For Information

Legislative Council Panel on Economic Services

The Hongkong Electric Company Limited
Proposals for Additional Generation Facilities
and Financial Plan 1999-2004

Introduction

Members were briefed on progress of the Administration's examination of The Hong Kong Electric Company Limited (HEC)'s Financial Plan including its proposed extension of the Lamma Power Station at the meetings of the Panel held on 26 October and 10 November 1998. Since then the HEC had completed a detailed environmental impact assessment for the Lamma Extension, which was endorsed by the Advisory Council on the Environment and the Environmental Protection Department. The Administration has also further reviewed HEC's proposals taking into account the latest demand forecasts, possibilities for meeting the demand through other means and the relevant economic, engineering and environmental considerations.

Latest Development

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

Way Ahead regarding Interconnection

3. We have explained in detail in the Legislative Council Brief why increased interconnection is not a practically viable alternative to construction of additional generation facilities at the Lamma Extension for meeting the forecast demand in the next few years. The decision to approve

the Lamma Extension does not however mean that Government has rejected the idea of increasing interconnection. On the contrary, we see increased interconnection, not just between the two power companies but also with Mainland China, as the logical way forward for the longer term. We are firmly committed to pursuing it earnestly. However, to ensure reliability of supply, we need to sort out a number of engineering and planning issues first. The consultancy study on interconnection and competition in the electricity supply sector completed at the end of last year is only a preliminary feasibility study, and a lot more work has to be done. We have made preparation for further detailed studies on the routing and timing for construction of the new interconnectors as well as the planning criteria for our electric systems under an increased interconnection scenario. These further studies would start in a few months' time and, if everything goes according to plan, we expect them to be completed in the latter half of 2001.

4. In parallel, we are examining the restructuring of the electricity market in other places with a view to identifying practicable options for the Hong Kong market in future. We will need to study the complementary regulatory and institutional structure for increased interconnection. We are also liaising with Mainland authorities regarding market and regulatory reforms in the Mainland with a view to exploring the possibility and scope for the supply of electricity from the Mainland to Hong Kong. We see the importance of coming to an early view on the post 2008 regime and we hope to map out the broad direction for the future development of our electricity sector before the next interim review of the Scheme of Control Agreements scheduled for 2003.

Economic Services Bureau
June 2000

File Ref. : ESBCR 6/4576/98

LEGISLATIVE COUNCIL BRIEF

THE HONGKONG ELECTRIC COMPANY LIMITED
PROPOSALS FOR ADDITIONAL GENERATION FACILITIES
AND
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) The Hongkong Electric Company Limited (HEC)'s proposal to convert two existing generation units [G5 and G7 with total capacity increased from 250 megawatts (MW) to 365MW by 2002] to combined cycle operation units as a replacement for the 250MW gas turbine (G8), endorsed in principle by the previous Executive Council in 1994, should be accepted;

(b) HEC's proposal to repower two existing generation units (L5 in 2002 and L4 in 2003 with total capacity increased from 700MW to 750MW) should be accepted, subject to further review of the need for such repowering in the light of HEC's updated demand forecasts before HEC enters into firm contractual commitment to the project;

(c) HEC's proposal to extend the Lamma Power Station (the Lamma Extension) to cater for additional generation facilities should be accepted in principle;

(d) HEC's proposal to commission the first 300MW gas combined cycle unit (L9) at the Lamma Extension in 2004 should be accepted in principle, subject to review and adjustment of the year of commissioning, if necessary, in the light of HEC's updated demand forecasts before firm contractual commitment is made for procurement of the unit;

(e) a draft Outline Zoning Plan for Lamma Island including the Lamma Extension should be prepared for gazetting as soon as possible on the basis of the in-house studies and public consultation conducted by the Planning Department;

(f) the proposed capital expenditure relating to the new generation unit following L9, i.e. L10 included in HEC's Financial Plan for 1999 to 2004, should be accepted subject to review and adjustment of the year of commissioning, if necessary, in the light of HEC's updated demand forecasts before HEC enters into firm contractual commitment to the projects;

(g) HEC's proposals for additional transmission and distribution systems should be accepted subject to close monitoring and review of the related expenditure through the annual Auditing Review; and

(h) subject to items (a) to (g) above and the satisfactory completion of any environmental, visual and health impact studies as necessary, HEC's Financial Plan 1999 to 2004 should be approved.

