

The Next Generation of Power Engineers – the National Goal

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The Society of Electrical and Electronics Engineers in Israel (SEEEI) was founded 10 years ago. The Society established in the first decade its presence as one of the leading professional societies in Israel, with a wide range of activities, international recognition, tradition and values.

The main goals that the Society aimed at mainly dealt with the preservation and the promotion of the professional level of its members, and its contribution toward the development of the industry, the national infrastructures and the economy as a whole.

The SEEEI Society cooperates with national and international professional societies, maintains close ties with prestigious EE organizations such as IEEE, IET, and VDE.

The decade since the founding of SEEEI is by all means a short time span for building a professional organization that actively represents the EE community in Israel. Nevertheless, we have initiated and succeeded in having the Electricity Law changed in the Knesset so that the licensing process of Electrical Engineers and Electricians is streamlined and much more predictable, we have concluded agreements covering a uniform EE - Power Engineering studies curriculum that is aligned with EE licensing requirements. Our professional training section conducts more than 150 professional events per year with an attendance of 7,000 engineers.

The annual convention of the SEEEI National Society is the major central event held by the electrical and electronics engineering community in Israel.

The "Electricity 2012" International Convention is the biggest engineering convention in Israel, hosting under one roof this year the annual SEEEI convention and the 27th Conference of IEEE – Israel.

This year's Convention hosts some 1300 engineers, scientists and other professionals from some 400 companies, factories, academic institutions and independent firms including 150 participants and lecturers from thirty different countries around the world.

The program of SEEEI convention includes five Plenary Sessions and eighteen parallel sessions at which over 100 professional lectures are presented. The Convention's Main Topics that will be discussed during the plenary and panel sessions will be: Power System Challenges, Smart Grid, Electrical Energy Storage and Engineering Education.

More than 50 leading companies from Israel and abroad will present during the Convention a wide range of advanced electrical equipment, instruments and innovative technologies.

Nurturing the Next EE generation

SEEEI regards the nurturing and fostering of the next EE generation of Power Engineers as a national goal. A Power



Engineering Student Day will be conducted during the Electricity 2012 convention, where 3rd and 4th year power engineering students from all the academic institutions in Israel will have the opportunity to meet with the power industry and large corporation decision makers.

The student participation, funded by SEEEI, at the international professional convention is intended to expose them for the first time with the "real world" issues that are at the forefront of the power industry of OECD countries and to help the meet

with the people that are at the helm of this industry - in Israel and abroad.

Electrical and Electronics engineers are now one third of the engineering community, but as the world hunger for sheer power and for electronics is in constant growth, the world will surely need more of them and better trained ones.

A Challenging Outlook

It is foreseen that the world population will reach 8 billion in the year 2030, 60% of them will be city dwellers, 2 billion will be in the middle class, and half of the population will use electrical transportation. The power consumption will increase by 60% over then next to decades, while 20% of the generation will be from renewable sources. The storage of electrical energy will become a practical reality and will be used on a large scale.

The increasing demand for electrical power requires the erection of new power generation facilities and an intensive activity toward increasing the efficiency and preservation of energy.

Electrical transportation will be the mainstream in Israel with two decades, and a large percentage of the power generation will be solar and nuclear.

Industrial, commercial and even residential power consumption will be managed on-line over the Internet and other communications media for an increased energy system efficiency and utilization level.

For all this to happen in an orderly manner, the professional regulation must be built from scratch where lacking and improved elsewhere, standardization must be broadened, and all the aspects monitored and enforced properly and efficiently.

We are facing no less than a revolution for the electrical and power engineering profession in Israel, to be led by talented and dedicated engineering cadres, whose education must start **now**.

At stake is who is going to design operate and maintain the electrical energy value chain: management, generation, transmission, distribution and metering in the industry, transportation, institutional and residential domains - locally trained nationals, or will we have to outsource a large part of such jobs ?

Back to Reality

A dependable supply of electrical power is essential to this country. During the last summer we barely managed to supply the demand with the help of the ingenuity and professional level of all those engineers in charge. The national electrical power system is a complex system that requires sharp skills, intensive knowledge and a wealth of experience in order to take the right decision at the right time, and to keep the national system running at all times.

Without sound engineering decisions and solutions, just by educating the public over the media will not bring us where we want to be. Sustainable long term solutions require a sound engineering approach that addresses the root causes of the problem to begin with. Promoting unproven technologies, yielding to the excessive demands of the environmentalists, and spending public funds to appease them are not the solution.

A modern economy like ours needs professional cadres but there are not enough licensed electrical engineers in Israel to cater for all the country needs at an acceptable level. The number of licensed electrical engineers is on a constant decline and puts the power value chain in jeopardy. The licensing of power engineers needs a total makeover, the better part having already been done when the law was updated a year and a half ago, the remainder of updating the associated regulations is still pending.

A Modern Country

Israel, a new OECD member, is ranked highly among the developed countries. To name a few highlights:

- Knowledge-intensive industries contribute 40% of the exports

but employ only 10% of the national workforce, while a great part there are engineers,

- With a population of only 8 million, Israel is ranked as the third Hi Tech center in the world by size and second in the world by the number of start-ups,
- The cellular phone and the disk-on-key (flash drive) were first developed in Israel, by respectively Motorola and M-Systems.
- Israel is member of the 8-nation club of with satellite-launching capabilities
- Knowledge-intensive industries are the main national economy growth engine, and they fully express the human capital potential that we are so proud of.

A better future can only be secured by channeling the human capital toward technological development and exports. The energy and the high-tech industries in Israel need now and in the foreseeable future thousands of engineers, but the technological education is a long and deep decline since as compared to the 1980's levels, when its neglect commenced. Law and business administration seem to be the favorite high education avenues of the youth in the last decade or so.

Creating the next generation of power and electrical engineers is the national task of Israel. A material change in the perception of the young generation is needed. We should cause them to see science as their goal in life.

We regard the creation of the next professional generation of engineers a major task of SEEEI as well - we owe it to the next generations.