ABB commissions world's first switchgear installation with new eco-efficient gas

Zurich, Switzerland, August 24, 2015 – Breakthrough technology with eco-efficient gas installed for leading Swiss utility ewz

- High-and medium-voltage switchgear pilots installed in Zurich substation
- New gas mixture offers alternative to sulfur hexafluoride (SF_6) gas and can substantially lower environmental impact
- Global warming potential (GWP)[1] of new gas mixture is almost 100 percent lower than GWP of SF_6
- New technology frees up about 70 percent of the 5000 m^2 space occupied by the old substation

ABB, the leading power and automation technology group, has achieved a significant breakthrough in gas insulated switchgear (GIS) technology by commissioning the world's first high- and medium-voltage GIS bays with a new eco-efficient gas mixture as an alternative to the widely used greenhouse gas SF_6.

A switchgear combines electrical switches, fuses or circuit breakers to control, protect and isolate electrical equipment in a power network. Switchgear is installed throughout the power value chain from generation through to transmission, distribution and consumption, across voltage levels. High and medium voltage switchgear is generally installed in power transmission and distribution, helping to ensure grid reliability, efficiency and safety.

ABB's new eco-efficient switchgear uses an SF_6 alternative gas mixture as the insulation medium and additionally as switching medium for the high voltage switchgear. The fluoroketone based SF_6 alternative gas mixture is a chemical compound developed for switchgear applications in collaboration with 3M. Global warming potential (GWP) of the new gas mixture is almost 100 percent lower than that of SF_6, without any compromise on equipment quality and reliability. This can result in lowering CO_2 equivalent emissions of the GIS by half, through the lifecycle of the equipment – the other half being attributable to raw materials, manufacturing and thermal losses.

The 170/24 kV switchgear bays have been supplied to leading Swiss utility ewz for their newly energized 3 x 50 megavolt ampere (MVA) substation in Zurich, Switzerland, which supplies electricity to the northern and one of the most populous part of the city - home to approximately 50,000 inhabitants as well as Zurich's largest event hall and trade fair grounds. Low-noise and high efficiency power transformers and substation automation protection and control systems from ABB have also been deployed in the substation.

Located 15 meters underground, the strikingly designed GIS substation replaces an outdoor air-insulated switchgear (AIS) substation built in 1949, freeing up about 70 percent of the space occupied by the old substation for other requirements and enhancing the aesthetics of the cityscape.

"ABB installed the world's first high-voltage GIS, also for ewz, in 1967 and today's achievement reinforces our rich heritage of innovation and technology as well as the strong relationship between the two

companies," said Bernhard Jucker, President of ABB's Power Products division. "The successful commissioning of this pilot paves the way for more eco-efficient switchgear in the years ahead and reiterates our focus on technology as a key differentiating element in ABB's Next Level strategy."

"We are pleased to cooperate with ABB on this pioneering innovation," said Benedikt Loepfe, ewz. "As a leading energy services provider in Switzerland, we see this new substation as another example of our commitment to delivering sustainable energy to our customers."

For decades, SF6 gas has been used extensively in the electrical industry for dielectric insulation and current interruption due to its physical properties. Pressurized SF_6 gas facilitates the safe and reliable operation of gas-insulated switchgear, making it possible to significantly reduce the size of switchgear installations. However, it is a greenhouse gas and its lifecycle management requires careful handling and can entail substantial costs, particularly when decommissioning aging substations.

ABB pioneered high-voltage GIS in the mid-1960s and continues to drive its technology and innovation, offering a full range product portfolio with voltage levels from 6.6 to 1,200 kV. As a market leader in high-voltage and medium-voltage GIS technology, ABB has a global base of more than 300,000 GIS installations. This latest breakthrough will enable further reduction in carbon emissions without compromising efficiency and reliability.

For help with any technical terms in this release, please go to: www.abb.com/glossary

About ABB

ABB (www.abb.com) is a leader in power and automation technologies that enable utility, industry, and transport and infrastructure customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in roughly 100 countries and employs about 140,000 people.

About ewz

ewz has been a leading energy services provider in Switzerland since 1892. With around 1,200 employees, it supplies electricity to some 223,000 customers in the city of Zurich and parts of Graubünden. ewz is committed to providing renewable and sustainable energy to its customers.

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Note:

(1) GWP: The global warming potential describes how much heat a greenhouse gas traps in the atmosphere. It compares the amount of heat trapped by a certain mass of the gas in question to the amount of heat trapped by a similar mass of carbon dioxide. GWP is expressed as a factor of carbon dioxide.