

## **Using wind energy in Israel**

Summary and recommendations of the Energy Forum discussion at Samuel Neaman Institute, the Technion, held on December 19, 2011

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### **Abstract**

Electric power generation by wind turbines is growing increasingly around the world, accounting currently for a significant percentage of the utilization of renewable energies, in both developed and developing countries. The global installed electric power from wind energy has increased by 10 times over the past decade, reaching 240 GWe in 2011. This energy source has the fastest growth rate in the world. The currently leading countries in overall electricity production are China and the United States, followed by Germany, Spain and India. These data and others were presented in the Forum.

Even small countries, on the scale of Israel, show considerable achievements in the field of wind energy utilization. Especially impressive are the achievements of Denmark - a small country of 5.5 million people that is similar in many ways to Israel. Denmark is ranked first in the world in per capita utilization of wind energy, and provides 24% of its total electricity consumption through wind energy. This is due to its ambitious national program to reduce air pollution and greenhouse gas emissions, a program which started in the 1980s and was carefully implemented. In addition to the environmental benefit, these steps have led to the development of the world's leading wind turbines technology and to the establishment of an advanced industry with a significant portion designated for export.

Wind energy is capable of making a significant contribution to Israel's energy economy, with many added advantages such as reducing pollution, dual land usage and a relatively small requirement for land, in comparison with other renewable energies. However, in the State of Israel, regulatory difficulties and lack of suitable and available meteorological information make it difficult for the developers to start the process.

In addition to the benefit resulting from the use of wind energy to the energy economy of Israel – in the field of pollution reduction and limiting the dependence on imported fuel – there is another important matter we can learn from the experience of others,

and especially from that of Denmark. With the help of Israeli entrepreneurship and engineering capabilities we could establish here a domestic industry that will create jobs and increase our export.

The Forum participants are in unanimous agreement regarding the need for regulation and its significance within the framework of realizing the wind potential in Israel. The agencies in charge of that field on behalf of the Government, first and foremost among them the Interior Ministry, perceive their role in protecting the public interest while maintaining a balance with the needs of the developers. However, the developers, on their part, complain about the cumbersome bureaucracy in the various authorities that is interfering with the promotion of their enterprises. The key to resolve the delays, in the opinion of many, is to establish representative bodies in which all stakeholders will participate, to work vis-à-vis the authorities in a mutual dialogue. All European countries have a similar process of a hearing, as well as a similar process in different areas in Israel – for example, the standardization committees of green construction. This is probably the right way to reach understandings, when both parties are open to criticism and change. No less important is the dialogue among the government authorities that are involved in the subject.

Another existing problem, and which developers warn against, is the lack of wind data. The State has issued a tender to perform a wind survey but it was stopped, because the Meteorological Service undertook to conduct the survey, even though it was their first project of its kind. Some claim that such a survey should be performed by an experienced organization, at least for the first time - to set up the baseline and then the Meteorological Service could learn and continue the work. On the other hand, the Meteorological Service argues that the survey must be performed by a national organization, not by a commercial company, and that the changes recently introduced made the Service qualified to perform this task. Another claim by some developers is that wind data exist in certain organizations in Israel, for example, in the Electrical Company, but for various reasons are not made available to the public.

### **Recommendations:**

1. On the subject of regulation – the standards and regulations that already exist in the world should be adopted; there is no need to reinvent them in Israel. Europe alone has many years of experience based on thousands of turbines.
2. The various planning authorities involved in the regulation process should draw for developers, through joint effort, a road map that details the entire process, in order to reduce the uncertainty and for developer to know what they have to deal with before starting the project. It would also be of help for developers who are asking for financing from the bank.
3. There is a proposal to establish an independent information center with an impartial team of experts. There is room, of course, to be helped by experienced experts from abroad. This center will compile information such as a collection of wind maps, land marking, equipment standards, licensed equipment, training and professionalism in installations and current operation, installers' licensing and certification, public awareness, health and safety, noise, radar activity for maximum coordination with air traffic, investigation and characterization of birds' migration and nesting, mapping, rates and so on. On the other hand there are those who oppose this proposal claiming that it is the role of government offices and that the experts, both from Israel and abroad, will join the processes naturally without establishing an artificial body.
4. It is recommended to establish an Association of Companies on the subject of wind, as is customary in Europe, to adopt a uniform approach vis-à-vis the regulator. This body should be independent, and will work to join all efforts. It will represent the companies and help in outlining a comprehensive policy vis-à-vis the IDF, nature authorities, etc. It could also participate in planning organizations, offering an advisory opinion. It is important that such an Association shall include representatives of the public, who are not producers or developers (such as professionals from Academia) to bring to the fore the public interest.
5. It is recommended that each project from a certain size upwards (dozens of MegaWatts, as would be decided) will have a personal escort on behalf of the authorities (perhaps on behalf of the Ministry of Energy) that will accompany

the developers, to open the doors and promote progress within the regulatory maze.

6. Appropriate "wind regions" suitable for establishing wind farms in Israel should be defined. The definition can be done by the Ministry of Energy or by another professional organization and should weigh wind data, land availability, electricity prices, environmental sensitivity, and so on. After the wind areas are defined, staff work should commence in the relevant institutions: in the Ministry of Defense and the Air Force - to issue preliminary guidelines regarding the height of the turbines; As well as the Nature and Parks Authority (birds), the Electrical Company (available network), the planning authority (landscape, dwelling, noise ...) and other agencies.
7. In terms of planning electricity networks for the turbines, the Electrical Company has to submit master plans for tracks on its behalf to a central point in the (known) wind areas, to which the entrepreneur shall connect. The prospective entrepreneur will adapt the master plans to his own plan and will submit a track change, if necessary.
8. The wind survey must be carried out urgently, on the one hand, and be of high quality, on the other hand. It is desirable that the Meteorological Service will be helped by the services of an external company specializing in the subject of wind energy to promote the survey with maximum quality and speed.
9. Israel Lands Administration should formulate new laws for the purpose of allocating areas for wind energy projects, which are suitable to the nature of the projects and especially to the meteorological uncertainty involved in the early stages of each project.