8th International Conference
CAPACIT 2014

Hotel Imperial, New Delhi
Thursday 20th and Friday 21st November 2014

Power Quality
in de-regulated environment

A Velayutham / Manas Kundu
Asia Power Quality Initiative (APQI)
India

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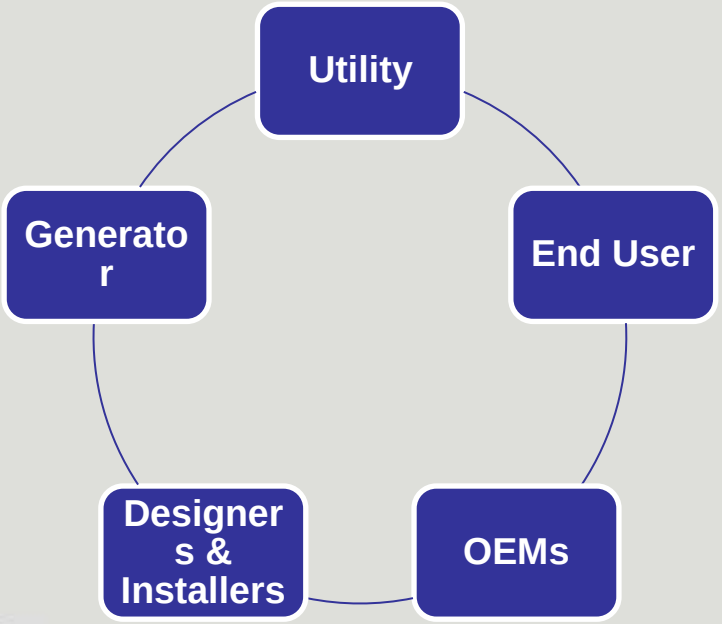
Roadmap

- PQ in Indian context
- Financial impact of Poor PQ – Indian Ignorance
- PQ Priority of Implementing agencies
- Policy in vogue, Legal Provisions in place
- Asia Power Quality Initiative (APQI)
- Way Forward Action Plans

Power Quality

Productive factor	Customer Expectation	Utility KPI Expectation
• Availability • Quality of Supply (QoS) • Low cost	• Reliability • Quick restoration • Timely information	• Electrification, • Profit Maximization • Least Cost Power and • Least Outages

What is meant by Quality?
Who is responsible for Quality?



Poor PQ

- Improper or Costly Operation
- Failure of equipment or power supply
- Safety issues

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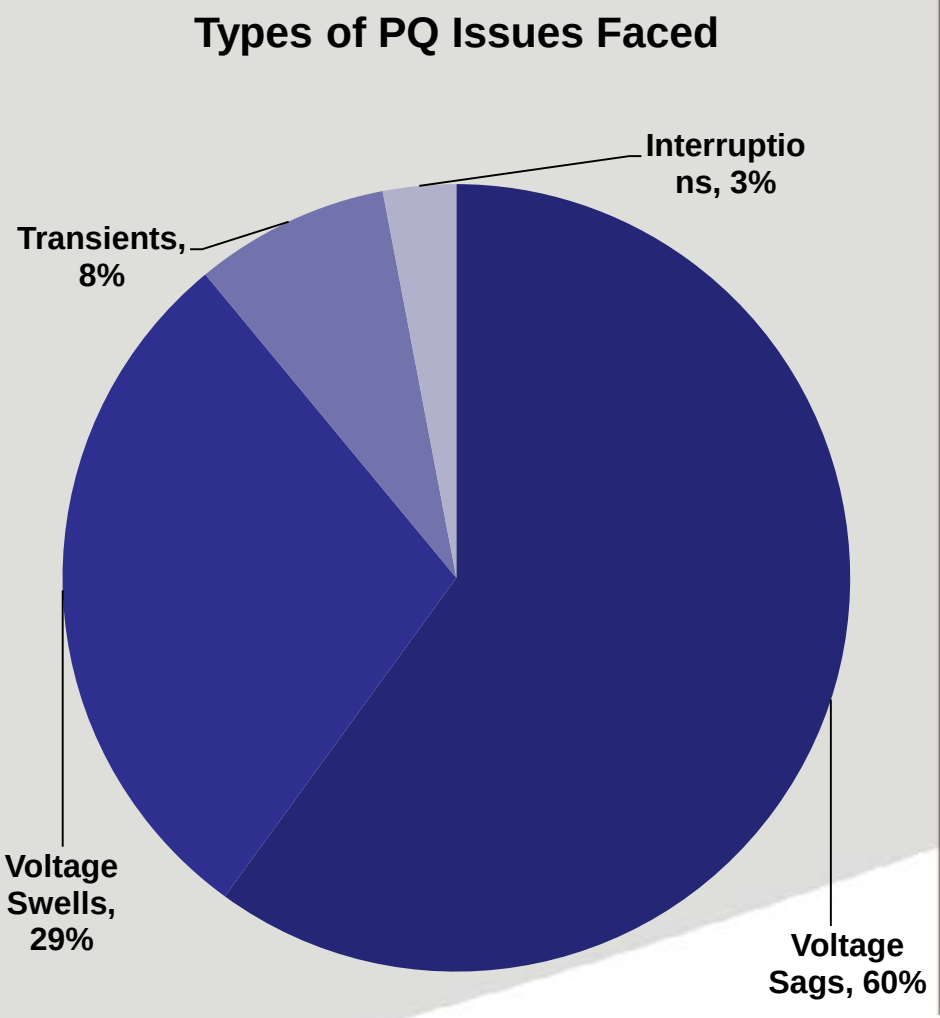
Power Quality and Financial Losses

