



Additional Gas-fired Generation Units Project – Installation of One Additional Gas-fired Generation Unit (CCGT Unit No.1) at the Black Point Power Station

Priority Plant Report for the Third Year of
Additional CCGT Commissioning

PREPARED FOR

Capco 青山發電有限公司
Castle Peak Power Co. Ltd.

Castle Peak Power Company Limited

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1. INTRODUCTION

1.1 BACKGROUND

The Castle Peak Power Company Limited (CAPCO) is a joint venture between CLP Power Hong Kong Limited (CLP) and China Southern Power Grid Company Limited with CLP as the operator. ERM-Hong Kong, Limited (ERM) and Mott MacDonald Hong Kong Limited were appointed by CAPCO as the Environmental Team (ET) and the Independent Environmental Checker (IEC), respectively, to undertake the Environmental Monitoring and Audit (EM&A) activities for the installation of CCGT Units No.1 and No. 2 of the Additional Gas-fired Generation Units Project at the Black Point Power Station (BPPS) (“the Project”).


The scope of the Project involves the phased construction and operation of up to two additional combined cycle gas turbine (CCGT) units (with an installed capacity of up to 1,200 MW) at the BPPS. The additional generation units will be of CCGT configuration using natural gas as the primary fuel. It is a Designated Project under the *Environmental Impact Assessment Ordinance* (Cap. 499) (EIAO). The current EM&A Programme includes both the CCGT Units No. 1 (D1) and No. 2 (D2). The location plan of key Project components for CCGT Units No. 1 and No. 2 is shown in **Figure 1.1**.

An Environmental Impact Assessment (EIA) Report of the Additional Gas-fired Generation Units Project (Register No. AEIAR-197/2016) was approved in June 2016. An Environmental Permit (EP-507/2016) (EP) for CCGT Unit No. 1 was issued in June 2016. The EP had been varied and the latest varied EP (EP-507/2016/D) was issued on 21 December 2021.

1.2 PURPOSE OF THIS REPORT




As per Condition 2.6 of the EP, the Permit Holder (CAPCO) is required to report to the Director of Environmental Protection (DEP) on twelve months basis for the first three years of operation with information to demonstrate that the CCGT Units have been operated as a priority plant. The purpose of this *Priority Plant Report for the Third Year of Additional CCGT Commissioning* is to demonstrate that the CCGT Units have been operated as a priority plant during the third year of operation (i.e. 1 June 2023 to 31 May 2024).


Legend 圖例

 Indicative Location
初步位置

CCGT Unit No.1





1 號聯合循環燃氣渦輪發電機組


-  Cooling Water Intake Facility
冷卻水進水設施
-  Cooling Water Discharge Facility
冷卻水排放設施
-  400kV Connection to Substation
400kV電纜與變電站的連接

 Stack Location
煙囪位置

CCGT Unit No.2

2 號聯合循環燃氣渦輪發電機組

-  Cooling Water Intake Facility
冷卻水進水設施
-  Cooling Water Discharge Facility
冷卻水排放設施
-  Cooling Tower
冷卻塔
-  400kV Cable Connection to Substation
400kV電纜與變電站的連接

