Kummissjoni Interdjoċesana Ambjent

Arċidjoċesi ta' Malta, P.O. Box 90, Head Office,
Marsa, MRS 1000 Malta
Email: ambjent@maltadiocese.org

Solar Farms Draft Policy Document

The following are the comments and reactions of Kummissjoni Interdjoċesana Ambjent (KA) as part of the public consultation process on the Solar Farms Draft Policy Document downloaded from http://www.mepa.org.mt/public-consultation

Preamble

In the interest of clarity, the term "Solar PV Farm" is used here instead of "Solar Farm", which can include solar thermal systems. The term "stand-alone fields" is replaced by "isolated fields" to avoid confusion with "stand-alone PV systems". Any text taken from the Draft Solar Farm Draft Policy Document is presented hereunder in inverted commas.

The draft document states that the major aim of the policy is to promote the installation of photovoltaic (PV) in an effort to achieve the Renewable Energy targets by 2020, and "*provide the opportunity for households to participate in solar energy generation by photovoltaic panels, irrespective of whether they have access to their own roof space or not*". In this latter respect the policy needs to address all aspects related to the setting up of a small industrial sector with public liability.

Particularly where small investors (average citizens) are involved, all parties including investors, landowners, hardware/software providers, system operators and clients purchasing electricity (Enemalta and others) are in a relationship that is defined in law with all rights and obligations. This is not an easy environment particularly as the 'client' dictates the price and the conditions of purchase. The investment has to be safeguarded with an adequate return to recoup the capital and interest over the lifetime of the systems. Particularly important is the adherence to technical specifications and conditions (grid stability, frequency stability, etc.) of the grid operator. Furthermore, the environment has to be safeguarded in every foreseeable and unforeseeable aspect.

The draft document deals solely with the selection of possible sites for such systems. It is clear that the Policy formulation should not be solely the responsibility of MEPA. The Policy needs to be set out with the involvement of technical persons representing Enemalta, engineers / physicists, lawyers and business experts.

There are lessons to be learnt from the now defunct project of PV systems on public buildings, where apparently an unusually high feed-in tariff was applied for an exceptionally long term to make up for very high costs of mounting structures on roofs which may not have been structurally sound enough. Furthermore, the mechanism for payment by ARMS / Enemalta of credits for electricity exported to the grid has to be put in place, as apparently under the present set-up credit is anything but expeditious.

Specific comments on specific sections of the draft document are addressed below.

Section 1: Introduction

The intended Policy is a positive and necessary step in reducing our dependence on imported fossil fuels, a reduction in the emission of greenhouse gases (GHG), diversifying supply, increasing commercial activity and green jobs, as well as being within the framework of Malta's Obligation to the EU.

However, the current Energy Policy, Renewable Energy Action Plan and the Energy Efficiency Action Plan need to be updated to take into account the significant changes in our options in the energy scenario. Otherwise the proposed Solar PV Farm Policy would be left in a vacuum.

Situation to date

Whereas to date there has been a good uptake of small PV systems, solar water heaters (SWH) uptake has been poor and wind energy seems to have been rejected at any significant level. The promotion schemes for SWH and PV have proceeded in a stop and go manner; for instance the current PV schemes for domestic and medium size systems will soon close, and as yet there is no information on any new schemes.

Concurrently, the present and future reduction of costs of fossil electricity will impinge on future feed-in tariffs for renewable energy. It could also possibly lead to an increase in electricity consumption, thus making it more difficult to attain the target of 10% of all energy consumed to come from renewable energy sources.

The 200MW high voltage alternating current (HVAC) sub-sea cable (interconnector) linking Malta with Sicily will not connect us to the European grid in the short term. The link between Sicily and mainland Italy is still being strengthened from the current 100 MW to eventually 2GW. Also the HVAC link will effectively make the Maltese grid part of the Sicilian and Italian grid (both grids will be synchronised). Failures/disruptions of the grid on either side could hinder the operation of local PV systems.

Furthermore, the interconnector is said to supply electricity when required and when economically viable. However, there is no public basis for this, as no information on the supply contract has been published. It is difficult to foresee a supplier in Italy keeping 200 MW of plant idling (i.e. increase its floating reserve) just in case we require this power. Likewise the export of excess electricity from Renewable Energy Systems will depend on the contractual agreements.