- Power quality is a financial problem – not a technical problem alone.
  - PQ causes $120B/year in economic loss in the US (EPRI, DOE).
  - EU looses €150 Billion every year (LPQI Survey)
- Economic Impact of Poor Power Quality in India
  - Outages a Major Cost:
  - Directly measurable – DG Sets, Inverters /Battery
  - (Wartsila Study) 100,000 Cr investment plus annual opex 30,000 Cr
  - Indirect Cost (Disruption, Opportunity Lost etc) –not easy to measure
  - Some estimate - 6% of GDP.



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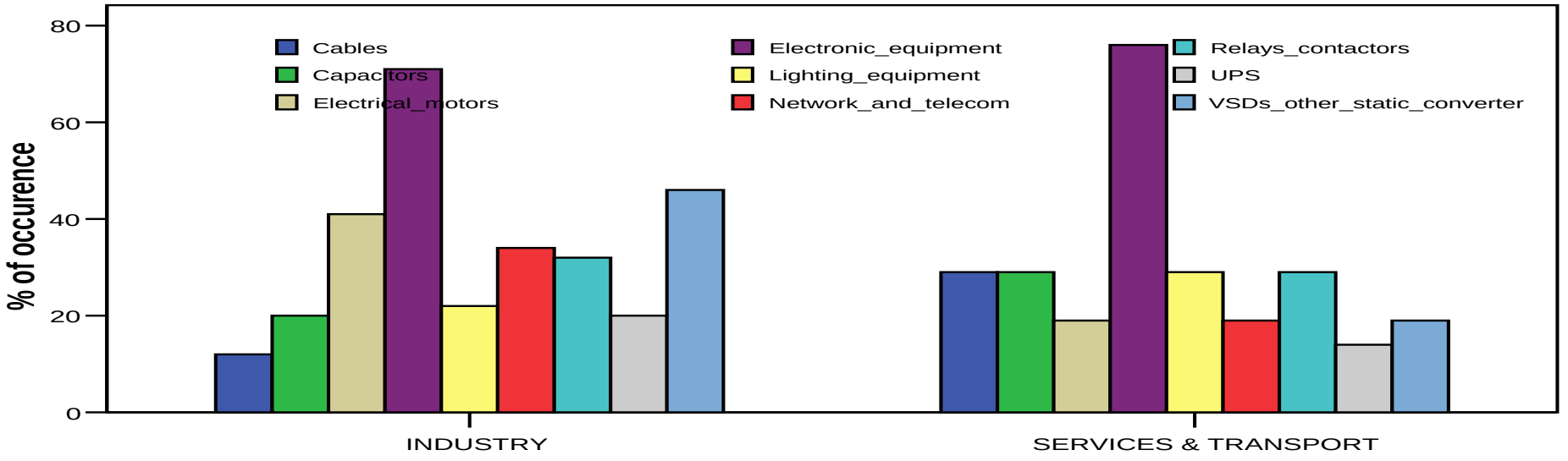
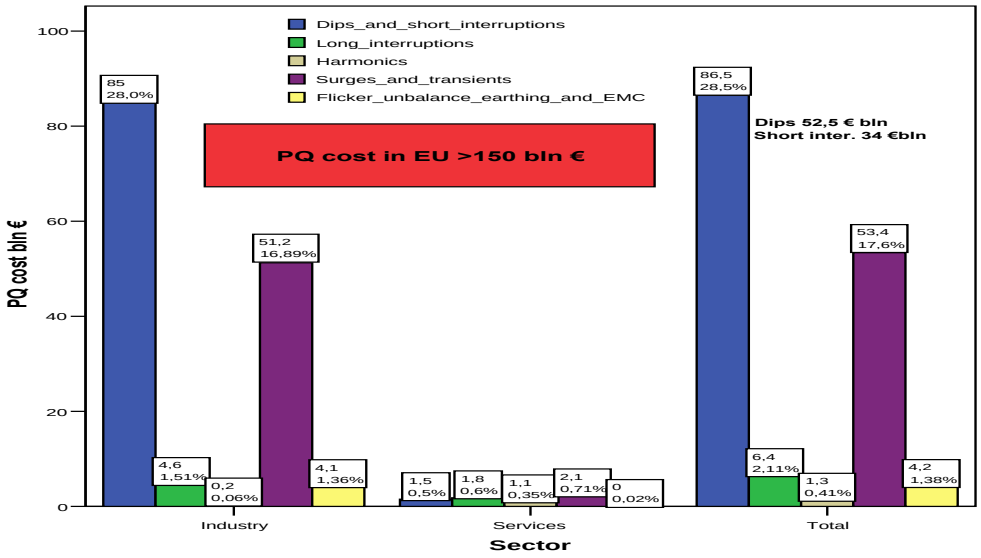
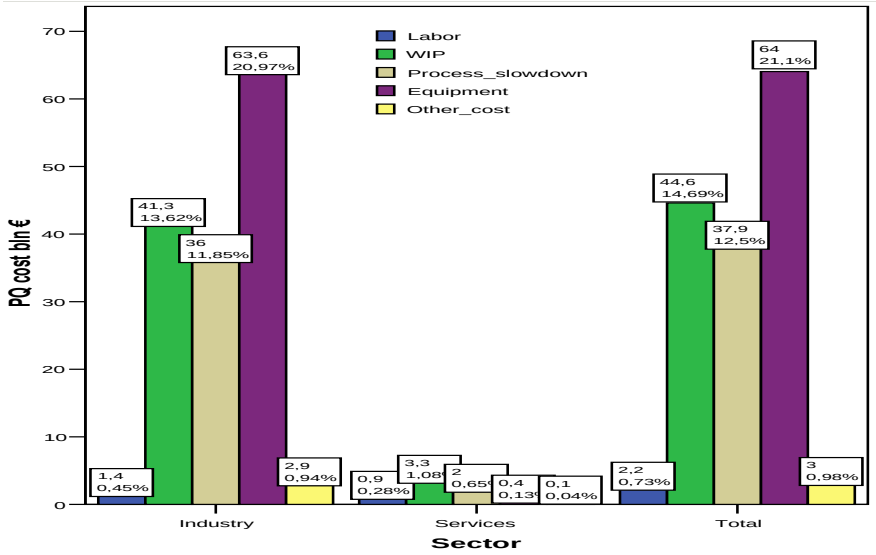
Equipment affected n Cost afflicted







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Policy Initiatives

Policy Initiatives

- Development & Inclusive Growth
- Setting up Future Roadmap
- Implementable and Feedback Loop

Electricity Act 2003 Provision

- Suspension of Distribution License when failed to maintain quality of electricity(section 24 (1)(a))
- Adjudication by CERC and SERCs
- District Co-ordinations Committees
- Central/State Advisory Committee

Regulation Provisions

- Electricity Grid Code issued by CERC & SERCs
- Standard of Performance issued by SERCs
- Distribution Code issued by SERCs
- Technical standards issued by CEA
- Equipment standard issued by BIS

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Way Forward

- Industry may have to collect data concerning the impact of PQ on their production. Also they may involve Academic Institutions for this purpose for PQ Audit, study and R & D.
- Industries needs to form PQ forums involving consumer welfare Activists and Academicians for identifying PQ related issues and to take up with Regulators for redressal in line with EA 2003 provisions.
- Industries needs to fund these activities.
- SERCs may set up PQ monitoring committee in line with Orissa ERC
- Government may set up District Coordination committee as envisaged in the EA 2003, this may help improving PQ performance in Rural India
- ERCs shall have to insist Utilities to install PQ monitoring equipment
- Utility shall have to keep record on PQ related data, the same shall be forwarded to ERCs
- PQ performance of utility may have to be assessed by ERCs, penalty/reward have to be taken into account while evaluating their Revenue Requirements.

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