Shunt Reactor

Overview

Shunt reactors are important components to guarantee the efficient operation of long transmission high voltage power lines, such as the ones operated by REN in Portugal. The reactor compensates the capacitive generation on the power lines thus avoiding uncontrollable voltage increases. Reactors are robust machines that provide the most cost efficient solution to absorb such disturbances and stabilize the power line. Operating permanently at full load, reactors provide a highly effective solution at a low life long cost to the transmission provider.
Efacec has extended its portfolio to include single phase Shell type shunt reactors up to the 400kV range designed for up to 150 MVAr. Such Shell type reactors are built with Efacec's unique know-how, advanced technology and demanding manufacturing skills.

Network advantages

- Voltage control on the power lines
- Elimination of increased voltage levels
- Increased equipment durability
- Compact and cost efficient
- Simple to use
- Increased quality of service for network customers

End user advantages

- Voltage control brings preservation of electrical equipment
- Low maintenance costs
- Low replacement costs
- Reliability
- Simple to use
- Increased quality of service for network customers

Shunt Reactors at Tábua and Castelo Branco REN Substations in Portugal

Constructive Type			Shell Type		
Number of phases			**1**		
Rated Power		MVAr	70/3		
Cooling			ONAN		
Rated voltage		kV	**Minimum Tap**	**Nominal Tap**	**Maximum Tap**
			218.5/√3	230/√3	241.5/√3
Tap changers	Type		De-Energized Tap changer		
	Tapping Range		±2x2.5%		
Insulation level			**Line**	**Neutral**	
Rated voltage		kV	245	100	
Applied voltage minimum 1min 50Hz		kV rms	185	185	
Lightning impulse withstand voltage		kV peak	950	450	
Rated frequency		Hz	50		
Applicable Standards			IEC 60076-6		

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