta hemm il-*Lighthouse* ta' Delimara kif ukoll Forti Delimara, t-tnejn kienu ikkunsidrati f'dan l-istudju u kienet analiżżata l-probabilita' ta' impatt u mitigazzjoni fuq dawn iż-żewg postijiet.

5 IMPATT PROBABBLI TAL-IŻVILUPP PROPOST

5.0 Introduzzjoni

5.0.1 F'ċertu każijiet bħal fil-każ ta' l-użu tal-art, l-agrikoltura, l-ambjent ġeoloġiku u l-wirt kulturali (fuq l-art), l-impatt tal-iżvilupp propost huwa negliġibbli. L-akbar impatt se jkun fuq il-kwalita tal-arja hekk kif jirriżulta li se jkun hemm tnaqqis sostanzjali ta' gassijiet NO_2/NOx u *particulate matter*. Il-fatt li l-użu tal-*gasoil/HFO* se jinbidel għal gass naturali se jwassal għal tnaqqis sostanzjali ta' *particulate matter* fl-atmosfera. Is-segwenti huma l-konklużjonijiet mir-rapport dwar il-kwalita tal-arja.

5.1 Studju dwar il-kwalita tal-arja

5.1.1 Il-proġetti ppjanati (impjant ġdid tas-CCGT) u l-modifiki ppjanati (l-għeluq tal-Power Station tal-Marsa u l-għeluq tat-turbini tal-fwar fil-Power Station ta' Delimara u l-konverżjoni ta' unit imħaddem bil-gass naturali fil-Power Station ta' Delimara) se jnaqqsu l-emissjonijiet iġġenerati mis-settur tal-enerġija b'mod konsiderevoli (aktar minn 50% għal NOx u 90% għall-PM10) kif imqabbla mal-linja bażi (*status quo* 2012/13 inkluż il-Power Station tal-Marsa hekk kif imħaddma) u b'hekk iwasslu għal titjib fil-kwalita tal-arja influwenzat mis-settur tal-enerġija.

5.1.2 Sar ukoll studju dwar l-għoli taċ-ċumniji. Dawn l-istrutturi ser iservu sabiex il-gassijiet velenużi jiżvintaw qabekl ma dawn jaslu fuq in-nies? L-istudju sab illiiż-żewġ tipi ta' ċumnija ser ikunu konformi mal-avviż legali li jirregola l-emissjonijiet ta' mpjanti kbar.

5.1.3 Finalment l-istudju dwar il-kwalità tal-arja jevalwa l-implikazzjonijiet tal-iżvilupp propost flimkien mal-pjan tal-Enemalta dwar l-użu tal-gass naturali u l-interkonettur bejn Malta u Sqallija. L-istudju jindika li l-miri ta' emissjoni sew għall-NO_2 u $PM_{2.5}$ jistgħu jintlaħqu jekk wieħed jassumi użu estensiv ta' elettriku 'nadif' mill-interkonnettur u units mħaddma bil-gass fil-Power Station ta' Delimara. L-impenn ta' Malta taħt il-protokoll ta' Gothenburg jista' jintlaħaq jekk wieħed jassumi li d-domanda għall-elettriku sas-sena 2020 ma taqbiżx il-livelli kurrenti u din tista' tintlaħaq bl-interkonnettur u żewg units mħaddma bil-gass fil-Power Station ta' Delimara

5.2 Ħsejjes

5.2.1 L-istudju dwar il-ħsejjes ikkonkluda l-impatt tal-iżvilupp propost għandu jkun baxx speċjalment fl-inħawi tal-villaġġ ta' Marsaxlokk.

5.3 Studju dwar ir-riskji

5.3.1 L-istudju dwar ir-riskji ambjentali kien l-aktar wieħed importanti, minħabba li għen sabiex id-disinn tal-impjant il-ġdid ikun wieħed maġsub tajjeb. Fill-fatt saru żewġ studji. Wieħed ħadem fuq tlett alternattivi u wera li il-ħażna tal-LNG ġo FSU u mhux ġo tankijiet fuq l-art kienet soluzzjoni tajba fiċ-ċirkostanzi tal-lokal. It-tieni studju iffoka fuq il-proposta sottomessa wara li ġew mistiedna kumpaniji ntrernazzjonali sabiex jagħmlu proposti biex jipproduċu l-elettriku li jinxtrara mill-Enemalta sabiex din tiddistribwieħ.