"*The estimated PV installed capacity stands at ~60MWp with a potential annual addition of 15-25MWp of PV capacity*". This assertion implies that the public does take it up (probably at reduced feed-in tariff rates) and that further subsidisation schemes will be in place. It is true that the drastic reduction in the prices of PV panels offers the possibility of increasing PV capacity; however local PV systems prices are still higher than in EU. Furthermore, some PV systems installed on roofs have a negative visual image due to the disregard and lack of enforcement of MEPA regulations. This does put PV in a bad light among the public, and MEPA has to take action on this before it further affects the uptake of PV. Installations on sensitive areas such as village cores have to be strictly controlled and limited to very small systems.

Small to medium sized PV systems on residential and commercial rooftops are unlikely to bridge the gap which has arisen because of the rejection of any offshore or onshore wind farms. The wind farm at Sikka l-Bajda was rated at 95MW and onshore installations were rated at 45MW – both being included in the Renewable Energy

Action Plan. This results in a gap of more than 140MW of wind capacity. More seriously, a much larger gap in electricity generation results as PV generates less than half per kWp installed capacity. Admittedly, PV electricity generation coincides more with the daily electricity demand peak, but excess electricity generated off peak by wind could be exported.

The recent "cancellation" of a large (~4MW) contract for PV installations on roofs of government owned buildings was based mainly on an "excessively" high feed-in tariff among other things. The integration of PV as cladding of buildings has never been seriously considered. This need not necessarily lead to a negative visual impact especially in cases where there are already large glass pane facades.

Solar PV Farms are expected to provide the opportunity for individuals, households and enterprises to invest in solar electricity generation by PV panels, irrespective of whether they have access to their own roof space or not. This, however, is conditional on there being the necessary and sufficient legally backed guarantees to safeguard the investment, return on capital among other technical and environmental considerations. Besides, support through grants and adequate feed-in tariffs is necessary.

It is important that Solar PV Farms are treated as small industries where investors, landowners, hardware/software providers, operating staff and clients purchasing electricity (Enemalta and others) are in a relationship that has to be clearly and legally defined with all rights and obligations spelled out and safeguarded. This is not an easy scenario since the 'client' dictates the price and the conditions of purchase.

Section 2: Objectives

The ultimate objective is to determine the feasible Solar PV Farm capacity required and lay down mechanisms to achieve the desirable amount of electricity generation (uninterrupted as the weather permits). However, it is first necessary to estimate the contribution of the PV system to the amount of Renewable Energy stipulated in the 2020 target. This necessitates an updated National Renewable Energy Plan within a National Energy Policy. The onus to fulfil these stands on the Malta Resource Authority.

Besides the initial three steps identified by the document, the KA identifies other related important steps necessary for the implementation of the policy. One needs to

- set out solar PV farm parameters for policy interpretation purposes;
- identify suitable locations for solar farms;
- list the environmentally relevant criteria that have to be fulfilled by a solar farm;
- set out technical regulations to satisfy Enemalta's criteria for grid connection;
- install legal contractual obligations regarding safeguarding investment;
- establish the legal obligations of all parties involved in the setting up and operation of solar farms; and
- determine a feed-in tariff that will satisfy all parties.

Solar farm parameters

For reasons unknown, the only declared parameter (p.8) is a minimum area of 1000 m^2 (on which at most 65 kWp can be installed). Technical parameters related to PV systems, such as integration in the electricity grid are lacking.

Locations

A call for expressions of interest in Solar PV Farms conducted by MEPA resulted in 72 applications, of which 22 were for quarries (29 sites), 38 were for land areas (73 sites) and 20 were suggestions. In the Submissions document published by MEPA, the surface area was declared only for a few sites.

"*After evaluation quarries were selected as favoured sites even if their topography was not ideal. It was assumed that 50 MWp of solar PV farm capacity could be accommodated on the estimated 700,000 m^2 total area*".

This cannot be verified, but appears to be possible using the averages of the areas given in a few submissions. No indications were given whether each quarry was active, inactive or filled.

For reasons unknown, submissions for large open spaces were deemed unfavourable even though probably the topography may be better suited and a potential of 600,000 m^2 total area exists as estimated from the averages of the areas in the submissions. There is an indication that this may be linked to the costs of grid connection, although this cost would probably be much smaller than the cost of the PV systems themselves and the values of the electricity produced. The term used in MEPA's comments in the Submissions document was "*stand-alone fields*", presumably meaning fields in isolated areas, although no indication was given of the distance of the site from power lines.

