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Press Release
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HK Electric Launches City's First Low-Voltage Direct Current System to Enhance Power Reliability for Ocean Park's "Giant Panda Adventure"

HK Electric has recently commissioned Hong Kong's first Low-Voltage Direct Current (LVDC) System at Ocean Park, establishing a hybrid alternating current/direct current (AC/DC) microgrid to serve the "Giant Panda Adventure" exhibit — home to the city's giant pandas — and adjacent facilities. HK Electric also plans to extend this pioneering system to commercial buildings across Hong Kong Island, aiming to enhance power supply reliability while supporting the city's transition towards a smarter energy future.

HK Electric Managing Director, Mr. Francis C.Y. Cheng, and Chief Executive of Ocean Park Hong Kong, Mr. Ivan Wong Chi-fai, officiated at the commissioning ceremony of LVDC System today (13 August). Director of Electrical and Mechanical Services Mr. Raymond Poon Kwok-ying and other distinguished guests also joined the ceremony. The event marks a new milestone in the city's journey towards smarter and more efficient power distribution technologies.

Speaking at the occasion, Mr. Raymond Poon Kwok-ying said, "The Electrical and Mechanical Services Department has been actively promoting the adoption of innovative technologies across the E&M sector. We are pleased to see HK Electric's on-going support and proactive efforts in advancing LVDC applications. We look forward to HK Electric introducing further innovations and solutions to overcome limitations and further enhance the safety and reliability of power supply."

Mr. Francis C.Y. Cheng remarked, "HK Electric has consistently maintained world-class supply reliability, achieving an exceptional record of over 99.9999% last year, with average unplanned power interruption per customer kept under 30 seconds. Despite this strong performance, we continue to drive innovation in Hong Kong's power sector, continuously enhancing the resilience and reliability of the grid. Through a close technical collaboration with NARI Group, we have found new ways to increase the resilience of our supply system."

Mr. Cheng also expressed his gratitude to the teams of Ocean Park and NARI Group for their professional support in system design, commissioning and operational planning, which ensured the smooth and successful implementation of the project. "The successful deployment of the LVDC System at the 'Giant Panda Adventure' not

only reinforces power reliability of key facilities, but also serves as a valuable reference for broader application in other scenarios," he added.

Mr. Ivan Wong commented, "As a world-class conservation and education hub, Ocean Park places the highest priority on power stability. The newly launched LVDC system has significantly strengthened our electrical infrastructure and plays a vital role in ensuring the quality and safety of our daily care for the giant pandas and red pandas in the 'Giant Panda Adventure'. We hope this upgrade will contribute to an even better living environment for Jia Jia and De De, as the twins celebrate their first birthday on 15 August."

Also attending the ceremony, Mr. Liu Hao, Deputy General Manager of NARI Technology Co., Ltd., added: "NARI is committed to supporting the transition to cleaner energy and contributing to social and economic development. This project which is built with advanced global technologies, marks a key milestone in Hong Kong's path to carbon neutrality. We look forward to working closely with HK Electric and partners from various sectors to wider the use of LVDC technology in Hong Kong, and to help make the city a shining example of a low-carbon, smart city, both in China and around the world."

The LVDC System is built on the principle of using direct current to interconnect multiple low-voltage distribution devices via existing alternating current cables, forming a hybrid microgrid capable of accommodating both AC and DC. In the event of system anomaly, devices within the microgrid can swiftly switch power sources, ensuring stable supply while minimising disruption.

The system brings a range of benefits. It enables complementary and substitutive power distribution among microgrid devices, enhancing overall operational flexibility. The newly commissioned system leverages DC technology to significantly enhance the transmission capacity of existing low-voltage cables, reaching 700 kVA, which is 2.5 times the original. In the event of extreme or unexpected circumstances that may affect power supply, the LVDC System could provide sufficient backup power to ensure stable operations throughout the facility.

Ahead of its introduction in Hong Kong, engineers from HK Electric and NARI Group refined the system's design to better suit local operating conditions, significantly enhancing the flexibility of installation of power cabinets, in order to maintain maintenance access in an environment with space limitation. The project was completed without the need for equipment upgrades or excavation works, resulting in reduced costs and timelines, while minimising disruption to the park operations, visitors and the beloved giant pandas living there.

The system has been installed at the substations serving Ocean Park's "Giant Panda Adventure," showcasing the seamless integration of innovative power technology with tourism infrastructure. It ensures a safer, more stable, and reliable electricity supply

for the giant pandas — China's national treasures — and the many local and international visitors who come to visit them.

Looking forward, HK Electric plans to extend the LVDC System to selected high-rise commercial buildings on Hong Kong Island to meet increasing power demand. Further studies will also be undertaken to explore the integration of diverse power sources, including renewable energy systems, to further optimise the stability and reliability of the distribution network and support the city's transition to a greener, smarter energy future.

Photo Caption:

Photo 1a:

Photo 1b:

(Photo 1a) HK Electric Managing Director Mr Francis C.Y. Cheng (left), Director of Electrical and Mechanical Services Mr Raymond Poon Kwok-ying (middle), and Chief Executive of Ocean Park Hong Kong Mr Ivan Wong Chi-fai (right) visit the giant panda twins at the "Giant Panda Adventure" exhibit at Ocean Park, to mark the commissioning of Hong Kong's first LVDC system.

Photo 2:

Deputy General Manager of NARI Technology Co., Ltd., Mr Liu Hao (1st from left), HK Electric Managing Director Mr Francis C.Y. Cheng (2nd from left), Director of Electrical and Mechanical Services Mr Raymond Poon Kwok-ying (2nd from right) and Chief Executive of Ocean Park Hong Kong Mr Ivan Wong Chi-fai (1st from right) celebrate the commissioning of the LVDC system at Ocean Park.

Photo 3:

The LVDC power cabinet installed inside the distribution substation will further enhance the reliability of power supply to critical facilities at Ocean Park.

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