

**AN OFFSHORE WIND FARM AT
IS-SIKKA L-BAJDA**

*AN EVALUATION OF CONCERNS FROM
GOVERNMENT STAKEHOLDERS*

EXECUTIVE SUMMARY

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TERMS OF REFERENCE

Following a consultation process that the Malta Resources Authority had with local Government agencies in 2005, a number of concerns have been raised expressing the possible negative impacts that offshore wind farm development could have at various proposed offshore sites. However, the positive experiences attained by foreign countries over the past decade from operating large-scale wind turbines in the marine environment gives the green light to re-examine various issues brought forward by local agencies. From a technical point of view, Is-Sikka l-Bajda tends to offer the best potential for offshore wind exploitation based upon current technology status. The Minister for Resources and Rural Affairs appointed this advisory committee on wind energy; which has been named the Committee for Wind Energy (CoWE), to look into issues raised against the development of an offshore wind farm at this site by the Government Agencies during the consultation process carried out by the Malta Resources Authority. The CoWE was expected to:

- Review and evaluate in detail concerns expressed vis-à-vis a near shore offshore wind farm at Is-Sikka l-Bajda;
- Challenge arguments opposing the development of an offshore wind farm at Is-Sikka l-Bajda, in the light of recent developments in wind farm technology and of knowledge gained from existing wind farms abroad. For this component to be assessed, one was expected to take into consideration site-specific aspects pertaining to the Maltese Islands,
- Propose a series of recommendations to be followed by the Ministry for Resources and Rural Affairs to resolve conflicts with the consulted stakeholders and to effectively gain acceptance by industry sectors and by the general public.

EXECUTIVE SUMMARY

Malta still lags behind other countries in the Renewable Energy field and continues to depend totally on imported fossil fuels for electricity generation; thereby remaining strongly exposed to soaring oil prices and insecurity of supply. Malta must strive to reach a target of 10% of final energy consumption from renewable sources by 2020. If no remedial measures are taken, the country's carbon emissions are set to continue rising rather than decreasing.

Malta's renewable energy (RE) options are severely limited. Renewable energy sources such as geothermal, hydropower, wave and tide energy have no significant potential in Malta, though it must be said that information about energy from wave and sea currents is not available. The immediately available and sustainable technologies for generating or displacing electricity through use of renewable or alternative sources open to Malta are therefore limited to land based wind energy, offshore wind energy, solar photovoltaic and thermal energy and biomass.

Since energy diversity is the only way to maintain energy security, wind energy is an absolutely essential element in Malta's limited range of resource options. Wind energy technology is currently the most cost-effective means of generating electricity from renewable sources. Electricity generated by land based wind technology is now cheaper than fossil fuel generated electricity and could provide an immediate, affordable and significant start towards meeting Malta's targets, but visual impacts have been declared insurmountable obstacles in Malta and Gozo. Offshore wind in shallow waters (< 25 metres), though more expensive and posing a greater technical and logistic challenge, is the second best technology option open to Malta in terms of costs. Unfortunately, Maltese territorial waters are relatively deep and shallow waters are restricted to coastal areas and a few reefs close to the shore. The CoWE

acknowledges that deep sea wind turbine technologies would be more adequate for Malta as they would offer the possibility to install the turbines further offshore.

However, these technologies do not constitute a viable short or medium term option because they are currently under their prototype stages of development and are not yet commercially proven.

The potential contribution from wind to Malta's electricity requirements is significant. However the time scales for establishing wind energy projects are not short. This means that Malta should act as soon as possible in implementing renewable energy projects. The implementation of renewable energy generation is now driven by expediency – not choice.

A very good chance to exploit the offshore wind farm technology now widely used in Europe is provided by Is-Sikka il-Bajda. The reef, lying off the north east coast, some 1.5 km off Rđum tal-Madonna, has been identified as warranting further study as a possible wind farm site. Inside the 20 metre depth contour, Is-Sikka l-Bajda has sufficient space for some 30 MW of generating capacity. This capacity can be increased to 70 – 90 MW if the surrounding outcrops in the area up to depths of 25 metres are considered. No other reef around Malta offers this potential in so compact a form.

