Paris Session 2022

POLE-MOUNTED SWITCHGEARS TO INCREASE HV TAPPED LINE RESILIENCE

B2 OVERHEAD LINES

PS3 – Q3.20

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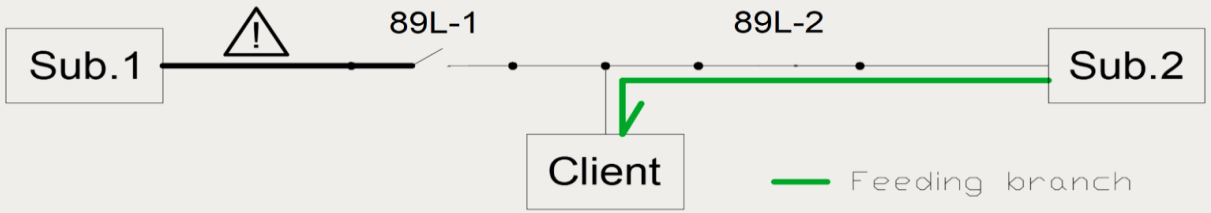
Pole-mounted Switchgears to increase HV tapped Line Resilience

AIM: Increasing **Resilience** of HV **tapped Lines**.

HOW: Reducing **System Recovery Time** after Faults with a fast identification and exclusion of the faulted Line branch.

TRADITIONAL SOLUTION: Pole-mounted manually operated **disconnectors** across the "T" junction to speed the branch exclusion up.

- ▲ **Faster Grid reconfiguration**: no need to climb the HV tower to its top to remove conductors' jumpers;
- ▼ User **power supply interruption**;
- ▼ Time-consuming **line inspections** to locate the fault;
- ▼ **Reaching** and **climbing the tower** to its balcony needed to operate the disconnector;
- ▼ **Delayed** operations with persisting extreme **weather** conditions.



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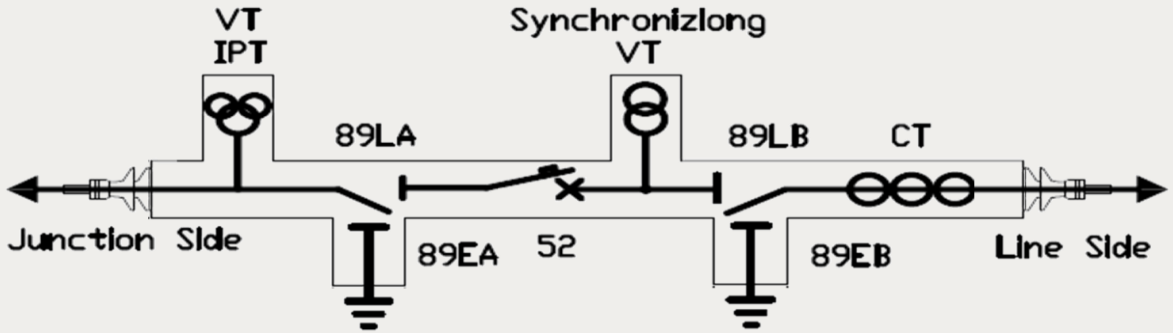
PRESENTED SOLUTION: Substitute manually-operated disconnectors with **Pole-mounted** tele-controlled **SF6 insulated equipment (OMP)** to further reduce recovery time.

An **OMP** with Circuit Breakers, Instrument Transformers and a Telecommunication, Control & Protection System provides:

- **Instantaneous** and automatic **fault location and clearing**;
- Continuous **power supply** to the user;
- Clearing time **independent from weather conditions**: no need to reach the OMP tower nor to climb it.

By reducing the **recovery time** to almost zero, the **OMP** highly increases the HV Network **Resilience** in case of fault.



