

# Paris Session 2022



## Measurable Benefits of Digital Substations

Study Committee B5, PS 3

Q3.05: What are your expected benefits of using digital substation concepts and how to measure if the benefits can be realized?

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Group Discussion Meeting

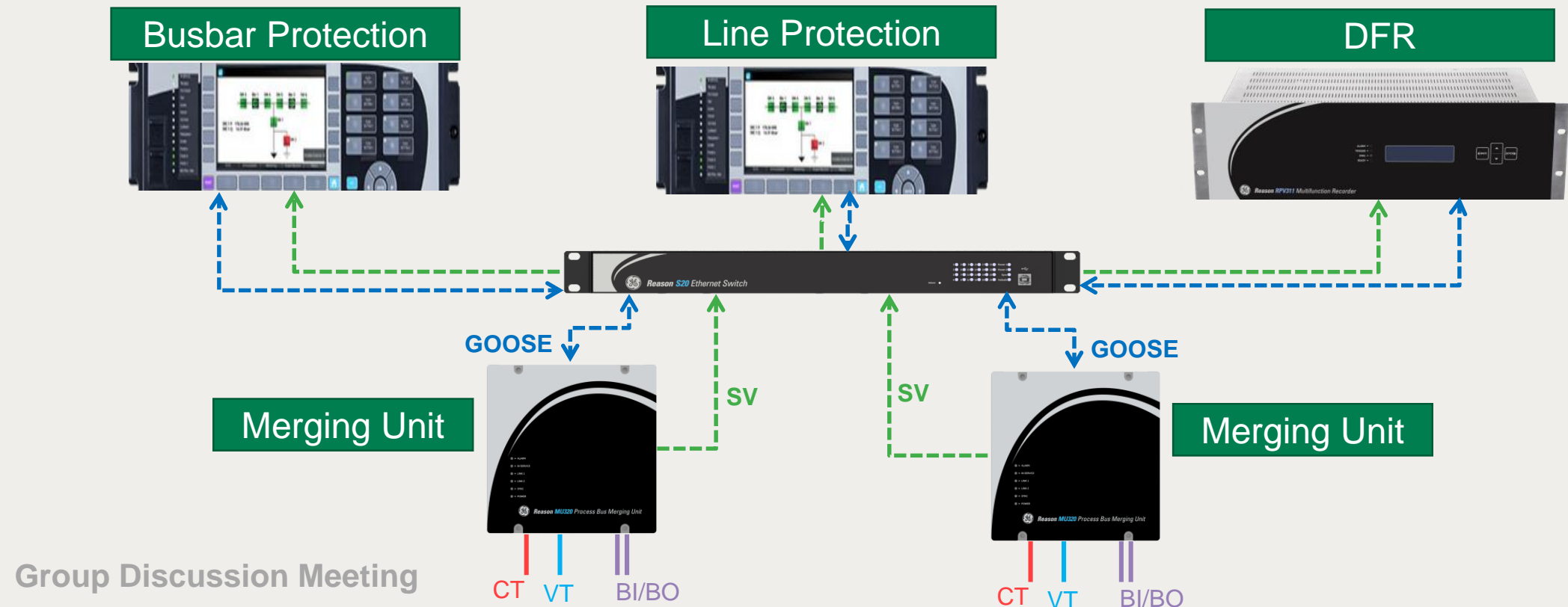
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# Expected Benefits of the Digital Substations

- Benefits based in experiences of DSS Lorena (500kV) and Mata Norte (230kV)
- Benefit 1 – Share acquisition through Process Bus → Ready for Virtualization



Group Discussion Meeting

# Expected Benefits of the Digital Substations

- Benefit 2 – Modular architecture simplifying design, commissioning and testing
- Benefit 3 – Reduction of Commissioning Time (66%) & Infrastructure Cost (75% cables)
- Benefit 4 – Avoid electrical hazards in the control room
- Benefit 5 – Interoperability & vendor independency



Commissioning in DSS Mata Norte

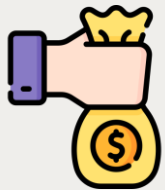
*Benefit 6 – Key enabler for advanced applications: Top-Down Engineering, Digital Twin, Specification based in models*

# Measuring the Benefits

*Showing KPIs is key to prove the value of the technology for multiple stakeholders*



**Cost & Time for commissioning** can be measured at the end of each project and compared to conventional substations.



**Total Cost Ownership** can be estimated by analysing CAPEX + OPEX for a substation over years.



**Exposition electrical hazards** can be estimated considering in DSS there won't be electrical hazards exposure working in the relay room.