5.4 Studju tal-impatt fuq is-saħħa

5.4.1 Dan l-istudju sab li l-bidla minn *Heavy Fuel Oil* għall-gass naturali se tirriżulta f'iimpatt pożittiv fuq is-saħħa tal-poplu tal-lokal u anke' l-popolazzjoni inġenerali ta' Malta. L-egħluq tal-Power Station tal-Marsa mistenni li jkollu effett pożittiv fuq is-saħħa tan-nies. Għalkemm se jkun hemm żieda żgħira fl-istorbju matul u wara l-fażi ta' kostruzzjoni, din mistennija tkun minima u se taffettwa l-aktar lil dawk li joqgħodu fil-viċinanzi immedjati mingħajr ma jkun hemm impatt negattiv fuq is-saħħa. L-impatt soċjali mistenni jkun pożittiv, l-aktar minħabba l-perċezzjoni tan-nies dwar l-impjant u l-fatt li dan se jtejjeb dak li huma jqisu bħala esperjenza negattiva, b'mod partikolari minħabba ċ-ċumnija enormi li hemm u li issa mistennija titneħħa.

5.5 L-ilma tal-baħar

5.5.1 Ir-rapport dwar l-ilma baħar identifika u eżamina il-possibilita' ta' impatt fuq il-kwalita tal-ambjent marittimu. Fil-fażi ta' kostruzzjoni, *particulate matter* u sustanzi li jinħallu u li jiġu ġġenerati minn xogħlijiet ta'

inġinerija mal-kosta u xogħol ta' *dredging* kienu ikkunsidrati li jwasslu għall-impatt li jvarja minn moderat għal baxx fuq il-kwalita tal-ilma. Matul il-fażi ta' tħaddim, il-possibilita li jonqos l-ilma li jintuża biex ikessaħ, u li jintefa' fil-Ħofra ż-Żghira qed ikun meqjus bħala impatt pożittiv moderat. Impatt ieħor qed ikun meqjus bħala ta' sinifikat minimu, apparti dak li jirriżulta mit-tfigħ ta' flussi ta' ilma li jintrema u li joriġina minn dan l-iżvilupp. Ħarsien strett tar-regoli eżistenti flimkien ma' ħidma tajba u superviżjoni adegwata tax-xogħlijiet kollha inkluż it-trattament tal-ilma jistgħu jillimitaw tali riskju.

5.6 Studju tal-Impatt Soċjali

5.6.1 *Fieldwork* li sar żvela 5 punti ta' tħassib li għandhom ir-residenti ta' Marsaxlokk fil-konfront tal-bini u t-tħaddim tal-power station il-ġdida li se tkun imħaddma bil-gass. Dawn huma (i) ħsejjes fil-fażi ta' kostruzzjoni u meta l-impjant jibda jitħaddem hekk kif bosta enfasiżżaw il-fatt li l-ħsejjes jimxu b'faċilita fil-bajja, (ii) trabijiet fil-fażi ta' kostruzzjoni jistgħu jiggravaw problem respiratorji diġa eżistenti għar-residenti u ħaddiema fil-lokalita, (iii) reklamazzjoni tal-art u xogħol ta' *dredging* jista' jfixkel il-bilanċ ekoloġiku fil-bajja ta' Marsaxlokk u (iv) perikli maġġuri bhal blalen tan-nar jew ħrug ta' gassijiet la darba l-impjant il-ġdid ikun lest u qiegħed jaħdem.

5.6.2 Dwar l-alternattiva ppreferuta, il-maġġor parti ta' dawk li ħadu sehem f'dan l-istudju qalu li jippreferu faċilita fejn il-gass jinżamm fuq vapur minflok ikun hemm faċilita fuq l-art. Huma ppreferew din l-alternattiva a bażi tal-fatt li din hija alternattiva aktar aċċettabbli viżwalment (hafna jqisu t-tankijiet fejn jinżamm l-LNG bħala estetikament koroh) u minħabba l-fatt li jkun aktar faċli għall-gvernijiet biex fil-ġejjieni jbiddlu l-mod kif l-impjant tal-enerġija jaħdem. Irrizulta wkoll li ħafna minn dawk li ħadu sehem f'dan l-istudju ma kienux infurmati sew dwar il-possibilita ta' faċilita' ta' rigasifikazzjoni fuq l-art jew fuq vapur. Madanakollu, mir-risposti validi mgħotija deher ċar li hemm preferenza għal faċilita ta' rigasifikazzjoni fuq vapur.

