

THE SUSTAINABLE ELECTRIC POWER ENGINEER

Simenar # 5



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For an engineer, his responsibilities should not be confined on very limited areas, developing new theory, inventing new technologies. Every engineer should also has the duty of helping develop a more sustainable society. In the past decades, the burgeoning of new technologies and social revolutions ushered us into a new era, where people much more easily get access to various entertainments, educations and less worry about the food and securities. However, humankind consumed much more natural resources in the past decades than the whole human history before industrialization. The technology development deepened the social inequity. Whether as an engineer in the future or as a researcher in an institute, we can and shall sustainable development as the main focus of our work.

The influence of engineering comes in different aspects. Firstly, new technology can change the habits of normal people. For example, due to the advance in electronics and information engineering, the electronic payment is gradually encroaching the places of banknotes, the progress in transportation lets people much more willing and cheaper to travel long way to insular islands, and the island residents can benefit from tourists. These examples tell that every progress in engineering might greatly influence the people's lifestyle imperceptibly. So it is the engineer who can come up better sustainable solutions in replacement of outdated wasteful ways. Perhaps, for example, the higher speed of Internet connection will make the on-line meeting more attractive and economic, which in turn greatly helps reduce the fossil fuel consumption.

Furthermore, the technology greatly improve the societies. The most prominent example is the Twitter. In some aspects, the Twitter has some functions of traditional media but much more flexible, quicker, and, to some extent, free of authority's control. It greatly increases the freedom of speech, and has already shown its role in exposing political scandals, emergency rescues etc. However, the technologies might also deteriorate situations and might result in social retrogression. The nuclear technology can be used to produce power, which is the positive aspects, but the nuclear weapon also unnerves the whole world, which is negative aspects. Engineers with the advantage of these knowledge should limit the negative aspects and promote its good potentials, making the new technologies much more contribute to the development of sustainable society.

In electric engineering field, there are much work to do for developing a more sustainable society. The high efficient solar power generation can help reduce dependency on fossil fuel, and the development of power electronics address the problem of long-distance power transfer and facilitate the conversion from traditional fossil-burn cars to electric cars.

The KTH has been doing a great job in building a sustainable society. The research topics concern about increasing the energy efficiency. The school intensively educate students about what sustainable challenges we need to address as a future engineer. For example, one of the topics in high voltage research is to find a good substitute for sulfur hexafluoride, and they are cooperating with companies to manufacture high efficiency electric motor, which can be ultimately used in hybrid or electric vehicles. All the related lectures and researches are inspiring me to consistently reflect on what we can do for the sustainable development.