Is-Sikka l-Bajda has a good exposure to the prevailing north westerly winds - an exposure which betters that of other Malta off-shore sites that are also closer to shore. The actual wind resource at Is-Sikka l-Bajda is not known in detail, but there are good indications that it is comparable to the best on shore sites and worth exploiting. Only the Gozo North shore could be better. Problems of noise, and much more important of visual impact, will be attenuated by distance from the shore and particularly from harbours and prime tourist areas. At the same time this distance is not such as to incur heavy costs for connection to the land distribution grid.

The following stakeholders were consulted in 2005 by the Malta Resources Authority (MRA) in connection with the proposed offshore wind farm at Is-Sikka l-Bajda: the Malta Tourism Authority (MTA), the Malta Environment and Planning Authority (MEPA), Enemalta, Kunsill Malta Għall-Ispirt, the Department of Civil Aviation (DCA), the Malta International Airport (MIA), the Malta Air Traffic Services (MATS), the Fisheries Control and Conservation Division (FCCD), the Malta Maritime Authority (MMA), the Oil Exploration Department, the Malta Communications Authority (MCA) and the Armed Forces of Malta (AFM). In turn, each of the listed stakeholders made submissions in response to the proposed development – the Committee for Wind Energy (CoWE) has reviewed all of these submissions as follows:

Objections to the proposed offshore wind farm raised by MTA centred mainly on the visual aspect of an offshore wind farm on Is-Sikka l-Bajda and possible interference with marine recreational it may cause.

The MTA claims that it had not been informed about the technologies that were being considered by MRA. In this report, the CoWE answers that the exploitation of renewable energy requires an integrated approach and that wind energy is an essential component among the available sources to be utilised. Is-Sikka il-Bajda is the best choice for an offshore wind farm because it offers considerable space in depths less than 25 metres for which there is now a mature offshore technology.

MTA considered the installation of wind turbines at Is-Sikka il-Bajda as unacceptable because the site was close to tourist areas of Bugibba and Qawra and because the visual impact of tall pylons would be of far greater concern than the tuna pens in the area (which only project 1 metre above the sea surface). MTA stated, moreover, that the negative landscape or visual impacts of a wind farm would not be acceptable from a tourism point of view because they could jeopardise a significant portion of the coastal area of high landscape value which is an important tourism asset. Also, turbine noise from a wind farm reaches the tourist centres and eco-trails on the north east coast of Malta.

The CoWE believes that the possible feasible number of wind turbines on Is-Sikka il-Bajda is limited and that the visual impact will be sensitively adapted through careful selection of turbine size, number of turbines and array design to impact the available area as little as possible. “Visual impact” was too vague a term which was not based upon any kind of visualisation. Photomontages taken from four important vantage points (Selmun, L-Ahrax, Ta’ Fra Ben at Qawra Point and Ghadira Bay) did not indicate a strong “visual impact” because Is-Sikka l-Bajda is at least 1.5 km off the nearest land at Rdim tal-Madonna, and 4 to 5 km from the tourist area of St. Paul’s Bay, Bugibba and Qawra. The closest residential area is the lower end of Santa Marija Estate, about 4 km from Is-Sikka l-Bajda. The visual impact should therefore be acceptable.

MTA expressed concern over the infrastructural development associated with landing points of the turbine cables and noise from operation of the turbines. The CoWE considers that the coastal infrastructure at the cable-landing point will not pose a problem because the size of modern equipment is quite small and proper design would make any necessary building fit into the landscape. Noise will not be a problem because of the distance of the wind farm from shore. Modern large turbines, with improved design have a noise footprint restricted to some 350 metres around the farm.

MTA expressed dismay that diving is once again being threatened by a new development at a point when a number of marine activities which had had been impacting diving such as sewage disposal, bunkering and fish farming were about to be rectified or relocated in the near future.

The CoWE points out that Is-Sikka l-Bajda is not currently used as a dive site because it had been heavily fished over the past decades and bunkering had negatively impacted the surface of the reef. In any event, the presence of a wind farm on this reef carries no automatic ban on diving and small-scale fishing activities if the exclusion zone around the farm is not total.

The coastal area to a distance of 1 nautical mile offshore is an important yachting and boating resource. Consequently, the MTA fears that the wind farm on Is-Sikka l-Bajda would interfere with recreational marine activities. MTA is also supporting proposals from the private sector for the development of destination ports and yacht chartering as a distinctive tourism product. The Royal Malta Yacht Club (RMYC) also stated that the proposed wind farm site would obstruct important local races and hamper most RMYC sailing thus generating bad publicity for Malta because it was exactly on the course of the International Rolex Middle Sea and the Gattopardo yacht race.