BACKGROUND AND ARGUMENT

General Background

2. HEC supplies electricity to Hong Kong Island, Ap Lei Chau and Lamma Island. The company's existing installed generation capacity amounts to 3,305MW.

3. In anticipation of the need for additional generation capacity to cater for growing demand for electricity, HEC conducted a site search exercise in mid 1990's with a view to identifying a site for construction of a new power plant. After detailed studies, HEC proposed to construct a new power plant on reclaimed land as an extension to its Lamma Power Station. At its meeting on 31 March 1998, the Executive Council advised, and the Chief Executive ordered, that "the Hongkong Electric Company Limited should be invited, without any commitment on the part of Government, to proceed with detailed site investigation and environmental impact assessment studies of an extension to Lamma Power Station for the possible construction of additional electricity generation facilities, with natural gas as the preferred fuel option."

4. HEC completed a detailed site investigation and environmental impact assessment (EIA) on a 1,800MW new power station at the Lamma Extension. The EIA report was endorsed by the Advisory Council on the Environment on the basis that the new generation units are to be fired by natural gas. HEC has included the proposed new gas-fired power plant in its Financial Plan for 1999 to 2004.

5. The Scheme of Control Agreement (SCA) between HEC and Government provides, among other things, that major additions to HEC's system shall be subject to review and agreement with the Government. It also provides that a Financial Review shall be conducted jointly by Government and HEC and that the Financial Plan shall be subject to approval by the Executive Council. The SCA also provides for an annual Auditing Review under which the two sides jointly review, amongst other things, the financial performance of HEC against the agreed estimates in the Financial Plan as well as the technical performance of the Company.

6. HEC's Financial Plan for 1994-1998 expired in end December 1998. HEC has put forward its Financial Plan 1999 to 2004 together with Load Forecast for 1999 to 2008, Generation Development Planning for 1999 to 2004 and Transmission Development Planning for 1999 to 2005. The generation and transmission development proposals are designed to meet the forecast demand for electricity.

7. A Financial Review has been conducted jointly with the Company with the assistance of independent consultants, Burns & Roe Enterprises, Inc. of the United States (B&R). B&R has assessed the economic, technical and environmental aspects of the proposals. With the benefit of B&R's advice, we have had detailed discussions with HEC regarding its Financial Plan and revisions were made.

8. Key areas of HEC's proposals and the Administration's assessment taking into account B&R's observations and recommendations are set out below.

Load Forecast

9. HEC has produced maximum demand forecast for determining the timing for additional generation capacity and sales forecast for tariff planning. B&R and EAD have examined HEC's forecasts and have also done independent forecasts for cross-checking purpose. All these forecasts have taken into account target savings of

10MW in maximum demand from HEC'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 of 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 requirement 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 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.

10. HEC's Base Case Forecast shows that L9 would need to be commissioned in 2003. However, having regard to the forecasts of B&R and EAD which are less optimistic, and a practical implementation timetable, HEC has agreed to adopt 2004 as the year for commissioning of L9 in line with its own Low Case Forecast. Noting that HEC's capital expenditure programme will be subject to review based on the up-dated demand situation and other relevant factors at the annual Auditing Review, B&R has recommended that HEC's Financial Plan prepared on the basis of HEC's Base Case Forecast for both maximum demand and sales with commissioning of L9 in 2004 be accepted. HEC's sensitivity analysis using its Low Case Forecast for sales shows that the tariff impact is small.

