

# Paris Session 2022



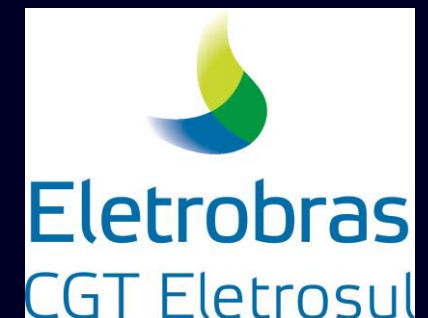
Utilities expectations and roadmap in the application of an IEC 61850 solution in a full digital substation

## B5 Protection and Automation

PS2 - Applications of emerging technology for protection, automation and control

Q2.02 What are the expected benefits of using digital substation concepts and how to meet these benefits during industrial application?

Pablo Humeres Flores / Brazil



## **Question 2.02 What are the expected benefits of using digital substation concepts and how to meet these benefits during industrial application?**

- **IEC 61850 standard revolutionized the way we implement PAC systems in a substation**
- **Impacts primary equipment, civil infrastructure, the time required for implementation and the way of designing, maintaining and operating the system**
- **Technology itself is not an objective, but a means to improve the reliability, costs and resilience of the power system**
- **Impact the knowledge base of the teams, organization of the companies, requirements and procedures**
- **Convergence of information technology (IT) concepts applied in the technology of operation (OT)**

## Question 2.02 What are the expected benefits of using digital substation concepts and how to meet these benefits during industrial application?

- **It is important to establish a Roadmap :**
  - Evaluation of technologies involved in the implementation of a digital substation
  - Pilot projects in partnership to evaluate solutions, technologies and maturity of available products
  - Proposition of strategies to apply digital technologies in substations
  - Recommendation and definition of functional requirements for the application of digital substations
  - Evaluation of impacts on design, maintenance and operation processes in the company
  - Recommendation of a qualification plan for the teams involved in digital substations
  - Monitoring and evaluation of standards and procedures defined by regulatory bodies.

## Question 2.02 What are the expected benefits of using digital substation concepts and how to meet these benefits during industrial application?

Changes	Impacts	Benefits	Consequences
<b>Digitalization</b> <b>IED</b> <b>Local</b> <b>Communication</b>	-Qualification -Convergence of IT, Telecom, Automation and Protection areas -Changes in company organization -Remote Access Investment (WAN)	-Better control over infrastructure -Easier for system changes -Faster to test -Telecontrol of facilities -Enables remote work	-Smaller maintenance and operation teams -Fewer team trips -Higher speed to get work done -Fewer work accidents
<b>LPIT</b>	-Qualification -New maintenance routines	-Low electrical Risk for team -Non risk for explosion -Easier to move and install equipment	-Increased power system availability -Fewer work accidents
<b>Virtualization</b>	-Qualification -Investment in computational infrastructure	-Better infrastructure and service management	-Increased availability of protection and automation systems -Higher speed to restore system to crashes or cyber attacks
<b>Asset Management</b>	-Qualification -Systems Acquisition	-Real-time asset management	-Equipment, team and service cost management
<b>Cybersecurity</b>	-Qualification -Impact on work procedures -System Acquisition (SOC)	-Security and governance improvement	-Company Business Protection -Improved Company Image -Compliance with government policies
<b>Analytics</b>	-Qualification -Investment in equipment and systems	-Incorporation of intelligence into systems -Data collected analyzed -Immediately actions to power system conditions -Immediately Availability of information and diagnostics for expert teams	-Rapid response to power system control and protection actions improving availability -Fast response of maintenance in times of unavailability

Group Discussion Meeting