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## **Poor Power Quality is Costing European Industry Over 10 Billion Euros Per Year**

A first attempt to assess the cost of poor power quality to European industry was made at a workshop staged on 8 June by the European Copper Institute in Brussels.

The workshop attracted over 50 participants, from 11 countries, representing 10 different industries.

“Power quality (PQ)” is used to designate the performance and stability of electricity supply as compares with a given utility's technical standards and the requirements of users. Poor PQ means deviations from this standard, such as typically voltage dips, transients, surges and sags, short interruptions, etc.

Power quality problems are increasing steadily because of the ever-growing use of equipment such as:

- switched-mode power supplies in computers and IT equipment
- variable speed drives in electrical motors
- high frequency lighting in office environments

As a result, 70-80% of power quality problems are caused internally, i.e. on-site rather than by external circumstances.

Power quality deficiencies result in regularly occurring glitches such as computer lock-up and network congestion, flickering screens and lights, lost calls in PABX, motor burnout and transformer failure, fire hazard due to high neutral currents.

The overall cost of these problems to businesses in Europe is estimated to be in a range of 13-20.3 billion per year.

A number of effective solutions are available to reduce or eradicate on-site power quality problems:

- Wiring solutions such as conductor & neutral sizing, neutral regime, earthing
- Equipment de-rating
- Power conditioners & harmonic filters
- Power monitoring & preventive maintenance
- UPS, dual power supply

However, due to lack of awareness of the issue, these solutions are not yet widely adopted, despite the fact that:

- the cost of solutions is usually less than 10% the cost of solving the problems afterwards.
- Macro-analysis, as well as individual case studies, show that investment in PQ solutions pays back well within a year, with a return on investment of more than 100%.

A copy of the full report on the workshop can be obtained upon request at:  
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