



## The Future of EMC Engineering

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### The Need for Energy Conservation

Most of the time we only think about our daily work, either research or applied engineering with a focus on immediate revenue generation or publishing the results of outstanding research. Insufficient time is given to thinking about the future, especially products and services that will make not only our lives richer, but that of humanity. Marketing seems to have all the fun in this department while engineers enjoy designing with advances in semiconductor technology.

Every few months a new item is released that allows us greater access to content, namely wireless technology. This includes numerous iProducts, 4G phones, advanced gaming consoles, and higher bandwidth computing devices and networks, to name a few. Notice that there is a pattern here—small, hand-held device. What about large systems of systems and the infrastructure to support our quality of life.

Engineers in the future must provide significant impact for society by minimizing worldwide energy consumption while developing new products and services that bring value to users. As a result, some facets of engineering problems in the future will deal with not only electrical aspects of circuits and systems, but second order effects such as advances in semiconductor technology, reducing the cost of manufacturing, implementing lower power consuming devices, recycling, and ancillary legal requirements mandated internationally.

One of the most important engineering challenges in the future lies in energy creation, distribution and utilization. There is a voracious appetite for electricity required for survival in a complex, interdisciplinary, and multicultural world. Different cultures view advances in electrical engineering with either awe such as those in third world countries, or with a shrug as if, so what's new, does it make my life easier and more fun, and can I afford it?

We must ensure that there is sufficient electrical power to sustain life on this planet, and the need to conserve

this precious resource through advances in system design using sound engineering principles. This is best achieved by designing circuits, systems, and power supplies that manage electrical networks in an efficient and cost effective manner on a large scale.

A country with a sophisticated infrastructure and high quality network of electrical power generation and distribution is a major contributor to the world's economy. Countries with minimal availability of electric power generally have poor economies and quality of life.

If we do not perform due diligence as EMC engineers, we could be a contributor to a potential shortage of electrical power since we are able to produce only so much electricity at one time. Without new power plants coming online, where are we going to get the power to sustain our life style and the ability to recharge our hand-held products, not to mention the lights in our house, our entertainment systems and appliances, and everything else that uses electricity? Electrical supply and demand is a challenge for all engineers to think about not only today, but for our future. ■

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