5.7 Konklużżjonijiet

5.7.1 L-EIS jinkludu serje ta' rakomandazzjonijiet intiżi biex jipproteġu l-kwalita tal-ambjent billi jkunu addottati miżuri speċifiċi u programmi ta' moniteraġġ. Tlett analisti indikaw li wasal iż-żmien li jiġi implimentat u mwettaq l-impenn li hemm imniżżel fil-*Local Plan* għall-Bajja ta' Marsaxlokk li l-peninżula ta' Delimara jinbidel f'park.

Non-technical summary

Revisions

No	Date	By	Reason for Revision
02	20-Dec-2013		Third Draft submitted to the MEPA
01	20-Nov-2013	PG	Second draft
00	29 Aug 2013	PG	First Draft submitted to the Malta Environment and Planning Authority (MEPA)

Environmental Impact Statement

Delimara Gas and Power
Combined Cycle Gas Turbine
and
Liquefied Natural Gas
receiving, storage, and regasification facilities

Table of Contents

1 INTRODUCTION

1.1 This Environmental Impact Statement (EIS) examines the likely environmental, health, and social impacts of the development proposed by Enemalta Corporation entitled Combined Cycle Gas Turbine and Liquefied Natural Gas Receiving, Storage, and Regasification Facilities. This EIS has been prepared in accordance with the Environmental Impact Assessment (EIA) Regulations, which transpose into Maltese Law the requirements of the EIA Directive of the European Union, and along the lines indicated in the Terms of Reference issued by the Malta Environment and Planning Authority.

1.2 The EIS consists of a Coordinated Assessment Report supported by a number of reports, known as Environmental Survey Reports (ESR) prepared by consultants who are specialised in different fields. The EIA Teams was made up of an EIA Coordinator and 20 consultants each specialised in areas such as geology, air quality, noise assessment, ecology, computer graphics and so on.

2 THE PROPOSED PROJECT

2.1 The proposed development consists of a combined cycle gas turbine (CCGT) which will be fuelled with natural gas (NG). The gas would be stored in liquid form at -162^{o}C (hence the name liquefied natural gas - LNG) in a floating storage unit (FSU) located to the south west of the Delimara Power Station (DPS). The fuel would be fed to the CCGT through a regasification unit which would be located in the southern tip of the DPS site. The CCGT plant is made up of four separate units, namely three gas turbines and a steam turbine. In all it shall have a capacity of 215MW. For this reason it shall have three 75m high main stacks and another three 30m high by-pass stacks. The latter would be in use whenever the steam turbine is out of action. In the first six months of operation, this turbine will not be in use and the plant would be operated as an open cycle gas turbine (OCGT).

3 OBJECTIVES

3.1 The development under consideration in this EIS has been proposed to the MEPA by Enemalta Corporation (through Malta Power and Gas Limited) in response to a policy decision made by the Government of Malta that, from spring 2015, base load electricity should be sourced by Enemalta from an independently-owned, state of the art, high-efficiency power plant powered by natural gas (NG). This plant is intended to contribute towards a substantial reduction in air pollution, given that the energy sector is one of the major sources of air pollution in Malta, and NG is the cleanest fossil fuel which is available on the market. The new power plant is also expected to function more efficiently than the gasoil and HFO fired power ones mainly because NG fired plants are the more efficient in terms of fuel use

3.0.1.1 This strategy is expected to contribute towards the attainment of the objectives of the European Union with respect to air pollution and energy efficiency. It should complement the efforts which are being made in order for the Maltese to invest more in renewable technologies.

3.0.1.2 The new plant together with the recently installed power plant in Delimara, and the interconnector with Sicily is also intended to satisfy the anticipated demand for electricity, in a cleaner way. Indeed, the recently installed plant, which is currently fuelled by HFO, is to be transformed into a NG fired plant.

