Budowa Silesia Photonics

Frosting on high-voltage distribution boxes

Overview

Anti-/de-icing technologies have evolved into an integrated system combining active intervention and passive defense: DC de-icing (particularly MMC-based topologies) has become the mainstream active solution for high-voltage lines due to its high efficiency and low energy. Anti-/de-icing technologies have evolved into an integrated system combining active intervention and passive defense: DC de-icing (particularly MMC-based topologies) has become the mainstream active solution for high-voltage lines due to its high efficiency and low energy. Surfaces with poor hydrophobicity and high thermal conductivity, such as glass and metal, are especially prone to ice adhesion and buildup, including aluminum strand high voltage (HV) powerlines (figure 1). When overwhelmed with the weight of ice, the HV lines and towers can collapse, resulting in. Atmospheric icing (or simply icing) refers to freezing and sticking of water in various forms on the surface of an exposed object. Therefore, icing describes both ice and snow growth on exposed structures such as power network equipment. Icing can be classified into different categories: 1. Visual systems based on UAVs and fixed platforms have achieved breakthroughs in ice recognition and thickness retrieval, yet their performance remains constrained by image quality, data scale, and edge computing capabilities. These not only endanger the reliability of electrical grids by the loss of a power line for weeks or even months, but in general, the safety in the surroundings of the power line. As technology advances, we. Icing of transmission lines seriously affects the safety of the power sys-tem, and reliable anti-icing technologies guarantee the safe and stable operation of the power system.

Article Content

Impact & Mitigation of Icing on Power Network Equipment

Transmission line icing poses a significant natural disaster threat to power grid security. This paper systematically reviews recent advances in the ...

Review of Transmission Line Icing and Anti-icing Technologies

Among them, the method of preventing ice disaster accident can be divided into “anti-ice” and “de-icing” two methods from the principle. “De-icing” means to take active and effective de-icing measures to ...

Impact & Mitigation of Icing on Power Network Equipment

Various approaches to mitigate the effects of icing on power network equipment, including anti-icing, de-icing, passive devices and line design are overviewed. The anti-icing methods are used ...

A Review of Transmission Line Icing Disasters: Mechanisms ...

Transmission line icing poses a significant natural disaster threat to power grid security. This paper systematically reviews recent advances in the understanding of icing mechanisms, ...

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Currently, the icing on high-voltage transmission lines mainly relies on manual de-icing, where workers climb transmission towers to knock off the ice. This method has high labor intensity, low efficiency, ...

A Review of Icing and Anti-Icing Technology for ...

This paper proposes a preventive scheduling model for mitigating the glaze icing by optimizing the distribution of power losses on ice-coated ...

Nanometer coating used for preventing icing of high tension ...

The invention relates to a nano-coating used for anti-icing of high-voltage transmission lines and its application.

A Review of Icing and Anti-Icing Technology for Transmission Lines

This paper proposes a preventive scheduling model for mitigating the glaze icing by optimizing the distribution of power losses on ice-coated transmission lines.

Advanced prevention against icing on high voltage power lines

For example, frequent icing phenomenon affects all the components of the power line by a significant mechanical overload: it endangers the conductors, the insulators and the towers, as well. The result ...

The study of weather conditions favourable to the accretion of icing ...

One of the significant atmospheric loads affecting an electrical grid is the icing of overhead power lines (OVHLs), caused by such specific conditions as wet snow or freezing rain precipitation or ...

Icing Prevention for High-Voltage Powerlines | TD World

When it comes to icing of HV structures, identifying all the conditions required for ice buildup to occur is difficult, but required in order to fully understand and ultimately prevent icing.

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: https://www.budowasilesia.pl
Email: contact@budowasilesia.pl
Phone: +48 537 192 846
Address: ul. Chorzowska 45, 40-001 Katowice, Silesian Voivodeship, Poland

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