For Information

Legislative Council Panel on Economic Services

CLP POWER HONG KONG LIMITED'S FINANCIAL PLAN 1999-2004

Introduction

Members were briefed at the meeting of the Panel on 20 December 1999 on Government's decision for CLP Power Hong Kong Limited (CLP) to exercise the five-year deferral option to defer installation of Units 7 and 8 at Black Point Power Station from 2003 and 2004 to 2005 and 2006 respectively, and to sell the 442 megawatts of diesel-fired turbines decommissioned in 1997 for the benefit of consumers. The Administration has since further reviewed other aspects of CLP's Financial Plan 1999-2004 and consulted the Executive Council.

Latest Development

2. At the meeting of the Executive Council held on 30 May 2000, the Council considered CLP's Financial Plan 1999 to 2004. Details of CLP's proposals, the Administration's assessment and the Executive Council's decision are set out in the attached Legislative Council Brief.

Economic Services Bureau
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LEGISLATIVE COUNCIL BRIEF

CLP POWER HONG KONG LIMITED'S

FINANCIAL PLAN 1999 to 2004

INTRODUCTION

At the meeting of the Executive Council on 30 May 2000, the Council ADVISED and the Chief Executive ORDERED that -

(a) CLP Power Hong Kong Limited (CLP)'s proposal to refurbish the eight coal-fired generation units at Castle Peak Power Station should be accepted, without any commitment on the part of Government to extending the operation of the units beyond their design life, subject to close monitoring of the proposed expenditure through the annual Auditing Review and any necessary environmental impact assessment, and the refurbishment of the two oldest units would also be subject to the outcome of an economic and technical assessment on the desirability of decommissioning or mothballing one or both of these units to be conducted by CLP in consultation with Government;

(b) CLP's proposal to sell the 60 megawatts (MW) diesel-fired turbine (CG2) at Castle Peak should be accepted subject to an economic and technical assessment of the black start requirement of CLP to be conducted by the company in consultation with Government;

(c) CLP's proposal for additional transmission and distribution systems, customer services and corporate development should be accepted subject to close monitoring of the proposed expenditure through the annual Auditing Review; and

(d) the basic tariff rates and extent of financing from the Development Fund proposed in CLP's Financial Plan for 1999 to 2004 should be approved.

BACKGROUND AND ARGUMENT

General Background

2. CLP supplies electricity to Kowloon and the New Territories except Lamma Island. The company's existing installed capacity is 8,236 MWs.

3. The Scheme of Control Agreement (SCA) between Government and CLP together with its partner Exxon Energy Ltd. provides, amongst other things, that whenever financial plans have been finalized by the company for major additions to the company's electricity generation, transmission and distribution system, the two sides will conduct a Financial Review to determine consequential impacts on the tariff. The projected basic tariff rates and the extent to which development proposals are to be financed from the company's Development Fund are subject to the Executive Council's approval. The SCA also provides for an annual Auditing Review under which the two sides jointly review, amongst other things, the financial performance of CLP against the agreed estimates in the last Financial Review as well as the technical performance of the company.

CLP's Proposed Financial Plan 1999 to 2004

4. CLP's current Financial Plan, approved by the previous Executive Council in December 1992, expired on 30 September 1999. In March 1999, CLP submitted a Financial Plan 1999 to 2004[(1)], together with a Load Forecast Report, a Generation Development Plan and a Power Systems, Customer Services and Corporate Development Plan. The generation and power systems (i.e. transmission and distribution) are designed to meet forecast demand for electricity. The customer services and corporate development plans are designed to meet customer service needs and the company's operational requirements respectively.

Note [(1)] As CLP has changed its financial year-end from 30 September to 31 December with effect from 1999, it's Financial Plan period covers five years and three months from 1 October 1999 to 31 December 2004.

5. We have conducted a Financial Review with CLP with the assistance of independent expert consultants, Burns and Roe Enterprises, Inc of the United States (B&R). They have advised in detail on the economic, technical and environmental aspects of CLP's proposals.

6. Taking into account comments from the Administration and B&R, CLP had modified its Financial Plan and submitted a revised version in March 2000. Key areas of CLP's latest proposals and our assessment are set out below.