 Stack Location
煙囪位置

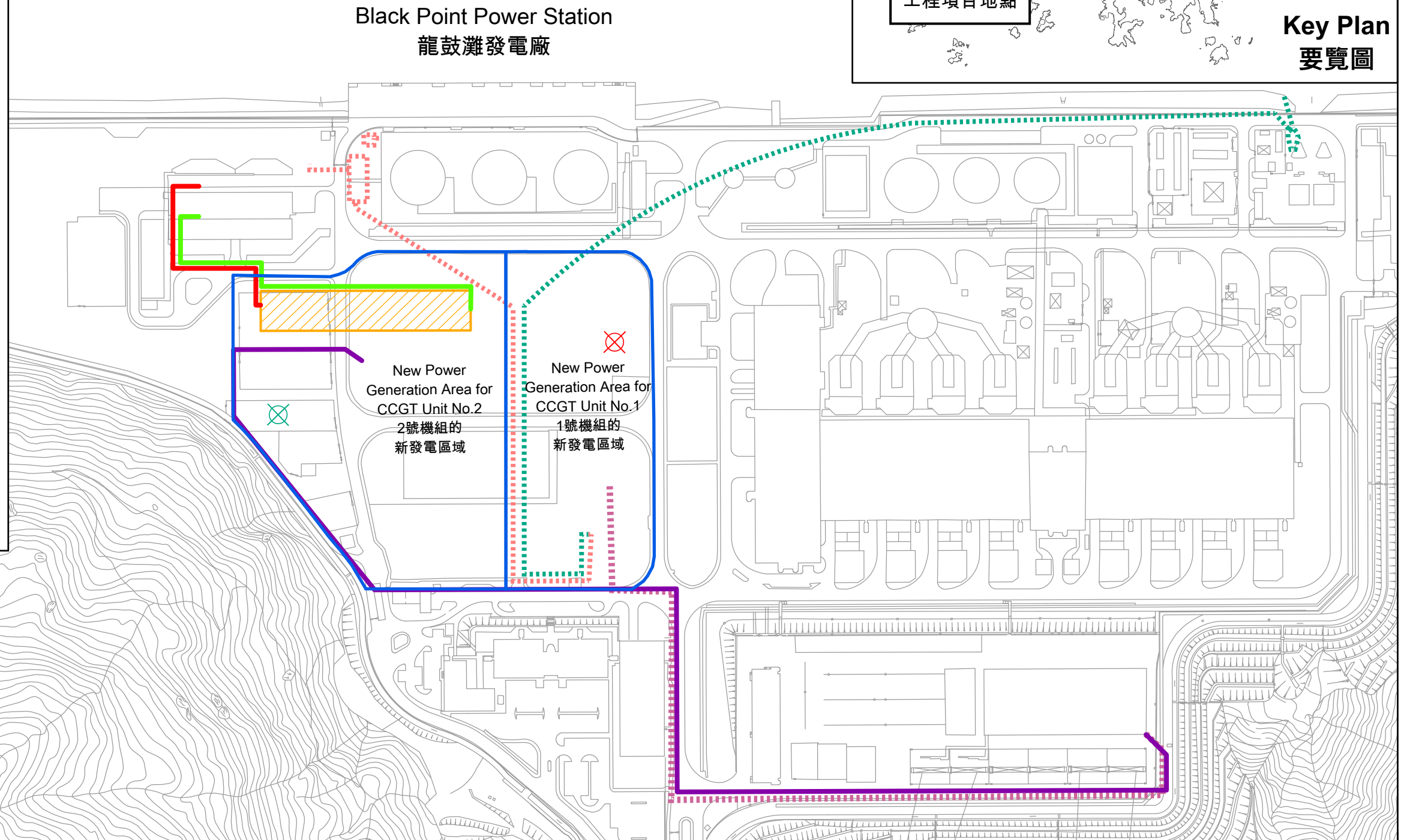
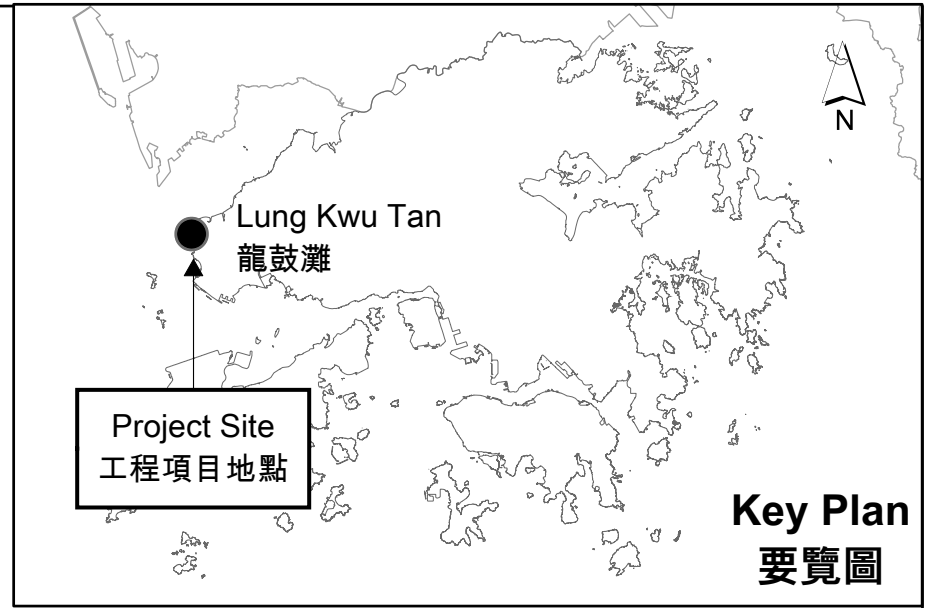
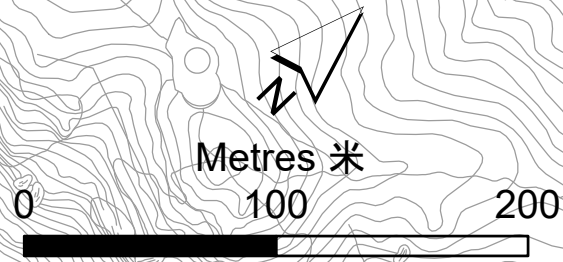


