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Daya Bay Reinforces Safe Operations

Responding to mounting public concern about nuclear power safety in the wake of the incidents at Fukushima Nuclear Power Station in Japan, Hong Kong Nuclear Investment Company Limited (HKNIC) today reiterated its commitment to ensuring the safest operation possible of the Daya Bay Nuclear Power Station (Daya Bay).

HKNIC and CLP are closely monitoring the developments at the Fukushima Nuclear Power Station, and working with Mainland partners and the nuclear industry worldwide to identify key learnings from the incident and step up necessary measures to further enhance operational safety.

HKNIC detailed the numerous safety measures and features in place at the facility and provided an update on the latest tests carried out at Daya Bay. Among the key updates:

Tests and Inspections Confirm Daya Bay's Safe Operation
As a continuous and regular practice, personnel at Daya Bay have been conducting safety tests and inspections on its operating systems. In recent days these have included monitoring of seismic detectors, tests to check the reliability of the external power supply, analysis of the performance of the overall safety and back-up systems, a containment integrity test and more. All results indicate that the operational systems at Daya Bay are normal.

Daya Bay Equipped with Back-up Power Sources in Case of Contingency
Daya Bay has three back-up electricity sources: power supply from the Guangdong electricity network, power supply from CLP's system, and on-site diesel generators – all of which can continue to power major auxiliary facilities such as cooling systems in the unlikely event of the discontinuation of nuclear power. Even in the event that all these electricity supplies are interrupted, a steam driver pump can operate to pump cooling water.

Daya Bay and Fukushima Use Different types of Reactors

Daya Bay uses a Pressurized Water Reactor (PWR) while Fukushima uses a Boiling Water Reactor (BWR). The BWR has only one cooling water system, so in case of necessary venting, the steam released may contain radioactive products. The PWR has two cooling systems separating the reactor cooling water and the steam for power generation. In the event of necessary venting, any steam released will not contain radioactive products.

In addition, Daya Bay has three sets of back-up feed water pumps to support residual heat removal from the reactor, with two driven by electricity and one driven by steam generated from the secondary cooling system. In case of loss of electrical power, the steam driven pump is still available to pump the cooling water for residual heat removal, which could effectively help reduce the possibility of the reactor overheating. (Please refer to Annex I for Schematic Diagram of a Pressurized Water Reactor for details)

About Hong Kong Nuclear Investment Company Limited (HKNIC)

HKNIC is a wholly owned subsidiary of CLP Holdings Ltd. founded in 1983. It is an investor in the Guangdong Nuclear Power Joint Venture Company Ltd., which owns the Guangdong Daya Bay Nuclear Power Station located in China's Guangdong Province. Daya Bay supplies 70% of its annual output to meet about 25% of the power demand in Hong Kong, contributing to CLP's excellent power services with high supply reliability, outstanding environmental performance and affordable tariffs.

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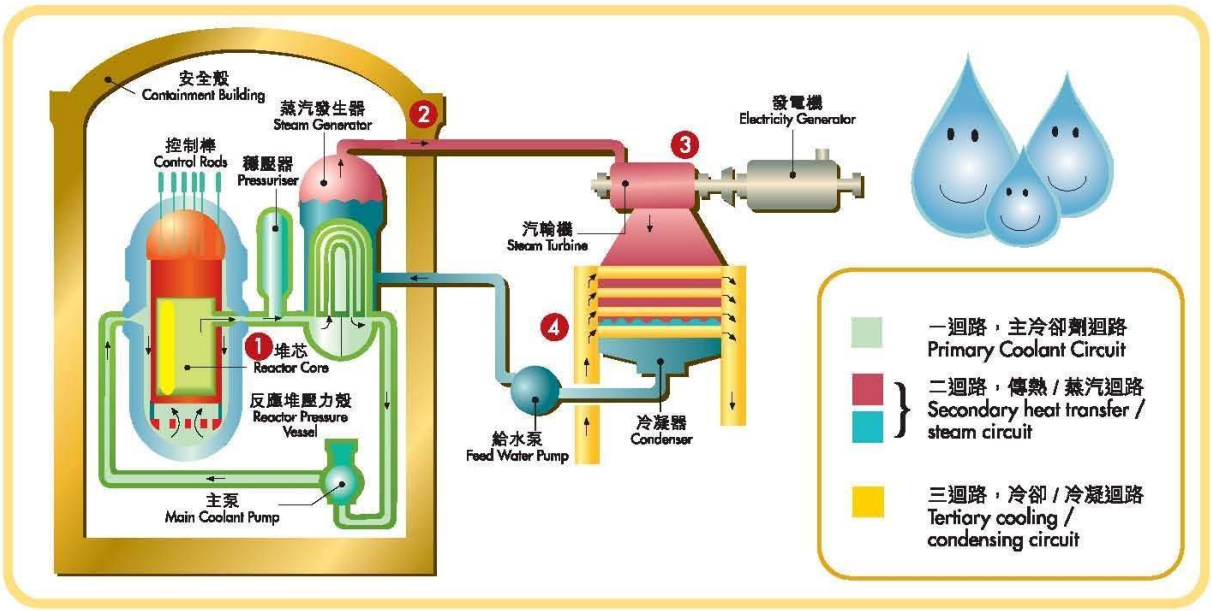
附錄 1
Annex 1

壓水式反應堆如何運作

How Does a **Pressurised Water** Reactor Work

壓水式反應堆圖解
Schematic Diagram of a Pressurised Water Reactor



壓水式反應堆核電廠主要由核蒸汽供應系統和汽輪發電機系統組成。

1. 反應堆堆芯內進行核裂變並穩定地釋放熱能。由於採用穩壓器提高系統內的水壓，一迴路的水受熱後不會沸騰。這些高壓水隨之將堆芯內產生的熱能帶走。
2. 帶熱能的高壓水流經蒸汽發生器內數以千計的傳熱管，將熱能傳到管外二迴路系統的水內。二迴路系統與一迴路系統是完全分隔的。
3. 二迴路水隨即受熱沸騰，變成蒸汽，然後推動汽輪發電機組產生電力。
4. 蒸汽自汽輪機排出，被三迴路的海水冷卻後，再循環至蒸汽發生器加熱。

The main components of a Pressurised Water Reactor (PWR) power station are the nuclear steam supply system and the turbine - generator system.

1. Inside the reactor core, heat energy is produced at a steady rate through the process of nuclear fission. The heated water in the PRIMARY CIRCUIT will not turn into steam because its pressure is raised by the pressuriser. The pressurised water will then carry away the heat generated in the reactor core.
2. The heated pressurised water then flows through thousands of heat exchange tubes in the steam generator. Here, the heat energy is transferred to the water of the SECONDARY CIRCUIT outside the tubes. The secondary circuit is completely isolated from the primary circuit.
3. Water in the secondary circuit then becomes steam which drives the turbine - generator to produce electricity.
4. On leaving the turbine, the steam is condensed by cold sea water in the THIRD CIRCUIT before going back to the steam generator for reheating.