Load Forecast

7. CLP has produced a maximum demand forecast for assessing its capacity addition needs, and a sales forecast for tariff planning. B&R and Government's Economic Analysis Division (EAD) have examined CLP's forecasts and have also done independent forecasts for cross-checking purpose. Both have forecasted average annual growth in maximum demand similar to CLP's. As regards sales, B&R has forecasted similar average annual growth whilst EAD has forecasted a slightly higher one compared with CLP's. The load forecasts of CLP, B&R and EAD have taken into account the target savings of 23 MW in maximum demand from CLP's Demand Side Management (DSM) programmes. It has not been possible for the load forecasts to take into account possible impact of energy efficiency and conservation initiatives or fuel cells. The Environment and Food Bureau (EFB) has advised that it would not be possible to estimate with certainty the impact on the load forecasts of its initiatives including lowering the Overall Thermal Transfer Value requirements on new commercial building and hotels, extending the Energy Efficiency Labelling Schemes and promoting water-cooled air-conditioning system in non-domestic buildings as they are voluntary and the potential energy savings would largely depend on the public's acceptance of these initiatives. For example, while the promotion of water-cooled air conditioning system in non-domestic buildings is expected to have the potential to defer new electricity generation capacity for 286 MW to 446 MW by 2018, the ability to achieve this target and the required timeframe depend on the resolution of many complex technical and institutional issues, which would be examined in a forthcoming study. At this stage, EFB considers that the electricity demand saving as a result of these initiatives is unlikely to be significant in the near term or to have any impact on the timing of the additional generation capacity under consideration. Electrical and Mechanical Services Department has also advised that it would be hard

to determine possible impact of fuel cells at this stage as commercial application of the technology is still being developed.

8. Having reviewed CLP’s forecasting methodology, B&R has concluded that CLP’s forecasting approach has improved since the last review conducted by B&R in 1996. It advises that CLP’s main case forecast is reasonable and suitable for use as the primary forecast for CLP’s Financial Plan.

9. The forecasts of B&R and EAD are based on economic data available in late-1999. B&R has reviewed its own forecasts in the light of the new Gross Domestic Product (GDP) figures announced by Government in March 2000, which suggest significantly higher GDP growth rates of +2.9% for 1999 and trend growth of +4% per annum up to 2003. B&R is of the opinion that the latest GDP figures would result in the need to advance the installation schedule of Units 7 and 8 at Black Point by around two years to 2006 and 2008 respectively on a demand basis, as compared to 2008 and 2010 respectively forecasted by B&R in late-1999. This would narrow the gap between the required installation schedule on a demand basis and the currently committed contractual schedule for installation of these units in 2005 and 2006 respectively. Whilst EAD has not produced updated forecasts, it has advised that if the higher GDP growth rates were to be taken into account, its forecasts for CLP’s maximum demand and sales would need to be re-visited and would probably need to be revised upwards.

Generation Development

(A) CLP’s proposals

10. CLP has proposed in its Generation Development Plan to -

(a) exercise the five-year deferral option to defer installation and commissioning of Units 7 and 8 at Black Point from 2003 and 2004 to 2005 and 2006 respectively;

(b) sell the seven diesel-fired turbines with a total capacity of 442 MW decommissioned in 1997 for the benefit of consumers;

(c) decommission and sell the remaining 60 MW diesel-fired turbine (CG2) at Castle Peak, which has been dedicated for use as black start facility (i.e. for energizing other generation units after a system black-out) by CLP. Like the 442 MW of diesel-fired turbines decommissioned in 1997, CLP advised that this unit was becoming technically obsolete and difficult to maintain. The company would conduct a study of its black start requirement and obtain Government's concurrence with regard to the most appropriate way of meeting it before selling the unit;

(d) refurbish the six coal-fired and two coal/gas-fired generation units at the Castle Peak Power Station (Units A1 to A4 and B1 to B4) in the period up to 2005. The units were commissioned between 1982 and 1990 with a design life of 25 years. The Castle Peak Power Station is about half way through its design life and the refurbishment works are proposed following a review of the condition of the plant by CLP in order to ensure its continued compliance with safety and environmental requirements, and to upkeep its operational efficiency and reliability for the remainder of the original design life of the plant; and

(e) carry out post-commissioning projects for replacement of equipment and general improvement work for maintaining the plant at Black Point and Castle Peak.

