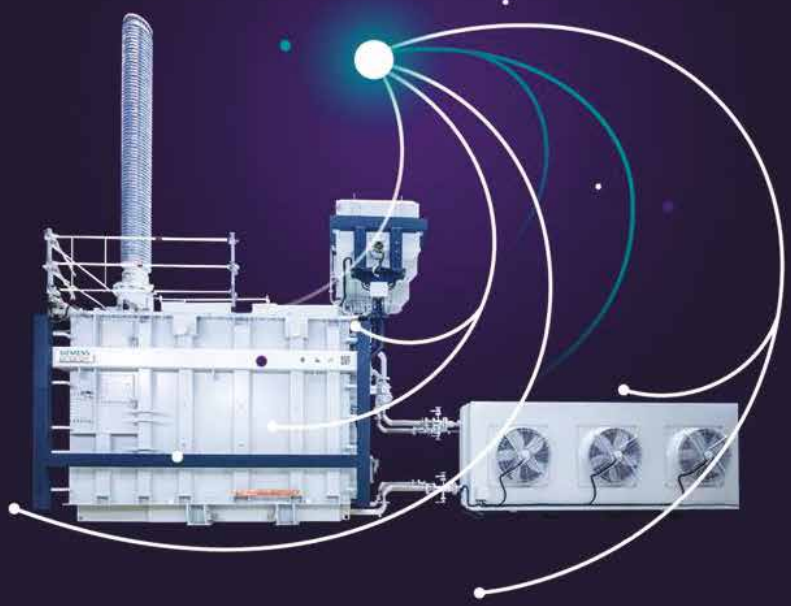
Mobile Resilience Generator Step-up Transformers

Stored in the U.S. –
Available on demand

siemens-energy.com/pretact



Pretact® React in advance

Grid resilience is key to secure the stability and prosperity of modern industrial nations. This means not only to prevent and protect energy systems from outage risks, but also to find effective tools to use when reacting to an emergency in order to reconnect to the grid as quickly and efficiently as possible.

Siemens Energy Transmission is a trailblazer when it comes to grid resiliency solutions for power transformers and has not only pioneered features to prevent operational failures and protect assets from external harm, but also invented mobile resilience units capable of acting as a multi-functional pocket knife in critical situations. These have already minimized risks in the transmission grids of several states and are about to revolutionize redundancy concepts of transmission grid operators all over the world.

Now this idea has been taken one step further and led to another innovation: Siemens Energy Transmission will store a set of mobile resilience units for generator step-up (GSU) applications in the U.S. – available on demand for our valued customers.

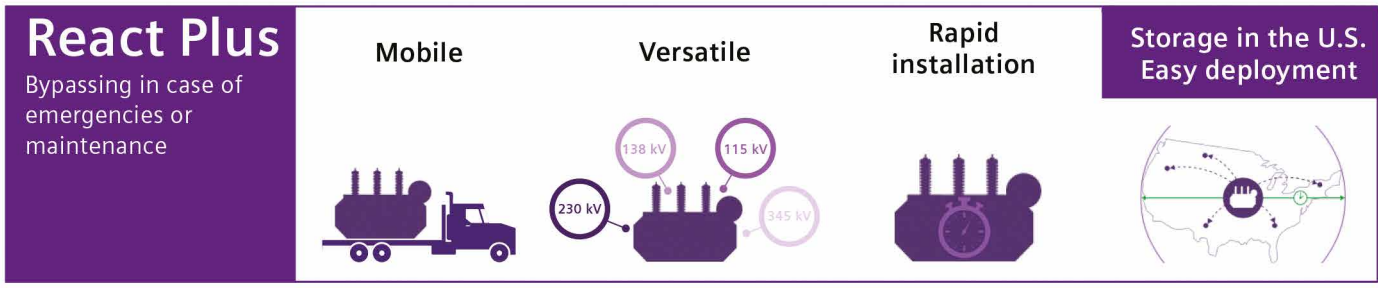
Benefits for power plant operators

A forced outage of a generator step-up (GSU) transformer in any power plant is a nightmare for everyone involved. Not only is this a financially critical situation. It might even result in bankruptcy and/or power shortage in the serviced area.

What is needed to regain peace of mind are security and backup concepts. These involve robust and reliable transformers, diligent maintenance and service – and an ace up the sleeve in case all the careful planning did not suffice.

This is why we at Siemens Energy Transmission have analyzed the most common transformers used by our customers in power generation plants across the U.S. and have come up with a multi-rated unit for critical situations that fits more than 80% of all applications. As with all Siemens Energy Transmission mobile resilience units, these available units are versatile and can replace many different units in a wide variety of configurations. Plus, they are mobile to enable easy transportation to anywhere in the U.S. And last but not least, they can be installed and energized within the shortest possible time.

React to emergencies: quickly, but deliberately



	Vector Group	d	d	y	d	y	d	y	d	y	d	y
	Low Voltage [kV]	34.5	20	34.6	18	31.2	16	27.7	14	24.3	12	20.8
High Voltage [kV]	400*)	•	-	-	-	-	-	-	-	-	-	-
	345	-	•	•	◒	◒	••	••	◒	••	••	••
	230	-	•	•	◒	◒	••	••	◒	••	••	••
	138	-	•	•	◒	◒	••	••	◒	••	••	••
	115	-	•	•	◒	◒	••	••	◒	••	••	••

Tertiary 13.6kV, operating voltages (@ three phase rating)
*) 400kV via adapter and Basic Impulse Level (BIL) 900kV

1. Rating

The units are designed as single-phase transformers. A bank of three is needed to replace one three-phase GSU. Their rating is 83.3 MVA at a frequency of 60 Hz, which means they are able to replace GSUs up to 250 MVA.

2. Versatility:

Possible operating voltages

The units are designed with a voltage connection for up to 345 kV, but also offer the option to connect to lower voltage levels. Even ratings up to 400 kV are possible by using an adapter to the existing solution. Also on the low voltage side, there are several possibilities for delta-as well as Y-connection. (See table above.) The tertiary is 13.6 kV.

3. Rapid installation:

Thanks to plug-in bushings and cable connections the units can be installed very easily and quickly. Switching links make changes between operating voltages an easy task. For ease of storage and installation, all accessories come in special containers stored alongside the units. They contain all needed equipment in a neat and organized manner to optimize installation and safety.

4. Mobility

The mobile resilience GSUs weigh 214,000 lbs (97 tons) when fully assembled and oil-filled. The transport weight of the transformer without oil is 111,500 lbs (51 tons).

5. Special feature: Ester insulation

For ease of transportation and full flexibility of installation location, the units are filled with environmentally friendly and operationally safe synthetic ester.

6. Connected units: Sensformer®

As with all power transformers by Siemens Energy, the units belong to the Sensformer® product portfolio and are equipped with a connectivity device. This transmitter, when enabled, transmits real-time data on oil level and temperature as well as low voltage current and a GPS signal. This ensures peace of mind and allows focus on what matters instead of worrying about the transformer status.

React – one of three modules within Pretact®

The mobile resilience units are one module within the Siemens Energy Transformers concept for enhanced grid resilience.

PREVENT

Includes measures that prevent operational failures, like condition monitoring and other transformer-lifecycle-services

PROTECT

Includes measures to protect assets from harm from the outside, like GIC-safe solutions, DC-compensation, alternative fluids, tank rupture etc.

REACT

Includes products that enable transformer operators to react rapidly in the case of an emergency with flexible, mobile spare units with plug-and-play bushings for fast installation.

If you would also rather act in advance and want to know more about Pretact®, contact us!

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For more information, please visit our website:
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