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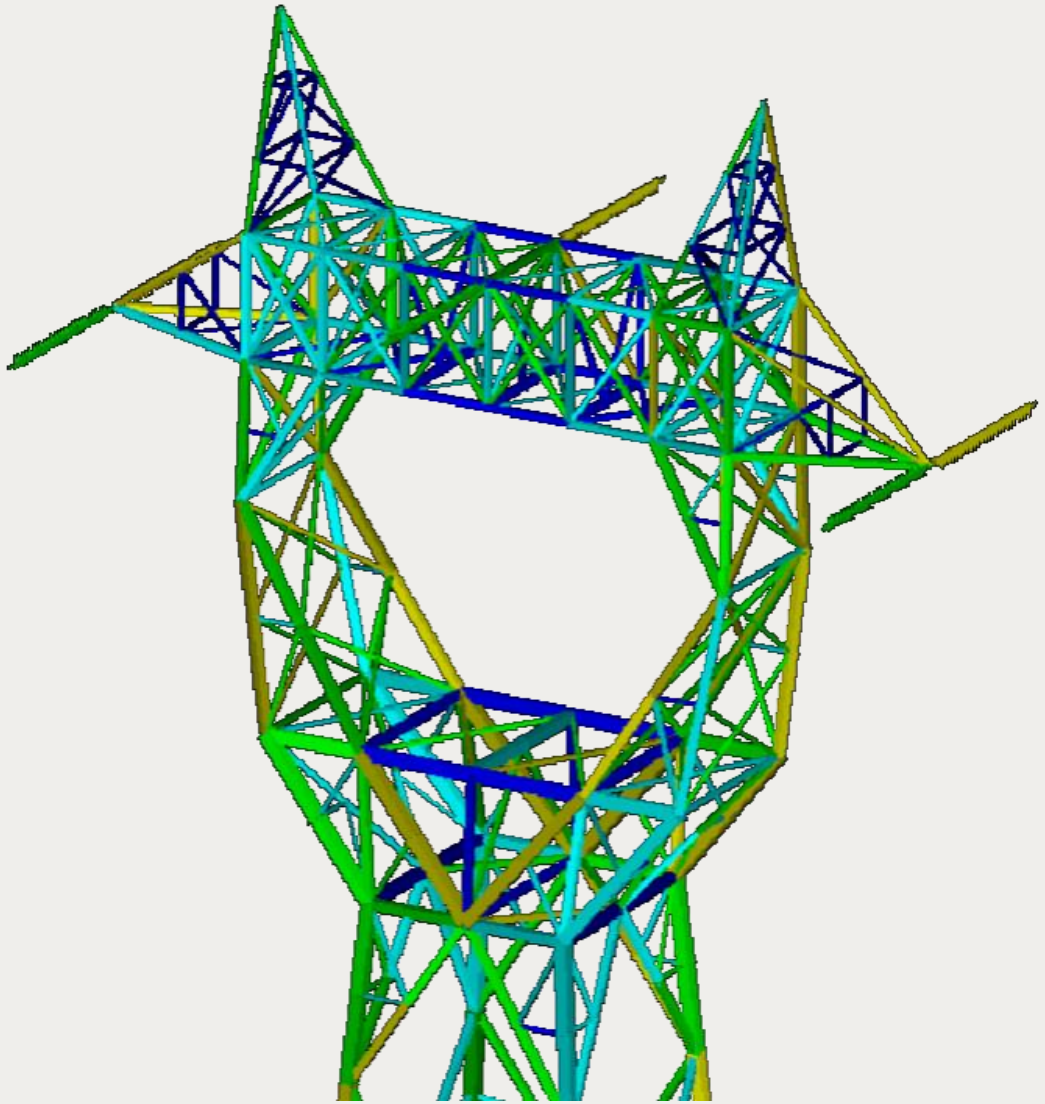
System Resilience is based on its components characteristics.

The **OMP** itself has been **designed to be highly resilient**:

- **GIS** lower **failure frequency** than AIS;
- Mechanical rods and moving parts **shielded** inside gas tank and protected **from ice clogging;**
- LV **power** supplied directly **from HV line** guarantees higher availability than LV/MV networks;
- LV circuits, equipment and electronic devices mounted on the tower, safe from **flooding**;
- **Extra loads** from CEI EN 50341 considered in the Tower static design to face extreme weather conditions;
- **Surge arresters** and an innovative **grounding system** protect equipment against lightning and reduce back flashover risk.

The OMP represents a cost-effective solution to increase HV Networks Resilience and operational Flexibility.



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