It is clear to the CoWE that even the complete blocking off of Is-Sikka l-Bajda would not create insurmountable obstacles for the long distance races which may be routed further offshore. However, this may possibly cause difficulty for sailing boats sailing up-wind tack on zigzag course. The concerns of the RMYC cannot be lightly dismissed as they are compounded by the presence of fish farms south of Is-Sikka l-Bajda and those in the South Comino Channel. Once the wind farm is in operation, it should be possible to allow passage of small craft, motorized or sail, in the channel between Is-Sikka l-Bajda and Rđum tal-Madonna, but this may prove impossible if it is established that this will cause disruption to avifauna activity.

In general, MTA's objections appeared to be largely based upon the fear that tourists visiting Malta will be deterred by the presence of wind farms. Surveys undertaken to assess the impact of wind farms on tourism in other countries have mostly dispelled the belief that tourists are put off by wind farms, even if they are in scenic areas. Most respondents to such surveys expressed a positive view of wind farms and said that their presence would not affect the likelihood of their returning to visit the area despite the presence of wind farms. Overall, the results indicated that tourists are largely in favour of wind energy and that the presence of wind farms is unlikely to have a negative effect on tourism.

Concerns voiced by the Malta Environment and Planning Authority (MEPA) pertaining to the proposed development of an offshore wind farm at Is-Sikka l-Bajda

relate to the amplified risk of collision between birds and wind turbines and the disturbance caused to bird nesting areas, the disturbance wrought to the marine benthic environment during the construction phase and through the footprint taken up by the turbine foundations themselves, visual and coastal impacts, conflicts with coastal activities and land reclamation issues. In addition, a number of other environmentally-related issues, not raised by MEPA, have also been addressed in this report by the CoWE, namely the impact on marine life of the noise generated during the construction phase, the impact on biota (including avifauna) of the noise generated during the wind farm operation, the impact on marine life of the electromagnetic field (EMF) generated through cable transmission, impacts on marine biota of the possible utilization of anti-fouling paints on the submerged structures, of the mobilization of pollutants and organic matter previously sequestered in sediments and of hydrodynamic changes, and concerns related to possible collisions between vessels and wind farms, eventual decommissioning of installed structures and the disposal of excavated rock during the construction phase.

The CoWE acknowledges that the development of an offshore wind farm at Is-Sikka l-Bajda will take place against a backdrop of a number of environmental constraints, namely that both reefs and *Posidonia oceanica* meadows are listed in Annex I of the Habitats Directive (the latter as a priority habitat), that Is-Sikka l-Bajda has been proposed by the Structure Plan as a candidate Marine Conservation Area and the proposed site in close proximity to a proposed Natura 2000, both as an SPA (under the Birds Directive) and an SAC (under the Habitats Directive). In view of such constraints, the CoWE proposes a number of mitigation measures and provisions, including the use of bubble screens and silt curtains, the preferred deployment of monopile foundations, besides recommending the prompt initiation of avifauna and benthic baseline surveys as a blueprint for an authoritative eventual EIA study. In addition, the CoWE recommends that the time of year during which construction takes place is identified so as to avoid the coincidence with the nesting period of bird species at Rđum tal-Madonna, that the connecting cable is laid on the surface of the seabed, rather than being buried, that the westernmost extremities of the reef are not impinged upon so as to reduce the degree of overlap with the proposed rafting zone

and, where possible, shallow non-reef areas not covered by seagrass are selected for turbine positioning, that the same turbines should be positioned in such a way on the reef so as to minimise the degree of spread and hence their impact on the birds' approach to Rđum tal-Madonna and that the installed lighting systems on the wind turbines do not further disturb the bird colonies at Rđum tal-Madonna.

