

It Still All Comes Down to Cost

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Since the first oil crisis in the early 80s, the discussions regarding our responsibility to reduce energy consumption, conserve the environment and protect the globe for the generations to come have been raging. Reality, however, is still a long way from the motto "think global act local".

In Germany, industry amounts to approximately 50 % of the total electrical energy consumption, with 2/3rds of it used for electrical drives. According to the European SAVE study, roughly 22 Billion kWh per year could be saved by the use of variable speed drives and an additional 5,5 Billion kWh by the use of motors with higher efficiency in Germany. These energy savings alone would amount to the electrical energy required to drive 1/3rd of all cars in Germany, were they all battery powered.

Approximately 12 % of the already installed and about 30 % of the newly installed drives in Germany are variable speed drives. Considering energy savings, variable speed would actually make sense already for about 50 % of the drives. Despite the 'green' discussions and projections within the European community, only about 9 % of the currently sold motors are considered of high efficiency according to the efficiency standard IEC 60034-30, compared to 50 % high efficiency and 20 % premium efficiency motors sold in North America.



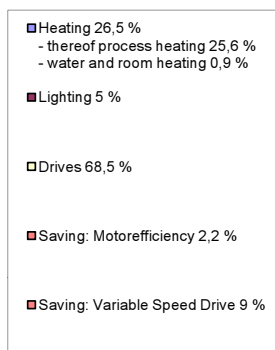
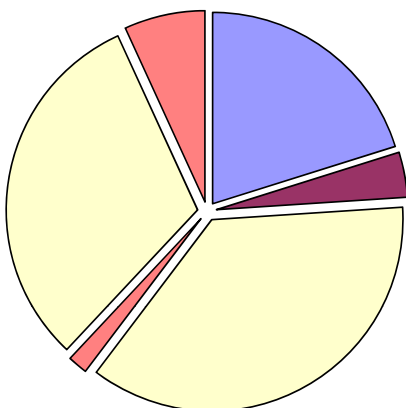
One of the reasons behind the relatively slow implementation of energy saving drives in new applications is the way investment decisions are made. Common business practice is to target a maximum investment payback period of 3 years. With the relatively low energy costs of the past, this target was extremely hard to reach. Furthermore, contracts for production lines or complete factories have so far been agreed mainly on the basis of the investment cost, not taking into account the energy cost. According to studies, energy costs on average amount to no more than 2% of the total cost of production.

With the recent explosion in energy and particularly oil cost, the scenery has shifted. Cries for energy-saving and efficient solutions are resounding throughout the land. The payback time for highly efficient variable speed drives has dropped from several years to almost 2 years, depending on the application. The dramatic rise in energy costs has led to decisions based on lifetime cost calculations. Indeed, the times when decisions were made taking into account energy costs at the time of investment and targeting a 3 year payback seem a thing of the past, particularly considering the fact that a factory lifetime is seldom less than 10 years and that energy prices can be expected to multiply within this timeframe.

The high energy costs and the change in mindset will boost the demand for energy-efficient solutions, leading to intensified activities in this area. This will impact existing applications, such as drives, as well as emerging areas, like renewable power generation and electrical vehicles.

Conclusion

The hope for the future lies in the slowly evolving knowledge that our resources are final; in the increasing awareness that what might be a good solution today may not be for the lifetime of the investment; and in the unavoidable increase in energy costs, already taking place today! With this in mind, I am looking forward to the future, with its increasing demand for efficient solutions and the thrilling prospects and demands this implies for the area of power electronics. To put it simply-I cannot imagine a better place to work during these exciting times.



100 %: 248 Billion kWh

Source: ZVEI/VDEW

Picture: Electrical Energy Consumption and possible Savings for the German Industry 2004

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