11. New GDP figures were announced in March 2000 (i.e. GDP growth of +2.9% for 1999 against the earlier projection of +1.8% and +4% for forecast trend GDP growth instead of the previous +3.5%). EAD has advised that if the higher GDP growth rates were to be taken into account, the forecasts for both maximum demand and sales would need to be re-visited and would most likely need to be revised upwards. B&R is of the opinion that the latest figures would increase HEC's maximum demand by

about 50 to 60MW in year 2004 and further strengthen the case to plan the commissioning of L9 in 2004 to ensure the reliability of supply in HEC's supply area.

Generation Development
(A) HEC's proposals

12. HEC proposes to reclaim about 22 hectares of land adjacent to the existing Lamma Power Station to accommodate six 300MW combined cycle units, to be fired by natural gas.

13. For the period covered by the Financial Plan 1999 to 2004, HEC proposes to –

(a) convert two existing generation units (G5 and G7 from a total capacity of 250MW to 365MW in 2002) to combined cycle operation units to ensure continued reliability of supply. This will replace the 250MW gas turbine (G8) previously endorsed in principle by the then Executive Council in 1994. HEC advised that such a replacement was necessary because of space constraint at the existing Lamma Power Station. HEC also pointed out that compared to the original proposal, the conversion proposal would be more economical and environmentally friendly;

(b) repower two existing generation units (L5 in 2002 and L4 in 2003) from a total capacity of 700MW to 750MW to provide an extra 50MW of capacity to improve the reliability of its system pending the commissioning of L9 in 2004;

(c) commission the first combined cycle 300MW gas-fired generation unit (L9) at the Lamma Extension in 2004; and

(d) incur some expenditure on L10 (the second unit at the Lamma Extension) from 2003 for expected commissioning in 2006.

(B) Alternative options
(a) Increasing interconnection between HEC and CLP Power Hong Kong Limited

14. We have considered whether the forecast increase in demand in HEC's supply area could be met through other means. B&R and EMSD

share HEC's view that there are technical constraints in enhancing the capability of the existing interconnectors between CLP and HEC through the installation of a series reactor. They consider that the timing and cost for enhancement works would need to be further studied.

15. We have also considered the practicality of proceeding with increased interconnection along the lines of the findings of the Environmental Resources Management's (ERM) study on interconnection and competition in Hong Kong's electricity supply sector ("Study") as an alternative for L9. However, as a number of major issues have yet to be examined and resolved, the time required for putting in place the necessary arrangement is highly uncertain.

16. ERM have made it clear in their study report that they have only done an initial feasibility study, and that the Study does not include detailed, full-scope engineering analysis nor in-depth planning and design. They have noted several issues that might impact on the commissioning time of the new interconnectors. These include the logistics for laying submarine cables across the busy Victoria Harbour, the need to avoid impinging on existing infrastructure in the seabed, the difficulty in identifying cable landing points amidst the proposed reclamation works in the Central-Wanchai area, and the potential difficulties in constructing cables in the busy Central and Wanchai districts.

17. There are divergent views on the time required for building the additional interconnectors. HEC has proposed a timeframe of five and a half years whilst CLP suggested a shorter period of about three years. Works Bureau has advised that based on preliminary assessment, a realistic programme would be about five years. In practice, it would be necessary to carry out site survey and engineering studies on the routing of the interconnection cables taking into account the practical constraints before the programme time could be determined with more certainty.

18. In addition, it would be necessary to review the planning criteria for our electric systems under an increased interconnection scenario. Such criteria have important bearing on the level of reliability to be built into the system of HEC (and CLP), and thus the timing for it to install additional generation capacity given a set of demand forecast. If the increased interconnection necessitates more stringent planning criteria as suggested previously by HEC with reference to practices of some overseas utilities, the potential benefits of the increased interconnection in deferring new generation capacity could be negated or reduced.

