

Mobile & Portable Solutions

Overview

Mobile & Portable Solutions are important in any electrical grid that is resilient and reliable. Each one aims to be the key for rapid replacement of a transformer or substation in times of emergency or planned occasional outages. The restoration of the electrical distribution or transmission network is thus guaranteed by equipment installed on one or more trailers.

Mobile substations can be divided in subsections comprising high-voltage (HV) equipment, power transformer (PT), medium-voltage (MV) equipment, low-voltage (LV) equipment and control, metering and protection equipment. Additionally, generation and cable storage (reels) trailers or modules can also be considered. All these subsections can be in a single or multi-vehicle configuration, depending on the maximum allowable dimensions and weights (total weight and axle weight) allowed for the utility territory. Alternatively, if technically feasible, the solution can be developed in portable skids or container modules.

Up to 90MVA & 245kV (1050kV BIL)

The power transformer is specially designed for the solution and may be conventional or hybrid insulated (for higher temperature rises).

Switchgear may be air, gas or hybrid insulated according to the best techno-economic-environmental balance.

Trailers or modules may be designed with multiple functions like MV feed, AC/DC Power Supply, Control & Protection, SCADA, Generation and Power Cables storage.

International Standards Compliance (IEC, ANSI, IEEE, Others).

Benefits

- Spare energy units
- High mobility
- Lower capital investment and shorter delivery time (compared to conventional substations)
- Ready to use customized asset
- Flexibility on operation
- Compact designed solution
- Off-site manufactured and tested

Challenges

- Client Requirements
 - Design review
 - Framework for transit permits
 - Power ratings & voltage ratios
 - Special tests (transit vibration analysis, seismic analysis)
- Installation Restrictions
 - Within existing substations
 - Emergency equipment
 - Environment & safety regulations
- Country Legislation
 - Limits in transit dimensions & weights



Intelligent and efficient design tools to accelerate innovation

Efacec uses advanced tools to design the most innovative, functional solutions that fit the needs of each customer. The anticipation by simulation of the possible system configurations (digital twin) allows a presentation of the optimal solution in a clear and unambiguous way and a constructive dialogue in the initial stages of the projects with a view to the approval of the solutions that will later be built.

Efficient design tools, namely in the mechanical and electrical component and its systemic integration, are used as a standard. Such tools are an important added value, essential to accelerate the creation of assembly instructions, wiring diagrams, virtual panels, cabinets layout and cable routing, while reducing errors to the minimum.

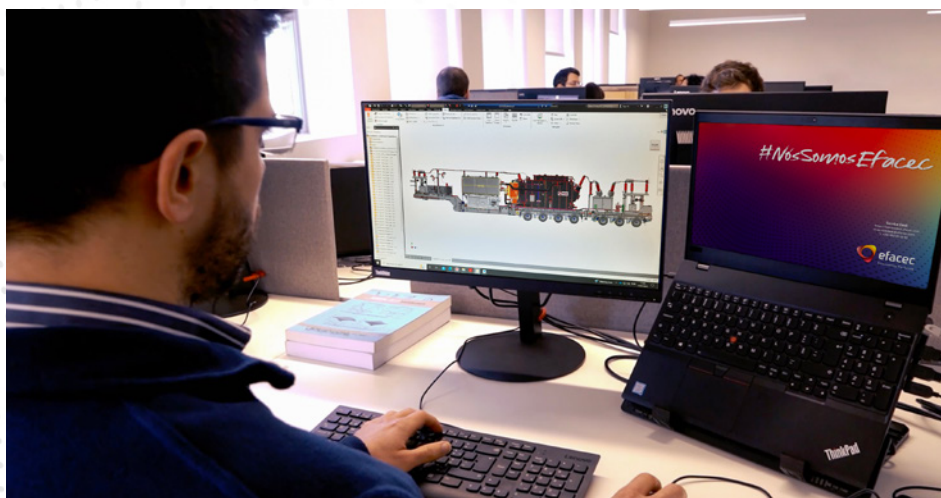
Simple and safe transport and set up

Trailers are always designed for the purpose of simple and safe use by customers and in accordance with the rules and regulations of the destination territory. They can be equipped with state-of-the-art technology that includes suspensions, premium quality rims and tires, braking systems, fixed or steering axle systems, mechanical or hydraulic leveling systems and LED lighting.

The structures are designed using ingenious reconfiguration systems that allow units to comply with the regulatory dimensions of traffic and easily be reconfigured to the service position while meeting the necessary isolation and safety distances.

Customization improves user experience

Each customer is unique as well as their expectations. Each project deserves our engineering an attention to what is fundamental for each client, always suggesting the best and most functional alternatives to improve the experience of long-term use of the asset. The moment of design review is thus a moment of rich technical discussion with a view to optimizing the solution presented in the tendering stage.



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