6. Major Projects

6.1. Gas-fired Combined Cycle Generating Units

To increase the proportion of gas-fired generation, HK Electric is constructing two new gas-fired generating units, L10 and L11, at Lamma Power Station (LPS). Civil construction work of L10 has been progressing at a satisfactory pace with commencement of installation of electrical and mechanical equipment scheduled for April 2018. For L11, piling was completed on schedule in September 2017.

With the commissioning of L10 in 2020, we will have increased the proportion of natural gas-fired electricity to 50%. This will further rise to 55% when L11 comes into operation in 2022.

A number of extensive refurbishment projects were completed at LPS to prepare for the increased gas-firing generation capacity. These included improvement works at the gas receiving station completed in February 2017. Gas supply facilities of Units L9 and GT57 were segregated into two unitised streams and enhancements were made to increase the reliability of the fire and gas leak detection and tripping systems.

Unit L2's major life extension project was completed in May 2016, involving the replacement, optimisation and refurbishment of all the aged components of the 250 MW coal-fired unit. The success of the project enables the unit to extend its service life to 2022 and help maintain LPS's generating capacity at a healthy level. Other coal-fired generating units retiring over the next decade will be replaced progressively by gas-fired counterparts.

6.2. Offshore Liquefied Natural Gas Terminal

Currently, natural gas is delivered from Shenzhen to LPS via a 92-kilometre submarine pipeline. To enhance gas supply security and bargaining power for gas purchase, we are developing in partnership with CLP Power an offshore liquefied natural gas (LNG) terminal using floating storage and regasification unit technology in Hong Kong waters.

The Environmental Impact Assessment report will be submitted to the Government for approval in 2018. Planning for this major item of infrastructure is progressing on track. If Government approvals are received and construction continues as scheduled, the offshore LNG terminal will come into operation by the end of 2020 at the earliest.

6.3. Other Infrastructural Works

A number of major projects across our transmission and distribution network were implemented during 2017. Network security was enhanced at the North Point Switching Station and one of the power transformers at the Zetland Street Zone Substation was refurbished. Fifty-seven new distribution substations were commissioned and aged network equipment replaced or upgraded.

The advanced on-line partial discharge detection systems were put to wider use to monitor equipment in primary stations, while cable diagnostic techniques were deployed to identify weak components in our 11 kV cable network. The new technologies identified 24 instances where pre-emptive actions can be taken to maintain fault-free operations.

Meanwhile, the System Control Centre is commissioning a new Energy Management System and a new Distribution Management System incorporating purpose-built smart grid features that will improve automation and control of our generation, transmission and distribution networks.