4 THE EIS

4.0 Introduction

4.0.1 According to the terms of reference issued by the MEPA the EIA Team had to prepare reports which discuss and assess the likely impact of the proposed development on specific environmental resources and human beings. The following are the topics that had to be covered:

- land use
- landscape and visual impact

- the geo-environment
- marine water bodies
- terrestrial ecology - vertebrate fauna – marine ecology
- agricultural land
- marine archaeology
- air quality
- noise
- infrastructure and utilities
- public access
- cultural heritage (terrestrial)
- risk assessment
- health impact assessment
- social impact assessment

4.1 Land use

4.1.1 The land use report provided a detailed description of both land uses and land cover one a 2-km2 stretch of the Delimara peninsula' The predominant land use on the peninsula is agricultural, although there are also some residential units, mostly singly and relatively isolated, located in the vicinity of the power station complex. Additionally, there are tracts of natural and semi-natural habitats within the peninsula (identified on the map as assemblages of a specific biotope or according to the dominant and/or characterizing species), as well as historical elements in the landscape.

4.1.2 The major industrial land-use at the Delimara power station represents a distinct, and contrasting, land-use component within this largely rural context. The peninsula is also characterised by number of forts constructed by both the Order of St John and the British.

4.1.3 There are also some expanses which are taken up by 'natural' vegetation. Most of these are located on or in the vicinity of the coast line. A number of tree plantations were also noted.

4.2 Landscape and visual impact assessment

4.2.1 The present-day landscape of the area is characterized by high diversity and by a mosaic of land uses, including industrial, agricultural, residential and recreational elements. The visual prominence of these different elements varies depending on location. The impact of the proposed development is mitigated to some extent by the fact that industrial features are already present on site and in the surrounding landscape. Nevertheless, there is some potential for the project to negatively impact Marsaxlokk Bay, as well as to further detract from the rural character of the Delimara peninsula, notwithstanding the state of degradation in parts of the latter.

4.3 Geo-environment

4.3.1 The principal exposed geological formations on the peninsula are the middle and upper globigerina limestone.

- The former is very well exposed in the cliff section forming the eastern boundary of the DPS. It is over 50m thick. It is usually white in exposure but fresh cuttings expose a grey rock which after a long it usually turns white. The clay content of this rock is not durable as seasonal wetting and drying produces alternate expansion and shrinkage cracks soon appear on the exposed surface.
- The upper stratum consists of two beds of a cream fine, soft, moderately weak limestone beds each about 8m thick and a middle marly bed, bout 5m thick. The yellow clayey limestone cracks very easily on exposure due to desiccation and shrinkage. The grey marl bed is impermeable and if exposed undergoes desiccation followed by shrinking and cracking. Once wetted again, it crumbles. The rock (Upper Globigerina Limestone) is weak.

4.3.2 The geo-environment report also identifies the most evident of the geomorphologic features in the area, which are the amphitheatre like Ħofra ż-Żgħira, the so called 'cuesta' on the top of the promontory, the cliffs on either side of the peninsula, the middle globigerina limestone slopes to the north of the DPS and the serrated coastline between Delimara Point and the Ħofra.

4.3.3 Given that the middle globigerina limestone is impermeable it was not possible for an aquifer to develop. Indeed, the area does not form part of the ground water protection zone. In terms of hydrology, the part of the run-off which is generated over site catchment (which is made up of the DPS site and immediate surrounds) which is not absorbed ends up in the sea.

4.4 Marine water bodies

4.4.1 The marine water bodies study first reviewed the current environmental marine water and sediment quality in the Marsaxlokk Bay and il-Ħofra ż-Żgħira area. It also identified the current sources of pollution. Water quality in Marsaxlokk was found to be reasonably good for most parameters, especially when compared to other local harbour areas. Marine sediments were occasionally found to be polluted by low levels of oil and possibly some heavy metals. Within Ħofra ż-Żgħira (which receives cooling waters from the DPS), apart from the expected thermal anomalies, no major impact on water quality was evident. On the basis of data made available, the report also concluded that the chemical status for this water body (in respect to the WFD) may be provisionally assigned to a good potential status.

4.5 Terrestrial ecology

4.5.1 Much of the area that will be directly or indirectly affected by the proposed extension of the Delimara Power Station (DPS) complex comprised land cover that was either built-up, under active cultivation or derelict agricultural land undergoing secondary succession. The most significant plant community likely to be impacted by the proposed development is the Maltese Rdum Community dominated by Maltese Salt-Tree (*Darniella melitensis*), (a plant endemic to the Maltese Islands and protected by Regulation 26 of Legal Notice 311/2006) and, in patches, by Esparto Grass (*Lygeum spartum*). Much of the area proposed for development was colonised by plant assemblages characteristic of disturbed ground. Part of this area was characterised by a large mound of unconsolidated limestone debris on which a primary ecological succession was proceeding. The vegetation on the mound comprised ruderal species characteristic of the early-pioneer and late-pioneer stages of ecological succession in agricultural and coastal areas but also included Maltese Salt-Tree (*Darniella melitensis*) and Eastern Phagnalon (*Phagnalon graecum* subsp. *ginzbergeri*).