(B) Assessment of CLP's proposals

11. In 1997, Government agreed with CLP that a review would be conducted in the last quarter of 1999 regarding the possibility of further deferral of Units 7 and 8 and disposition of the 442 MW of diesel-fired turbines. To enable CLP to meet the January 2000 deadline for exercising the deferral option for Units 7 and 8, the Administration completed the review with CLP in late-1999 ahead of the whole Financial Review. The Executive Council's advice was sought on 7 December 1999 and it was decided that Government should agree to CLP's proposals to exercise the five-year deferral option to defer installation of Units 7 and 8 at Black Point from 2003 and 2004 to 2005

and 2006 respectively, and to sell the 442 MW of diesel-fired turbines decommissioned in 1997 for the benefit of consumers. The Legislative Council Panel on Economic Services was briefed on the decision on 20 December 1999.

12. As regards CLP's proposal to sell CG2, B&R shares the view of CLP about the difficulty in obtaining spare parts for CG2 as in the case of the 442 MW of diesel-fired turbines and has recommended that Government should approve the sale of CG2 together with the 442 MW of diesel-fired turbines through competitive tenders. However, since CLP may need to incur capital expenditure to procure another black start unit to replace CG2, B&R recommends that the sale of CG2 should be subject to a review by CLP in consultation with the Government of the technical and economic aspects of CLP's black start requirements.

13. As regards the refurbishment of the eight units (six coal-fired and two coal/natural gas-fired) at Castle Peak, B&R has advised that the proposed works are reasonable. Based on its experience, B&R considers that with the proposed refurbishment, a life expectancy of about five years beyond the nominal design life of the units can be expected. CLP has stated that once a critical mass of projects has been completed, it will assess the impact of the projects on the life expectancy of the units. B&R agrees to the approach proposed by CLP and recommends that the proposed refurbishment works should be accepted. As recommended by B&R, CLP has also agreed to conduct an economic and technical assessment of the desirability of decommissioning or mothballing one or both of the two oldest units (A1 and A2) before it enters into any commitment for refurbishment works on them.

14. As regards the post-commissioning projects, B&R finds CLP's proposed budgets reasonable and within the range of its expectation for power stations of the type and size of Black Point and Castle Peak respectively. It recommends that they be accepted.

15. As recommended by B&R, CLP will provide further information including more detailed breakdown of works programmes, priorities for the refurbishment projects and post-commissioning projects respectively for close monitoring of expenditure by Government through the annual Auditing Review.

Power Systems, Customer Services and Corporate Development Plan

16. Projects relating to power systems include new substations, additional circuits, improved control equipment, or reinforcement of existing system. They are designed to ensure that adequate transmission and distribution facilities are in place to meet new demands and developments, maintain reliability of supply and improve the safety and environmental aspects of CLP's systems.

17. B&R agrees with CLP that these projects will enhance the reliability and performance of its transmission and distribution systems and are required as a result of continuing new town developments and other major development projects in Kowloon and the New Territories. It also advises that the capital expenditure allocations for various projects proposed appear to be reasonable and within expected ranges. The plans for new distribution substations will be monitored through the annual Auditing Review in the light of actual build up of demand.

18. Projects relating to customer services and corporate development include metering system development, service centre improvements and information system development. B&R has advised that these projects are reasonable and recommended their approval.

Wider Use of Piped Natural Gas from Yacheng

19. CLP has proposed in its Generation Development Plan to divert some of its contracted piped-natural gas from Yacheng for uses other than power generation at its plants. The proposals included diverting part of the gas for use on studies to determine the feasibility of using natural gas as an environmentally friendly substitute for diesel fuel for buses and heavy goods vehicles, as well as for use as a fuel for industrial, commercial and residential usage. It advises that whilst these initiatives would result in more coal-fired power generation and hence resultant emissions, such uses would either reduce street level pollution or bring economic benefits to consumers with no adverse overall impact on carbon dioxide (CO_2) in Hong Kong.

20. The Administration generally supports in principle the feasibility studies on other uses of natural gas in Hong Kong but each specific proposal will need to be considered on its own merits, taking into account the overall amount of natural gas required to be diverted for such use, the environmental implications and the interest of CLP's customers.

Energy Conservation and Efficiency

21. CLP has included in its Financial Plan a package of DSM programmes for the next few years. The package will include a rebate programme to encourage non-residential customers to use energy efficient electrical appliances which has been drawn up taking into account views of the Legislative Council Panel on Economic Services. Such a rebate programme is expected to achieve target savings representing 23 MW in maximum demand over the coming three years. In addition, there will be other items such as promotional and education programmes on energy efficiency and time-of-use tariff to encourage shifting of electricity demand to off-peak period.

