

POWER STATION SERVICE VOLTAGE TRANSFORMERS

FOR SUBSTATIONS



POWER VOLTAGE TRANSFORMER

CONTINUOUS POWER SUPPLY IS CRUCIAL

Electrifying the future is the key for a sustainable prospering global society. Power Generation by renewables and rapid electrification of our daily life lead to complete new requirements for our power transmission and distribution systems.

The daily challenge for grid operation is to keep up high performance and resilience, comply with increasing standards of health, safety and environment and operate cost-efficiently.

SUBSTATIONS NEED AUXILIARY POWER TO FULFIL IMPORTANT TASKS

Independent of the type of Power Generation, whether from conventional sources or renewables, High Voltage Substations enable the safe and reliable monitoring and control of power flow, as well as an interconnection between the transmission and distribution networks.

A moderate amount of auxiliary power is required to ensure the reliable and consistent operation of each substation, for instance to feed control and protection systems, lighting, heating and cooling systems, etc.

Should this power supply not be guaranteed, protection and monitoring are at risk, jeopardizing the reliability of the entire grid and resulting in considerable financial impacts and service interruptions.

POWER VOLTAGE TRANSFORMERS CAN PROVIDE PLUG & PLAY AUXILIARY POWER

How can Utilities ensure a reliable and continuous power supply within the substation, enabling uncompromised operation in all conditions? Power Voltage Transformers (PVT), also known as a Station Service Voltage Transformers (SSVT) offer the ideal solution.

A PVT is a single-phase transformer, based on well known and proven Instrument Transformer technologies. It is connected within the substation in the same way as Voltage Transformers without the need of additional protection.

By reducing the High Voltage to a Low Voltage in a single step, a PVT provides a "plug and play" auxiliary power supply.

This is the ideal solution compared to other alternatives, such as interconnection with a Medium Voltage distribution grid, or supply from the tertiary of a Power Transformer, thus endangering its reliable operation.

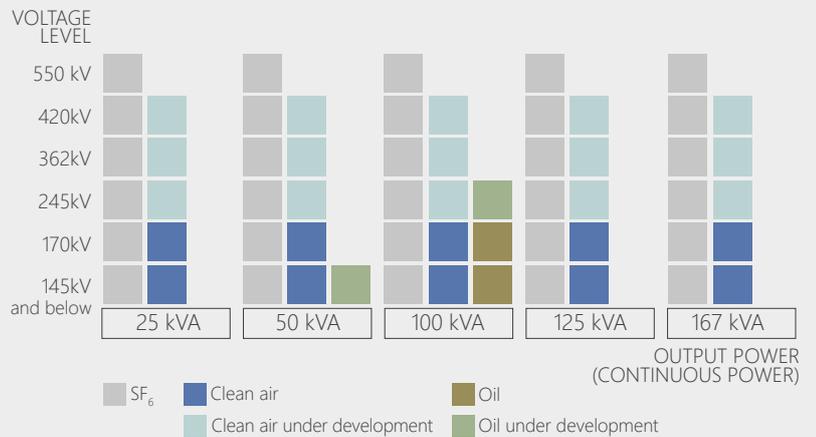
EXPLOIT THE ADVANTAGES OF TRENCH POWER VOLTAGE TRANSFORMERS

TECHNICAL FEATURES	STATION SERVICE VOLTAGE TRANSFORMER	DIESEL GENERATION	OUTSIDE DISTRIBUTION NETWORK / MV NETWORK	OUTSIDE DISTRIBUTION NETWORK / MV NETWORK
Availability in switching stations	✓	✓	X	X
Availability in rural areas ²	✓	✓	X	X
Resilience ¹²	✓	X	X	✓
Low one-time investment	✓	X	X	✓
Low operation and maintenance cost	✓	X	X	✓
No fees for distribution grid use	✓	✓	X	✓
Low energy losses ³	✓	X	X	X
Negligible additional fire risk	✓	X	✓	X
Negligible environmental impact	✓	X	✓	✓
Negligible noise	✓	X	✓	X

1. Resilience means the capacity of a certain solution to supply AC power despite: terrain, natural calamities, man made calamities, maintenance schedule, poor regulation/stability of voltage.
 2. Assuming High Voltage line from 72,5 to 550 kV available nearby
 3. Energy lost in the grid due to multiple step-down of voltage from HV to MV to LV (transformer losses) and/or fuel consumption



POWER VOLTAGE TRANSFORMERS



Trench offer a broad Power Voltage Transformer Portfolio

Even when a Substation is already operating with another auxiliary power source, a PVT can be retrofitted to offer redundancy and / or to extend the power capability of the Substation with limited costs and efforts.

With an experience of over 100 years in the field of Instrument Transformers, and more than 20 years in PVT manufacturing, Trench offers our customers a vast portfolio, which consists of conventional SF6 and paper/ oil technologies, available up to voltages of 550

kV and power capability of 167 kVA per phase.

In order to provide an eco-friendly alternative, Trench also offers Blue PVTs.

This innovative technology – part of the Trench Blue portfolio initiative – is completely 100% SF6 free, being the products filled with Clean Air.

Blue PVTs ensure no risk to the environment and it's the perfect solution to a de-carbonized grid.