4.6 Vertebrate fauna

4.6.1 A study of the terrestrial fauna (birds, mammals including bats, amphibians and reptiles) was undertaken in the area known as il-Ballut ta' Marsaxlokk, extending around the Delimara Power Station (DPS) and towards Delimara Point. The study was made in relation to the proposed Combined Cycle Gas Turbine (CCGT) and Liquefied Natural Gas (LNG) facilities to form part of the DPS complex at Delimara, and forms part of the Environment Impact Statement (EIS) for the project.

4.6.2 The assessment included both a desk component and fieldwork. The desk component was based on accumulated data obtained from long-term observations on resident as well as migrating species and ones from local publications. Fieldwork was undertaken during May and June 2013 to record the breeding behaviour of the birds in the area and to reconfirm the presence of the vertebrates recorded from previous years. Direct observation during daytime and late evening was used during the bird surveys. The bat and mammal survey included setting Longworth traps to record the presence of terrestrial/non flying micro-mammals, use of a bat detector to locate flying bats, and walk over surveys along pre-established transect lines to record any fauna encountered.

4.7 Marine ecology

4.7.1 The marine ecological study was undertaken using direct observation by scientific SCUBA divers, with the main aims of producing maps showing the distribution of main benthic (bottom) habitats, and to

establish the presence of any habitats and species that are protected and/or have a high conservation value. The results of the study indicated that, overall, the shore and benthic biotic assemblage, and the demersal and pelagic fauna (including fish) recorded from the study area are typical of those occurring in local bays and inlets. In general, the benthic assemblages and habitats recorded from the two study sites are influenced by the physical features of the seabed and water quality characteristics. In parts of the study areas, a mosaic of different assemblage types was present, which results from the heterogeneity in physical characteristics of the seabed. The benthic assemblages and demersal fauna appeared to be in a better state in il-Ħofra z-Zgħira compared to Delimara. This was especially striking in the case of seagrass (*Cymodocea nodosa* and *Posidonia oceanica*) habitats, which were in a much better state at il-Ħofra z-Zgħira compared to Delimara.

4.7.2 One habitat type, *Posidonia* beds, was recorded from both study sites and is listed in Annex I of the Habitats Directive, and also included in Schedule I of the local Flora, Fauna and Natural Habitats Protection Regulations, 2006, and is therefore considered a priority habitat. No Habitats Directive Annex II, IV and V species were recorded from the two study sites. Species that are protected and/or of conservation interest through international and local legislation other than the Habitats Directive and the Flora, Fauna and Natural Habitats Protection Regulations, 2006, and which were recorded from one or both study sites, are the following: the alga *Cystoseira foeniculacea*, the seagrasses *Posidonia oceanica* and *Cymodocea nodosa*, and the urchin *Paracentrotus lividus*

4.8 Agricultural land

4.8.1 Most of the area is largely characterised by small sized, terraced marginal agricultural land on Globigerina limestone. Considerable fields in the study area were not in agricultural use and some featured semi-natural habitats. The general feeling is that agricultural land use is secondary to or complements bird trapping or hunting. In general, the area was characterised by limited soil cover, with capers and some trees on the field boundary rubble walls. The very limited presence of carob, Ceratonia siliqua is notable.

4.8.2 The study indicated that the primary agricultural land use is the growing of wheat – as evidenced by retained stubble. The few instances that legumes were sown to enhance crop rotation, all these crops failed and were left standing. More remarkable are two instances of wheat still standing as at July. A degree of fallow is still being practiced. There was also the presence of a handful of small vineyards plus even fewer olive groves. The only summer crops were corn, on a single line on a 10 metre strip plus another corner of a field were sunflowers were being grown. There was a fallow field with a number of small irrigation tanks as well as irrigation pipes close to a reservoir still half full with water where broad beans had been sown.

4.8.3 The main agricultural system is that of low intensity traditional agricultural farming that is primarily influenced by limited soil depth as well as the not uncommon prevailing salt laden winds. In some of the areas closer to the coast, accessibility is also a problem.

