

Smart Grid as a growth engine for the industry in Israel

Summary and recommendations by the Energy Forum at Samuel Neaman Institute, the Technion, 2.1.2013

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Abstract

Smart grids are being developed in many places in the world with the aim of replacing the conventional power grid. This is one of the leading topics in the modern energy economy and enjoys national priority, while attracting massive investments. In Israel, too, this topic is highly prioritized on the national energy agenda, although the subject is still in its infancy.

A smart grid delivers electricity from producers to consumers, while a fast two-way communication allows the amount and time of consumption to be controlled and adapted to the production capacity. This makes it possible to achieve optimization, savings, reduced costs, and increased reliability. The smart grid excels in its ability to operate under uncertainty conditions in order to route the power supply in an optimal way that responds to a wide range of situations, to encourage consumers to use energy in off-peak hours, and to charge consumers using energy during peak hours with premium prices. One of the goals that the smart grid serves is the introduction of renewable energy, such as solar and wind, into the grid when available, and using it to replace the production of electricity by burning fuel. Every junction in the grid can be both a producer and a consumer.

Smart meters are part of the smart grid, although in themselves they do not constitute a smart grid. The expected benefits from their installation include the application of time of use rates to the entire consumption spectrum, allowing rates that depend on consumption peaks, efficient energy consumption by users due to the availability of information, and a reduction in peak demand due to the large scale operation of demand management programs.

The smart grid opens up many possibilities for advanced industry in this area. It can and should be a growth engine for an advanced Israeli industry in this area. The global

potential is huge, in light of the modernization process that the entire electricity grid system is undergoing. One of the significant changes is the integration of IT in the grid. There are options for developing applications both for users and consumers. The Israeli industry has a very strong capability to create and initiate in these areas. However, we must differentiate between what needs to be done in the field of smart grid construction in Israel and industrial development, which should also be export-oriented. The government can act to leverage the investments in smart grid deployment to promote the local industry.

Recommendations:

1. Activities in which the Israeli industry has advantage and experience should be defined, which can be leveraged for the benefit of the smart grid industry. The Forum discussions mentioned IT technology, information security, network security, and protection of the individual. It is possible to expand the knowledge that has been gained in Israel about the smart grid servicing electric vehicles to other applications.
2. It is important for an Israeli company that is trying to operate overseas to show domestic outcomes. The government can help the industry by promoting a master plan in this area. For an area that is a work in progress, it is difficult to publish a master plan, and therefore it is recommended that a temporary master plan, to be changed and adapted over time, be published.
3. One of the main barriers of Israeli companies is the "valley of death" that exists between the end of the work in the laboratory and a product entering the market. There is no good solution for this difficulty at the state level. A connection between the Israel Electric Company and the industry is necessary. The IEC can and should play a key role in this field. Since the introduction of technology and products of Israeli companies is not a focus point of the IEC, a situation should be created in which this will become important to the IEC. Interest at the IEC should be created by combination of an executive decision and the creation of economic incentives.
4. If a foreign supplier chooses to implement a smart grid in Israel, the introduction of local content, through the transfer of knowledge and

exploitation of products that were produced in this country, should be encouraged.

5. The Israeli academia shows very little activity or interest in the smart grid at present. The Forum participants agreed that the academia should play a very important role here, and that academic researchers should be encouraged to work in this field.
6. The banking system in Israel is unfamiliar with the smart grid issue and the options for financing by mortgaging the savings arising from the enhanced efficiency in the electricity sector that would follow. The banks' interest in funding this project in cooperation with the Finance Ministry has to be boosted.