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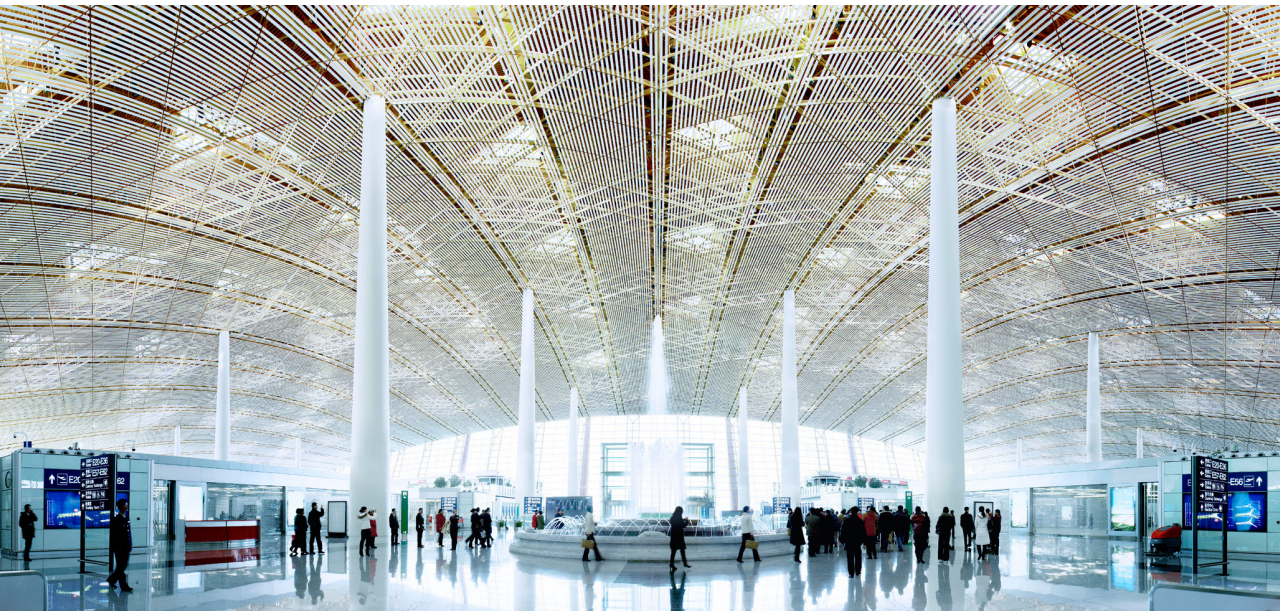
Powering aerospace development in China



The face of the global aerospace industry is changing. Whilst recent cuts in defense funding in the West have slowed the overall rate of growth in the sector to three percent, the commercial aviation segment is set to enjoy an eight percent growth rate due to rising passenger demand and the production of next generation fuel-efficient aircrafts1. Increased number of aircraft will be built to meet the rising demand, with the Asia-Pacific region leading the world in soaring passenger numbers in line with its burgeoning economy.

Contrary to the situation in Europe and the USA, investment in defense in Asia is rising, creating additional demand for a modern air fleet and aerospace technology. Coupled with the fact that the Chinese air travel market represents the second-largest market globally2 the aerospace industry in the country is booming, offering significant growth opportunities for those supplying goods and services to aviation carriers.

Chinese-built aircraft

One such organisation is COMAC, the Commercial Aircraft Corporation of China, which is a state-sanctioned body responsible for implementing large passenger aircraft programs in China.

COMAC is engaged in the research, manufacture and flight testing of civil aircraft and related products, as well as the marketing, servicing, leasing and operations of civil aircraft. A key element of COMAC's business is the design and development of large modern Chinese-built aircraft show-casing the talent and ambition of Chinese industry.

COMAC's operations in Shanghai are primarily focused on the testing of its products, which requires a continuous, clean supply of voltage to the instrumentation to ensure the validity of test results. China's electrical infrastructure is the largest in the world, and the country has the greatest capacity for energy generation, globally. However, demand outstrips supply and the utility grid is frequently overstretched and voltage sags and total outages are common.

Ms Ye Wen Mei, construction project director at COMAC's Pudong base command, explains that the organisation needed a solution that would guarantee a consistent voltage supply. "Our testing instruments are very sensitive to fluctuations in the power supply. Power quality events, such as voltage sags, can damage our equipment and cause the results of our tests to be unreliable."

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01 ABB's PCS100 AVC-40 is helping COMAC to achieve its vision to deliver safer, cost-effective, comfortable and environment-friendly civil airplanes.

The first of its kind

COMAC needed an efficient and effective way of protecting its operations, and chose ABB's PCS100 AVC-40 Active Voltage Conditioner platform to secure the supply of power from the utility. The PCS100 AVC-40, designed for sag correction in large commercial and industrial applications, is the first of its kind to be installed in the aerospace industry.

The PCS100 AVC-40 is frequently implemented in businesses using sensitive or high-precision equipment where the loss of voltage for even a few milliseconds results in the failure of the machinery and damage to its yield. The PCS100 AVC-40 corrects under- or over-voltage events in just 200 milliseconds, allowing sensitive equipment to remain operational throughout the disturbance. In over 90 percent of cases, the PCS100 AVC-40 protects the load by bringing the voltage supply back in line with tolerances, ensuring minimum downtime in all but the most severe of power failures where the supply sags to below 50 percent of the nominal voltage.

One of the key benefits of the PCS100 AVC-40 is the way in which it differs from conventional uninterruptible power supplies (UPS), as Ms Ye Wen Mei explains, "The PCS100 AVC-40 is the ideal solution for us as it doesn't rely on energy storage or batteries to operate, drawing the additional energy from the utility supply to correct the voltage. This means the system has low maintenance costs and a small footprint so it can be installed in confined spaces, allowing us to make the best use of our existing floor space. The cost of ownership for a PCS100 AVC-40 system is very low."

ABB and its partner, the Shanghai Henergi Energy Efficiency System Company, supported COMAC throughout the project, helping the aerospace firm to define the correct product sizing and fully installing and commissioning the system to ensure maximum efficiency. The ongoing technical support and training are key elements of the project, helping COMAC to take full advantage of the PCS100 AVC-40's power protection features.

Looking to the future

COMAC has big plans for its future. Looking to capitalize on the growing demand for their products and services, the company is resolute in its ambition to put the first Chinese-made large

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aircraft in the sky. Its vision is to deliver safer, cost-effective, comfortable and environment-friendly civil airplanes, and to develop COMAC into a world-class aviation enterprise. With the protection to the voltage supply the PCS100 AVC-40 delivers, COMAC is in the perfect position to take full advantage of the opportunities on its door step.

References

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Additional information

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