4.9 Marine archaeology

4.9.1 The survey works comprised a marine magnetometer survey with an accompanying sub bottom profiler survey. Single beam bathymetric data was derived from the first seafloor reflector as recorded by the sub bottom profiler.

4.9.2 The survey was carried out over 2 days in the beginning of August 2013. 27 survey lines of sub bottom profiler data were acquired. These translated into 27814.90 linear metres of sub bottom profiler data. Similarly, 21 lines of marine magnetometer data were acquired. The data acquired was generally of good quality with both seafloor reflectors and magnetic anomalies noted.

4.9.3 Fewer magnetometer lines were recorded than sub bottom profiler as shallow waters to the north of the survey area meant there was greater potential for damage to the magnetometer. Consequently, the magnetometer lines planned for this area were not carried out.

4.9.4 Of the 27 sub bottom profiler traces investigated, a total of eight seafloor anomalies were noted. These ranged from small possible substrate features to larger anomalies. The nature and forms of the

anomalies were indistinguishable from the profile trace and so investigation may be warranted. A number of these were close to magnetic anomalies but none were directly overlapping. There is the possibility that four of the anomalies relate to nearby magnetic anomalies. Consequently, priority should be given to these.

4.9.5 The marine magnetometer was an ultra-high sensitive marine magnetometer. It recorded a large number of magnetic signatures, a number of these were located close to sub bottom profiler anomalies

4.9.6 Due to the passage of nearby vessels and the presence of large metallic objects in and around area of study, the actual magnetometer targets may not be representative of actual non-ferrous metal deposits.

4.10 Air quality

4.10.1 The air quality assessment was basically intended to identify the current state of affairs in Malta with respect to air quality. On average, in 2008 NO2 emissions across Malta and Gozo were around 28.7µg/m3, which is lower than the limit value of the 2010 EU Air Quality Standards, which establish a limit of 40µg/m3 over a year. This level is however often exceeded in some locations. Levels three times the maximum EU limit amount have been recorded: the highest level recorded since 2007 was in Floriana, where a level of 129µg/m3 was recorded in August 2008. Particulate matter pollution is difficult to establish because of the influence of the North African desert, sea spray and so on.

4.11 Noise

4.11.1 Parts of Marsaxlokk, mainly the shoreline between Triq il Barrakki and Triq San Piju V are presently subjected to levels between 35 and 40 dB L_{Aeq} over a day or night period. This would not be noticeable during the day outside but will be heard under the right conditions at night. Keeping in mind that the wind information has not been assigned, hence each receiver point automatically receives the noise level as if the wind conditions were such to assist propagation as from the source to the receiver, according to ISO9613-2, hence supplying the worst case scenario at each receiver point.

4.12 Infrastructure and utilities

4.12.1 Enemalta provided drawings of the existing infrastructural networks in the DPS site.

4.13 Public access

4.13.1 The DPS site is and should be out of bounds to the general public.

4.14 Cultural heritage (terrestrial)

4.14.1 The cultural heritage recorded in the Delimara Peninsula either consists of rural heritage related to the agricultural nature of the area, most of which are field rooms, rubble walls as well as a field pattern dating to the 19th century or earlier; and structures related to defence. Although outside the area of influence, both the Delimara Lighthouse as well as Fort Delimara were considered in the study of impacts and mitigations.

5 LIKELY IMPACTS OF THE PROPOSED DEVELOPMENT

5.0 Introduction

5.0.1 In certain cases such as land use, agriculture, the geo-environment, and cultural heritage (terrestrial), the effects of the proposed development are deemed to be negligible. The most pronounced impact would be on air quality as a result of the substantial reductions on NO_2/NOx gases and particulate matter. The replacement of gasoil/HFO by NG as a fuel implies a substantial reduction in particulate matter from the atmosphere. The following are the conclusions of the air quality report.

5.1 Air quality assessment

5.1.1 The planned additions (new CCGT plant) and modifications (shutdown of MPS and DPS steam turbines, and conversion of the most recently installed DPS block to natural gas) will reduce emission from the

energy sector considerably (more than 50% for NOx and 90% for PM_{10}) as compared to the baseline (status quo 2012/13 including Marsa Power Station in operation) and thus lead to corresponding improvements of ambient air quality influenced by the energy sector.

5.1.2 The overall beneficial effect of the planned transition would be substantial emission reductions from the energy sector, given that NG is the cleanest of the available fossil fuels. Furthermore, the CCGT is among the most efficient power plant in the market. It operates on the principle that the heat generated in the operation of the gas turbine (the first cycle) would be used to heat steam for the steam turbine.

