



European Power Quality Survey

RETAIL SECTOR

RETAIL SECTOR SUFFERS FROM POWER DISTURBANCES

Power disturbances can be an unexpected source of significant financial losses for the retail sector.

Retailers have to be increasingly competitive – pricing, minimizing operational costs and maximizing revenue all need continuous scrutiny – not to mention complying with an increasingly stringent regulatory environment. Unrecognised but very real, disruptive events such as power disturbances are frustrating and financially damaging. The lights go out, escalators stop functioning, tills are frozen, security systems fail. Customers walk out of or have to be escorted from the store. Financial losses start mounting up.

Far too many retailers still rely on inadequately designed electrical installations and are just waiting for a power disturbance to hit their business. In many cases, a retrofit of the store's building and equipment has been executed without exchanging the electricity supply system for a new and more reliable one.

This has been identified by the European Power Quality (PQ) Survey. Power Quality incidents may well “only” account for approximately 1 per cent of the company's turnover, but that can be **up to 10% of the net profit**.

Several phenomena affecting daily business

Whilst power interruptions are the best known type of disturbance, other electrical power distortions can have equally negative impacts on a retailer's business. The PQ Survey identified the following:

- **Short power interruptions** can cause computer failures, data loss, and blocked tills. Important product traceability and financial data can get lost. Short power interruptions can also result in escalator and elevator use having to be suspended. If trading can go on, it will certainly slow down for a while.
- **Longer power interruptions** can cause even more damage. The security systems are likely to fail so customers will be asked to leave – for their own safety and to avoid theft. There will be financial wastage due to staff downtime and lost revenue. In all probability, any refrigerated products may exceed the time/temperature tolerances (TTT) and may have to be thrown out.
- **Harmonics** are a hidden threat – unless they are regularly monitored. The disruption they cause can hit a business apparently without warning. Harmonic disturbances may cause HVAC to malfunction, and security and communication systems to fail. The risk of the failure of electronic tills further increases the potential loss of revenue.
- **Flickering lights**. This irritation can affect the productivity of administrative and sales staff. It can also affect customer loyalty, as people prefer to shop in a relaxing environment.
- **Unbalance between the phases** potentially causes a failure of lifts, escalators, and air conditioning fans.

Many retailers do not adequately assess power quality risks for their business, nor do they undertake frequent enough measurement of key system parameters. Consequently, insufficient measures are taken to ensure a reliable and continuous power supply for their businesses.



Leonardo
ENERGY

www.leonardo-energy.org



**The solution –
an adequate electric
power installation at
each commercial site
– often costs less
than the annual
losses it eliminates.**

FINANCIAL LOSSES MOUNT UP FOR SUPERMARKET CHAIN

A national Spanish supermarket group comprises over 100 outlets, each employing on average 100 staff. Each year, half of their commercial centres experience a power outage of 2 hours on average. The annual cost of these outages for the group exceeds €4 million. Wasted perishable goods account for over half this figure; sales loss for about one quarter, and the remainder is taken up through wasted staff down time.

And the total cost to this company was certainly even bigger than that quoted above. If the lights go out, quantifying the cost of a weakened brand image is hard but real. Moreover, additional cases of theft were not included in the figure. Not included either were short power interruptions that do not stop sales but certainly slow them down.

PROFITABLE INVESTMENT OPPORTUNITIES

The retail sector suffers unnecessary financial losses caused by their own shops electrical power systems that often cannot cope with a variable electric power supply. ECI's Survey has identified many losses and wastage due to poor power quality throughout the sectors' different commercial locations. It has demonstrated that power quality solutions often cost less than the financial losses they resolve. Current investment into power quality solutions in this sector is well under 1% per cent of turnover, or approximately 40% less than the sales and efficiency losses experienced annually.

Do you know what power disturbances are costing you?

You can contact us at <http://contact.leonardo-energy.org> to find out how the issues raised here may be affecting your company.

Understanding the problems – designing the solutions

ECI's Power Quality Survey demonstrates that the majority of the power disturbances faced by the retail sector could be avoided by a more adequate design of the shops own electrical installations. The solutions therefore lie very much in the business' own hands. A good start could be to integrate Power Quality checks into regular walk-through maintenance inspections. Furthermore, energy auditors could be asked to assess power quality in the same audit as energy efficiency. For achieving the required availability and reliability, electrical design engineers recommend a holistic approach, based on three operational pillars:

- **Correct measurement**, to assess the full impact of power disturbance events and why they are happening
- **Appropriate design** for the electric installations, beyond the prevailing standards as required to ensure system reliability and resilience
- **Considered investment** justified by assessing system renovation cost set against the accumulated losses.