Environmental criteria

These criteria need to be spelled out. At present they can only be inferred from the list of in/appropriate areas in sections 5.2 and 5.3. The KA suggests the inclusion of the following criteria: the minimisation of visual impact and the avoidance of glare as seen from surrounding roads and habitations.

Technical regulations

These are not even mentioned, but need to be declared by Enemalta in the interest of grid stability and other technical features.

The maximum distance of a site to the power lines has to be quantified, possibly based on a maximum connection cost of x% of PV system cost.

Operational Conditions

Regulations of contractual obligations of investor, land owner, hardware provider, operator and Enemalta have to be specified and included in contracts between partners.

The regulations must ensure the uninterrupted generation of electricity as the weather permits, without outages due to, amongst others, lack of monitoring and control, delays in servicing, lack of hard/software replacements.

Section 3: Legislative and Policy Framework

Paragraphs 3.1 to 3.4: The EU Directives regarding energy and renewable energy are fundamental. These have been transposed in local legislation and translated in National Policies such as the Energy Policy, the National Renewable Energy Action Plan, etc.; however these need to be updated. One needs to bear in mind the obligation our island has to reach the 10% target of renewable energy by 2020.

Additionally there is a need for legislation regulating:

- Land use – conditions of use have to be modified to permit the construction and operation of Solar PV farms;
- Business operation – the current legislation may need modification to cover Solar PV Farm operation;
- Obligations of each of the parties involved – specifying penalties in the event of dereliction of duties may need modification to cover Solar PV farm operation; and
- The setting-up and the operation of PV farms as well as the payment of credit to investors and resolution of any problems arising so that the investors' interest is safeguarded.

Paragraph 3.5: The KA observes that there is no mention of even modest-sized wind turbines of around 1 MW rating, which implies that there is a rejection of wind energy. This goes against diversification of sources (pt. d).

Paragraphs 3.7 & 3.8 (Quarries): Much of what is written in this section is superfluous and too particular.

Paragraphs 3.9 & 3. 10 (Rooftop PV and Solar <u>Thermal</u> Installations): Solar Thermal and domestic PV systems do not fit in the present context. As mentioned above, the Development Control Policy (DCP) and Design Guidance may have to be modified for rooftop Solar PV Farms. The existing DCP provisions for PV systems will need to be modified for Solar PV Farms.

The KA sincerely hopes that in-depth studies are carried out prior to making use of "*free-standing frames, which can be tilted and rotated to the most suitable orientation and pitch according to the site's location and seasonal variation to maximise collection*". Reference is probably being made to heliostat fields that are rarely found in Solar PV Farms, except for experimental purposes and specialised concentrating systems, mainly because of cost arising from the mechanisation and computer control of each heliostat. We do have a tracking concentrator at the Ta' Qali Park that has been parked, pointing to the heavens for many years.

Section 4: Definitions

A technically more precise definition of Solar PV Farm would be congenial for legal correctness.

Paragraph 4.2: A list of all quarries according to whether they are operational, disused, filled in, recultivated, etc. should be provided.

Section 5: Criteria for Location of Solar Farm development

Paragraph 5.1: This is a repeat: the maximum distance to the grid power lines should be determined by the relative costs of the connection to those of the PV farm and the electricity generated. Naturally one would hope that connection costs are realistic and not inflated. The meaning of the last sentence is not clear.

Paragraph 5.2 (Appropriate sites):

(vi) A PV system at the bottom of a quarry will generate less electricity as the walls shade it during periods of low elevation of the sun. Moreover, the installation near to productive quarries will be affected by dust.

(vii) Systems on shed roofs or greenhouses entail ensuring that the roof structure can carry the static and dynamic loading arising from the PV system.

Section 6: Design Criteria and Mitigation Measures

The KA believes that overall height and/or inclination should be specified here.

Section 7: Evaluation of proposals

Paragraph 7.4: The KA cannot understand why decommissioning should be considered when PV electricity will still be required. At most, one should restock the farm with new panels as and when necessary or advantageous. Decommissioning should only be considered if farms are non-productive and all parties are in agreement.

Concluding comments

Although the KA applauds the initiative, it feels that the document does not provide a sound basis for a policy since important provisions have been left untreated, and it appears to be dealing with the regulation of land use only. Reference should be made to the conditions regarding investment in "green electricity" in other countries. The latest reports reviewed show the need for attention to detail as indicated here.

Once again the KA appeals to the responsible authorities to adopt a policy of transparency and include the names of the authors/consultants involved in the drawing up of documents of national importance.

9th February 2015