Figure 1.1
圖 1.1

Indicative Location of Key Project Components for CCGT Units No. 1 and No.2
1號以及2號聯合循環燃氣渦輪發電機組主要工程項目組成部份的初步位置圖



2. PRIORITY PLANT

2.1 DEFINITION

A generation unit is considered a priority plant if it is dispatched in priority of other available generation units. A priority plant, under normal situations, will be dispatched as far as practicable and topped up by other available generation units to meet the required electricity generation demand. A priority plant will therefore be put into operation for a longer period of time and higher percentage of operation time during available period when compared with other available generation units. Operating hours and operation percentage of a generation unit in a year is thus a good indicator of whether it is a priority plant or not.

2.2 D1 OPERATION

In the approved EIA Report, the operation phase air quality impact assessment was conducted based on the assumption that the additional CCGT unit(s) would be operated as a priority plant over all available generation units in BPPS and Castle Peak Power Station (CPPS). Under normal situation, D1 is operated as priority plant for dispatch and topped up by other available generation units to meet the required electricity generation demand. Operating hours of different generation units are reported to the government on annual basis. As discussed in **Section 2.1**, a priority plant will be utilised for longer hours and higher percentage in a year compared with other units, and thus its operating hours and percentage would be higher than that of other units in a year.

As advised by CAPCO, D1 unit was under maintenance from February to May 2024 and was not available to be operated during the period. The total available hours, operating hours and percentage of operation of major CLP generation units in Hong Kong are shown in **Table 2.1** in descending order below. D1 has the highest operating hours among all major CLP generation units, having operated 100% of the available time during the reporting period.

D1 has therefore been operating as a priority plant among all major CLP generation units during the reporting period.

TABLE 2.1 OPERATING HOURS OF MAJOR CLP GENERATION UNITS IN HONG KONG FROM 1 JUNE 2023 TO 31 MAY 2024

Major Generation Unit	Total Available Hours	Operating Hours	% of Operation
D1	6513	6503	100%
D2	1020	1016	100%
C2	8261	7393	89%
C8	7046	6134	87%
C5	7210	6213	86%
C6	7797	6685	86%
C4	8527	7020	82%
C3	8470	6878	81%
C7	7413	6006	81%
C1	6484	4877	75%
B4	8503	5990	70%
B1	8651	5509	64%
B3	8291	4456	54%
B2	7018	3674	52%
CPA ⁽¹⁾	25732	622	2%

Note:

(1) The data for CPA units were grouped to report due to the low utilization of each unit.

3. CONCLUSIONS

This *Priority Plant Report for the Third Year of Additional CCGT Commissioning* presents the operating hours of major CLP generation units recorded from 1 June 2023 to 31 May 2024.

The information provided has demonstrated that D1 has been operating as a priority plant during the third year of operation, in accordance with Condition 2.6 of the EP of the Project.



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