SUCCESS STORY

Greener distribution with AirPlus™ technology e-distribuzione, Italy

With ABB's AirPlus technology, e-distribuzione introduces an eco-efficient alternative to SF_6 in their electricity distribution grid. The air-insulated switchgear UniSec AirPlus DY800 is equipped with HySec AirPlus, a combined circuit breaker and disconnector using ABB's climate-friendly insulation gas.

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01 e-distribuzione's grid is getting greener with ABB's AirPlus technology

Project at a glance
- Customer: e-distribuzione, a part of ENEL group
- Segment: Utility
- ABB products: Air-insulated switchgear UniSec AirPlus DY800, HySec AirPlus

Customer challenges
Italian distribution system operator (DSO) e-distribuzione has a firm commitment to sustainable solutions and is keen to support new technologies for a greener future.

e-distribuzione started looking for a reliable partner who could offer the right technology to meet the challenge of a greener distribution grid. In addition, the solution has to comply with the customer's technical specification (ENEL DY800), and keep the same dimensions and operation scheme as the switchgear already in use today.

ABB solution
ABB developed the UniSec AirPlus DY800 with HySec AirPlus, which is a combined circuit breaker and disconnector with ABB's climate-friendly insulation gas. Compared to SF_6, AirPlus reduces the global warming potential (GWP) by 99.99 percent.

Conventional UniSec switchgear is already installed in e-distribuzione's grid and well-known to the operating personnel. Switching to the eco-efficient alternative was easy, as the dimensions remain unchanged, with the same high levels of safety and reliability. Still conforming to ENEL's DY800 specification, also the operating principle remains identical to the well-known conventional product.

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01 Installation and commissioning of the first units at e-distribuzione

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02 UniSec AirPlus DY800

Customer benefits

- Climate-friendly AirPlus technology for a green power distribution of the future
- Easy to change: identical dimensions as in the conventional SF_6 versions, interchangeable with existing installation
- Same operating principle makes it easy for personnel to use the new version
- Highest safety for personnel with arc-proof equipment following the latest standards

About the project

To verify functionality of the new switchgear in different climate conditions during real-life operation, e-distribuzione has installed the units in different locations. The first units are in operation at high altitude (700 m above sea level) near Milan in Northern Italy, as well as on the island of Sardinia, exposed to marine climate conditions.

About UniSec AirPlus

e-distribuzione uses a customer-specific version of UniSec AirPlus, according to the ENEL DY800 specification. For other applications up to 24 kilovolts (kV), UniSec AirPlus is also available according to IEC standards with the UniSec AirPlus HBC panel.

About the customer

eDistribuzione is the largest distribution system operator (DSO) in Italy and part of the ENEL group. The DSO serves 31.5 million customers across Italy and operates an extensive distribution network with a total of over 1.1 million kilometers of electricity distribution lines and cables.

About AirPlus

AirPlus is a gas mixture for gas-insulated switchgear and switches. It is a climate-friendly alternative to SF_6 (sulfur hexafluoride); a potent greenhouse gas, which is traditionally used in gas-insulated electrical equipment. AirPlus is the first ‘green’ alternative gas on the market for medium-voltage switchgear and is part of ABB’s ongoing strategy to develop eco-efficient technologies.

GWP: The global warming potential describes how much heat a greenhouse gas traps in the atmosphere. The amount of heat trapped by one kilogram of the gas in the atmosphere is compared to the amount of heat trapped by one kilogram of carbon dioxide.

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