

# Power Electronics Engineers Needed

*By Claus Petersen, CEO Danfoss Silicon Power*

CO<sub>2</sub> emission has recently moved up on the international political agenda and most likely will be the object of numerous near term legislation. While writing this editorial, the EU heads of state are negotiating maximum CO<sub>2</sub> emission targets and targets for the binding rates of renewable energy to be achieved by each country. From the perspective of a Power Electronics manufacturer this is good news. Power Electronics play a significant role in a large number of CO<sub>2</sub> emission reducing activities.

Renewable energy generation technologies such as wind turbines, photovoltaic and wave power all involve use of Power Electronics, as do many energy consumption technologies all the way from home appliances to industrial automation. These segments from which Power Electronics has been enjoying good growth in the past will certainly contribute with higher growth rates in the future.

In the decade ahead, however, the automotive OEM market will emerge as a fast growing segment for Power Electronics. Fuel saving Power Electronics applications such as Electric Steering, Battery Management, Electric Water pumps, Turbochargers and Air-conditioning Compressors will contribute with immediate growth. The Hybrid Car will be an especially significant contributor and will probably make the automotive industry, by far, the single largest market segment for Power Electronics.

Being a 2nd Tier automotive supplier with all the know-how and intellectual property it takes to succeed in the automotive Power Electronics sector, this is just what you like to hear, unless, of course, stumble blocks are piling up ahead.

Significant challenges lie ahead. There will be new component and system level technologies to develop and investments in new manufacturing facilities, etc. However, the



greatest challenge will be training future scientists and engineers with the necessary skills in Power Electronics and attracting them to the world of Power Electronics.

Noted automotive specialist Prof. Dr. Ferdinand Dudenhöffer last month stated that recently proposed EU CO<sub>2</sub> emission limits would probably generate 50,000 new jobs and 9 Billion Euro additional turnover, in the automotive supply industry. Although these 50,000 new jobs are not all in Power Electronics, a quite high portion will be and of those the engineers will have to be there first, in order to engineer the Power Electronics answers to the CO<sub>2</sub> emission goals.

And we all know that the number of Power Electronics engineers graduating in the coming few years not is going to grow, at best we will be able to avoid decline. This will become a major stumble block if not changed and requires immediate action.

What we should do is to take advantage of the present interest in the environmental issues and make it clear to present and future students that if they want to contribute to saving the world from the negative effects of CO<sub>2</sub> emission a career within Power Electronics is the right choice.

One good way of doing that is to join forces through the European Center for Power Electronics e.V. (ECPE). In this forum most of the main players in the Power Electronics business are present from device manufacturers over system integrators to OEM's. Such a forum has the power necessary to open all the doors from local authorities to the top floors in Brussels.

The ECPE is very active in generating cooperative R&D projects with universities across Europe and in spreading Power Electronics knowledge through frequent training courses in all aspects of power electronics. If the ECPE would be just as active in promoting Power Electronics in media outside of the Power Electronics circles, I'm sure it would have a significant impact on the interest for our industry among potential Power Electronics engineers.

The big question is what activities can the ECPE and all of us in the Power Electronics industry put in place that will attract students to Power Electronics, make them aware that the car of the future accelerates quickly and noiselessly due to Power Electronics, cause them to understand that the wind turbine is producing electricity of high quality due to Power Electronics and that the way to significant energy savings in industrial environments, air-conditioning and home appliances is possible only due to Power Electronics.

Suggestions are very welcome.

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