



EURELECTRIC Views and Recommendations on Voltage Quality Monitoring

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#1: Voltage quality management is a shared responsibility: strike a balance between network improvements and clean/resilient equipment



Take into account all voltage quality factors

- **Origin of Voltage disturbances:**
 - Accidental faults
 - Network users
 - Electrical and electronic home appliances (Product standards)
- **Emission limits for network end-users**
- **DSO cannot be held solely responsible for voltage quality management**



EURELECTRIC recommends:

- Appropriate **voltage quality** in distribution networks is a **shared responsibility between TSOs, DSOs, equipment manufacturers and connected end-users**
- **Examine the cost of mitigating impact of voltage disturbances on equipment and network**
 - Conduct a study to evaluate the need for and feasibility of establishing (an) immunity curve(s)



#2: Voltage quality in evolving distribution networks



Voltage Quality Requirements have to take into account new developments

- Proliferation of **electric cars, distributed renewable generation, energy-efficient equipment and appliances** in the distribution networks
- **New loads and units** connected to the network **must comply with standards and grid codes**
- **EURELECTRIC** believes that demands for **stricter national regulation** should be driven by a **technical-economic analysis**



#3: Voltage Quality Monitoring : Considerations and Recommendations



Recommended improvements to improve VQM

- **Harmonised format** is needed to ensure a **uniform data interpretation** across Europe
 - broad adoption of a standard report would facilitate voltage quality benchmarking between European regions
- Recognise the **cost of voltage monitoring** as a **distribution cost** hence appropriate resources will be available for proper monitoring schemes
- **EURELECTRIC promotes** a wide **voltage quality measurement campaign** based on **EN50160**



#4: Monitoring Voltage Quality in the LV network: role of smart meters



VQ Opportunities with smart meters?

- **Smart meters** opens up the **possibility** of collecting **crude indicators** on **voltage variations, interruptions** and sometimes dips and swells at end customers' connection points
- However, these data should NOT be used as a basis for regulatory action
- To thoroughly **understand** and **handle voltage disturbances**, the smart metering monitoring must be **complemented by dedicated and sophisticated voltage monitoring devices** at **MV/LV substations**