Manuel Járrega, J Electr Electron Syst 2015, 4:3
http://dx.doi.org/10.4172/2332-0796.C1.001

OMICS International
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Global Summit on
Electronics and Electrical Engineering
November 03-05, 2015 Valencia, Spain

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Energy efficiency, the key point in world energy challenges

Total energy consumption will double from now till 2050, and electrical consumption will double from now till 2030, which means more investment in electricity in the next 20 years than there has been since the inception of electricity. On another hand we know that if we want to preserve the climate, we've got to divide by two CO_2 emissions in the next 40 years. So, multiply by two, in terms of consumption, and divide by two, in terms of carbon dioxide emissions. That means we've got to improve the energy intensity of everything we do by a factor of four: For everything we do, we have to consume one-fourth of what we used to consume. We know building and industry are the first GHG emission contributors (44% of GHG emission). In industry and buildings 70% of electricity is generated via coal or hydrocarbons. 90% of heat and process activities burn hydrocarbons. We have to remember that 1 unit of energy saved at home are 3 units saved at the power plant. The answer to this challenge is Energy Efficiency. With the actual technology we can save an important part of our energy (in the limit 30%) with a combination of:

- Efficient devices and installation (10-15%)
- Optimized usage via automation (5-15%)
- Monitoring and maintenance (2 to 8%)
- If we want to achieve Sustaining Energy savings we have to follow 4 steps:
- Measure: Only we can quantify energy savings and follow if we install measurement system
- Fix the basics (insulation material, power quality etc.)
- Automate (Building management systems, variable speed drive etc.)
- Monitor and improve: Energy Management Systems and Remote Monitoring Systems

Energy Efficiency is the obvious solution for our challenge in the future. We need to convince the society that it's necessary to invest in energy saving and urgently, because the risks for our life and economies with climate change are day by day more patent.

Biography

Manuel Jarrega studied Industrial Engineering in ETSEIIB in Barcelona (specialty Energy) UPC (1989). He began his career in AESA, company leader in Cogeneration technology and developed a specific SCADA adapted to Cogenerations plants with services embedded. In 1994, he joined Schneider Electric where he was MV control and protection systems Director (2006-2007), Medium voltage Primary distribution, electrical projects and services Director from 2007-2011 and Spain Services sales Director in 2012. Today he is South Europe Application Center Director, leading automation projects and services business.

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