19. As confirmed by the Department of Justice (DoJ), increased interconnection requires HEC's consent under the SCA. HEC has made it clear that it would not agree to the mode proposed by ERM in the increase of interconnection as such a mode would result in HEC having no reserve margin of its own and having to depend on CLP to provide the reserve capacity. HEC has serious concern about meeting its customers' demand reliably because under the SCA, each power company is responsible for providing reliable supply to its customers. It also feels that its position in a future competitive market would be weakened if it had to rely on its potential competitor for reserve support.

20. Given the uncertainty involved, we do not consider increased interconnection as a viable alternative to meeting forecast increase in demand in HEC's supply area by 2004. However, considering the merits of increased interconnection and the fact that it is a pre-requisite to facilitating competition in the electricity supply sector, we will continue to actively pursue this option for the longer term.

21. We have made preparation for commissioning consultants to examine in detail the routing and timing for construction of the new interconnectors as well as the planning criteria for our electric systems under an increased interconnection scenario. The consultancy studies would start in a few months' time and, if everything goes according to plan, are expected to be completed in the latter half of 2001. Whilst HEC does not agree to the mode proposed by ERM in the increase of interconnection, it concurs with the view that there are potential benefits from increased interconnection in the longer term and has agreed to cooperate fully with Government in our efforts to further examine options for increasing interconnection with a view to realizing benefits for Hong Kong.

22. In parallel, we are examining the market restructuring of other places with a view to identifying practicable options for the Hong Kong market in future. We are also liaising with Mainland authorities on market and regulatory reforms in the Mainland.

23. In considering increased interconnection and competition in the electricity supply market, we must carefully examine the practical issues including reliability having regard to the characteristics of our own supply system. It is worth noting that after introducing competition in the electricity supply market for many years, the US authorities have set up a study team to look into significant power outages and other disturbances across the country last summer. The team has pointed out that the development of reliability management reforms, tools, technologies, and

operating procedures has lagged behind economic reforms in the electric industry, with the effect that the infrastructure for reliability assurance has been considerably eroded. Given the paramount importance of reliability of electricity supply in Hong Kong, we must proceed carefully to avoid similar experience following any competitive market reform.

(b) Renewable energy

24. B&R has assessed the potential of wind power, solar energy, geothermal energy, tidal power and hydropower for Hong Kong using both qualitative and quantitative data. Its conclusion is that these resources are unlikely to be available to Hong Kong in a similar scale and timeframe as the proposed L9 at the Lamma Extension. The Administration sees merit in further exploring the potential for localized application and will be commissioning a study this year on the feasibility and potential for application and use of alternative forms of power generation in Hong Kong and the means of promoting and implementing those with potentials.

(C) Assessment of HEC's proposals
(a) Generation development and timeframe

25. B&R has advised that HEC's repowering/conversion proposals in respect of L4/5 and G5/7 are reasonable and that Government should accept using 2004 as the basis for planning the commissioning of L9.

26. HEC plans to commission L10 in 2006 and has provided for certain capital expenditure for the unit in the Financial Plan. Whilst B&R advises that commissioning of generation units beyond L9 should be reviewed in the light of the up-dated demand forecasts and against the availability of increased interconnection for transfer of hydropower from the Mainland, it recommends that expenditure relating to generation development in the Financial Plan be approved as a block.

27. We feel that to ensure reliability of supply, B&R's recommendations should be accepted, given the additional safeguards for protection of consumers against pre-mature site formation works as set out in paragraph 29 below and the mechanism for dealing with excess generation capacity as agreed during the interim review of the SCA. Since the repowering of L4 and L5 would only be required to cover a short period of time before the planned commissioning of L9 in 2004, the need for the repowering of L4 and L5 will be reviewed in the light of HEC's updated

demand forecasts before firm contractual commitment to the project is made.

(b) Safeguards for consumers

28. A mechanism[1] for dealing with excess capacity has previously been agreed with the power companies during the 1997/98 interim review of the SCAs. To further protect the interest of consumers, we have discussed additional safeguards with HEC.