22. B&R has advised that CLP's programmes are appropriate for the Hong Kong market. The Administration will review the effectiveness of CLP's programmes with the company annually with a view to identifying possible improvements for the future. In particular we will consider whether and if so, in what manner the rebate programme should be extended to cover residential customers.

Financial Aspects of the Financial Plan

23. The main components of CLP's Financial Plan for 1999 to 2004 include capital expenditure, permitted return and net return, the Development Fund and tariff levels. These are drawn up taking into account CLP's generation development, power system, customer services and corporate development plans.

(A) Capital Expenditure

24. The total capital expenditure over the period 1999-2004 will amount to some $30 billion.

(B) Permitted Return and Net Return

25. The Permitted Return of CLP is related to its Average Net Fixed Assets (ANFA) and calculated in accordance with the SCA. After taking into account certain deductions provided for in the SCA, CLP's projected average annual rate of Net Return on ANFA during the period covered by the Financial Plan is about the same as the actual rate over the previous Financial Plan period.

(C) Development Fund

26. Under the SCA, any excess of Scheme of Control Net Revenue over the Permitted Return after deduction of excess capacity adjustment, if any, is transferred to the Development Fund. The main purpose of the Development Fund is to assist in the acquisition of fixed assets but the balance may be reduced to meet any shortfall in tariff revenues. Every year, consumers will benefit from the annual transfer from the profit and loss account of a charge of 8% on the average Development Fund balance to reduce tariff through rebates.

27. In February 2000, CLP agreed to forgo the Permitted Return on the outstanding deferral premium payable on the five-year deferral for installation of Units 7 and 8 at Black Point. A sum of $803 million will therefore be set aside in the Development Fund in the year 2000 for absorbing payments in respect of the outstanding deferral premium over the period 2000 to 2005.

(D) Tariff Levels

28. CLP's net tariff is made up of four components, basic tariff, rate reduction rebate, DSM charge (expected to be introduced from 2001 for non-residential customers for the recovery of the DSM programme costs) and fuel clause adjustment (the main purpose of which is to ensure that consumers are charged the actual cost of fuel).

29. CLP froze its net tariff for 1999 and 2000 at the 1998 level. The estimated annualised average increase in net tariff over the whole Financial Plan period 1999-2004 would be below Government's medium-range forecast inflation rate of 2.5%. In practice, in accordance with the provisions of the SCA, the actual basic tariff to be charged to consumers will only be determined in the preceding year following discussion between Government and CLP during the Annual Tariff Review.

FINANCIAL AND STAFFING IMPLICATIONS

30. There would be additional land premium for Government in respect of the sites for new transmission and distribution substations proposed by CLP. There are no other financial or staffing implications for Government.

ECONOMIC IMPLICATIONS

31. CLP's projection indicates that the annualised average increase in tariff over the whole Financial Plan period 1999-2004 would be below Government's medium-range forecast inflation rate of 2.5%. The projected increase should not have any significant inflationary effect as spending on electricity supplied by CLP only amounts to 1.1% of total household expenditures.

ENVIRONMENTAL IMPLICATIONS

32. The emissions from coal-fired generation are a major source of air pollution as well as greenhouse gas emissions. The proposed refurbishment projects to ensure compliance with statutory, safety and environmental requirements are acceptable. Although according to B&R, the projects could possibly extend the design life of the plant by about five years, the Administration would consider carefully any proposed extension of the life of coal-fired power plant in future having regard to the then prevailing environmental policy, availability of cleaner alternative energy sources for ensuring reliability of electricity supply, implications on cost of electricity, etc. In particular, we would also need to take into account our on-going joint efforts with Guangdong in tackling regional air pollution.

33. Using a small portion of CLP's natural gas supply to conduct trials of gas powered vehicles will help establish whether such vehicles can be reliably operated in Hong Kong. Gains for local air quality will be made if such vehicles can be introduced on a large scale, but it is likely that alternative gas supplies will need to be secured to achieve this so as not to increase the burning of coal for power generation.

PUBLIC CONSULTATION

34. The Energy Advisory Committee has been consulted on CLP's proposed Financial Plan, particularly its key capital expenditure items, and the Committee endorsed these items.

PUBLICITY

35. A press release will be issued and a spokesman will be available for answering media and public enquiries. CLP will also arrange its own publicity.

ENQUIRIES

36. Enquiries on this Brief may be directed to Mr Howard Lee, Principal Assistant Secretary for Economic Services on telephone number 2810 2128.

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