The CoWE also acknowledges that, whilst most of the environmental concerns the raised by MEPA and by CoWE (including the generation of submarine and aerial noise, the generation of an EMF, impacts with coastal activities and the visual impact) can be successfully mitigated against or are of minor significance, a number of significant residual environmental impacts will result from the proposed offshore wind farm development. These residual impacts can, however, be compensated for to some degree by some positive environmental contributions, including the cessation of all bunkering activities, along with their deleterious impacts from anchor dragging and oil discharges, for example. The possible prohibition of fishing in a certain part of Sikka l-Bajda and the consequent declaration of a contiguous marine area as a 'No-Take' Marine Protected Area, and active assistance towards the Yelkouan shearwater LIFE Project at Rđum tal-Madonna and possibly towards other bird breeding programmes should also be contemplated. Monitoring experience from operational offshore wind farms in the North Sea has indicated that the submerged components are colonized within a brief period by a diverse fouling community and that the same components act as Fish Aggregating Devices (FAD's), greatly enhancing fish populations in the area.

Enemalta is mostly concerned with grid connection costs, and with impacts of the wind farm output on the grid. Enemalta, in fact, suggests that detailed grid stability studies were required, particularly to establish the size of the spinning reserve required. DCA, MIA and MATS expressed very little concern with a wind farm on Is-Sikka l-Bajda. MATS only suggests that some procedures for helicopters and light aircraft, which fly at around 500 metres, may need to be modified. The Oil Exploration Department had no interest in any of the offshore sites listed, while MCA and AFM only expressed some concern about sites other than Is-Sikka l-Bajda.

The Malta Maritime Authority (MMA) presented submissions addressing offshore wind farm operation vis-à-vis increased maritime collision and navigation safety risks, issues linked to marine navigation and communications equipment, and interactions with leisure and small scale commercial seaborne traffic. Moreover, the MMA also draws attention to the fact that the reef is located in Area 1; a zone that is designated for ship-to-ship bunkering operations under particular weather conditions.

The CoWE understands the importance of the nation's maritime operations and also acknowledges that safety and security of marine traffic (and related infrastructures) in the coastal zone should be given high priority to ensure the safe coexistence with near shore offshore wind farms. Examples of offshore wind farms that are operational (or which are in the project development process) in proximity with maritime activities, are presented to illustrate the various issues typically encountered and to prove that mitigation measures are possible.

The need for baseline data that would establish maritime traffic patterns on and around Is-Sikka l-Bajda, tests to establish interaction between wind turbines and ship borne and shore based navigation and communications equipment, and other investigations of technical and economic nature are critical nodes in the development process that will lead to offshore wind generation technology in Maltese territorial waters.

Concerns raised by the Fisheries Control and Conservation Division (FCCD) related to the potential loss of fishing grounds and the impact on fish breeding as result of foundation construction and potential conflicts with fish farm operations. In addition, the CoWE reviewed other fisheries-related concerns, namely the incompatibility of on-site fishing activity with the proposed offshore wind farm development and the impact on fish populations of generated noise. The CoWE believes that, despite the initial negative impact on fish populations during the construction phase, the proposed development will, in the long-term, benefit fish populations, as they tend to be attracted to submerged structures, apparently benefiting from the shelter from currents, wave action and predators. The CoWE

also notes that the suitability of Is-Sikka l-Bajda as a fish breeding area has been jeopardized to some degree through intense bunkering activity and fishing activity, although this must be substantiated through adequate baseline surveys. Existing aquaculture operations in the area lie 2 km to the southeast of the easternmost extremity of Is-Sikka l-Bajda, thus precluding any form of conflicts between the two activities. A fishing exclusion zone might have to be proposed in certain areas of the offshore wind farm site, to avoid damage to the connecting cables through anchoring and bottom-fishing methods, although fishing from moving vessels might be tolerated. The most significant underwater noise levels will presumably be generated during the geophysical surveying and pile-driving phases – impacts from these elevated noise levels can be mitigated through the use of air bubble screens, for example – the CoWE does not anticipate the permanent exclusion of fish species from the proposed site and believes that the eventual regulation or prohibition of fishing activities within the same site will greatly bolster fish populations.

The CoWE strongly enjoins Government to seriously re-consider Is-Sikka l-Bajda as an amenable location for the siting of an offshore wind farm project, in view of the absence of other viable alternatives, of the current oil-price scenario and of Malta’s need to exploit its renewable energy potential. To this end, the CoWE also enjoins Government to kick start the process involved as soon as possible, by commissioning the necessary baseline surveys, due to the predictably long timeframes involved, and to engage planning authorities. The CoWE also strongly believes in the need to envisage exhaustive educational and public consultation campaigns in order to instil greater public acceptance for the proposed offshore wind farm project.

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