5.1.3 The assessors were also required to check the viability of the stacks with respect to the quality of air at their bases. In both cases it was found that the requirements of the corresponding legal notice.

5.1.4 Finally the air quality assessment evaluates the implications of the proposed development together with the overall plans of Enemalta with respect to the use of NG and the Malta-Sicily Interconnector. The assessment indicates that Emission targets for both NO_2 and $PM_{2.5}$ can be met under the assumption of extensive use of the 'clean' electricity from the Interconnector and the gas fired blocks/units at DPS. Compliance with Malta's commitment under Gothenburg protocol can be reached under the assumption that the electricity demand by 2020 does not exceed current levels and that this can be met by the Interconnector and the two gas fired units at DPS with the gasoil fired OCGT and CCGT units serving only as emergency backup

5.2 Noise

5.2.1 The noise assessment notes that the noise levels to be generated by the new CCGT, re-gas unit, and FSU should be expected to be on the low side.

5.3 Risk assessment

5.3.1 Two risk assessments were commissioned in order to test the viability from the perspective of security of supply and safety. The first assessment examined the viability of an option characterised by an on-shore LNG terminal and two, where the terminal would be berthed close to the shore. One of these terminals would be a floating storage unit only while the other would consist of a floating storage and regasification unit. The assessment indicated that while all the options were viable, the floating terminals had some advantages over the other.

5.3.2 The second assessment then examined in detail the proposal which is under consideration in this EIS. It paid particular attention to the manner in which LNG could be transferred safely from the supply carriers to the terminal. It alkso indivcated that in case of a major accident the fuel tanks located in the vicinity would not experience the domino effect of the event.

5.4 Health Impact Assessment

5.4.1 This assessment found that a shift from heavy fuel oil to natural gas would result in overall positive health impacts, expected both for the local and general population of Malta. The closure of the Marsa PS is especially expected to have a positive health effect. Though there will be a small increase in noise pollution during and after the construction phase, this is expected to be minimal and mostly influencing immediate neighbours, without major negative health impacts. Water quality changes are expected to be minimal with no negative health impact. Social impacts are expected to be positive, mainly because peoples' perception about the plant will improve what they consider to be a current negative experience, epitomised by the large stack, due also for removal

5.5 Marine water bodies

5.5.1 The marine water bodies report identified and assessed the subsequent significance of likely impacts on marine environmental quality. During the construction phase, the release of particulate matter and dissolved substances from coastal engineering works and dredging were considered to lead to moderate to low levels of impact on water quality. During operation, the possibility of reducing the release of cooling waters

at Ħofra ż-Żgħira was deemed as a moderate beneficial impact. Other impacts were assessed to be of low significance, apart from those arising from the discharge of several wastewater streams from the development. Strict compliance with all current discharge regulations as well as good workmanship and supervision of all operations including water treatment would control such risks.

5.6 Social Impact Assessment

5.6.1 Fieldwork uncovered five key preoccupations on behalf of Marsaxlokk residents towards the construction and operations of the new gas-operated power station - namely: (i) noise during both the constructions and operations phase as many highlighted how much sound travels easily across the bay, (ii) dust pollution during the construction phase which would exacerbate respiratory problems of the residents and workers in the locality, (iii) land reclamation and dredging work which ran the risk of disturbing the ecological balance of Marsaxlokk Bay, and (iv) large-scale hazards such as 'gas fireballs and 'gas leaks' once the new gas-operated power plan is completed and operational.

5.6.2 As regards the preferred building options, the majority of informants expressed a preference for the storage facility to be situated on board a floating vessel rather than a land storage facility on the basis that this option is more visually acceptable (many perceived the LNG storage tanks to be a potential eyesore) and for making it easier for future governments to change the way that this new gas-operated power plant operates. It also resulted that respondents were not well-informed about the possibility of having the re-gasification facility either on the ground or on board a floating vessel. However, from the valid replies one uncovers a clear preference to have the re-gasification facility on board a vessel.

5.7 Conclusions

5.7.1 The EIS includes a range of recommendations intended to protect the quality of the environment through the adoption of specific measures or monitoring programmes. Three of the assessors however indicated that it is about time that the commitment in the Marsaxlokk Bay Local Plan regarding the transformation of the Delimara peninsula into a park to be realised.