29. Under the SCA, site formation cost is captured in the SCA accounts and shareholders start to earn a return once the works commence, regardless of the subsequent commissioning date of the generation unit. HEC has now agreed that the capital expenditure on site formation works should only start to be captured in the SCA accounts three years prior to commissioning of L9 based on actual demand. This will ensure that shareholders will not obtain permitted return on site formation works pre-maturely and that consumers will not be worse off if L9 and consequently site formation works are required later than planned. With this arrangement, consumers are protected against pre-mature site formation works that might arise from a lower than expected growth in demand, and at the same time enjoy security of electricity supply afforded by timely advance planning of additional generation capacity.

30. We have also asked HEC and B&R to examine whether there would be cost benefits if the site for the Lamma Extension is reclaimed in stages instead of at one go. Given safety and operational considerations, the necessity to reclaim about 65% of the site and incur over 80% of the cost in stage one to provide for ancillary facilities such as gas receiving stations, oil tanks and storage for dangerous good such as acids, alkalis, compressed gas, solvents etc., and the additional costs (20% more) required for temporary works under a two-stage programme (e.g. additional temporary seawall and extra dredging and filling required), HEC has concluded and B&R agrees that site formation at one go would be more efficient from an engineering/construction perspective and that the cost differential shows no overwhelming reason to go by stages. A two-stage reclamation programme would also cause more construction-stage environmental impact than a one-stage programme as construction works would need to recommence in a few years' time.

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[1] Under this mechanism, HEC would not earn a return on a portion of the mechanical and electrical equipment costs of a new generation unit (including addition of capacity to an existing unit) if its commissioning gives rise to excess generation capacity.

(c) Fuel supply

31. HEC has signed a Letter of Intent with China National Offshore Oil Corporation (CNOOC)[2] over the purchase of liquefied natural gas (LNG) from a proposed LNG Terminal in Shenzhen. It expects to start negotiating a gas supply agreement with the consortium for the Shenzhen LNG Terminal project after it is set up in the second half of this year. In the meantime, HEC has assured us that a long-term reliable supply of gas will be secured to meet the commissioning of L9 in 2004. It has also provided in the Financial Plan a projection of LNG prices benchmarked on imported LNG prices in Japan.

32. B&R's assessment is that HEC's system reliability would not be affected under short or long term gas disruption scenarios because the new combined cycle unit would be able to fall back on light gas oil, and there are adequate local storage of light gas oil and reserve arrangement in place in HEC's system. HEC would however need to conduct a further EIA in case it foresees a delay in availability of LNG and light gas oil has to be used as a stop-gap measure for an extended period of time.

33. B&R finds HEC's projection of LNG prices reasonable, although somewhat on the low side. Sensitivity analyses prepared by HEC show that a 20% increase in the projected LNG prices would result in about 0.3% increase in the net tariff for 2004 with the commissioning of L9 scheduled for the summer peak of that year. It also shows that in case of a one-year delay in availability of LNG supply and light gas oil has to be used for L9 in 2004, the net tariff projected for that year might be lowered by about 0.05%[3]. The actual impact would however depend on circumstances prevailing then.

34. HEC has undertaken to keep Government informed of developments relating to the terms and conditions of the LNG supply agreement and consult Government before finalising it. Upon receipt of such additional information, we will review the above assessments with attention given to, among other things, costs and flexibility in the supply terms.

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[2] CNOOC is a state run company with exclusive right for exploration of offshore oil and gas resources in the sea areas of China in co-operation with foreign enterprises.

[3] This represents a half year effect as the additional generation unit is planned for commissioning to meet the summer peak.

(d) Planning and land issues

35. The Administration will finalize the examination of the land required and commence planning procedures and reclamation procedures under the Town Planning Ordinance and the Foreshore and Seabed (Reclamations) Ordinance respectively as soon as possible. The Planning Department has carried out detailed in-house planning studies for the Lamma Island and has consulted the local residents on various land use proposals. It will draw up a draft Outline Zoning Plan for Lamma Island including the Lamma Extension for gazetting under the Town Planning Ordinance on the basis of these in-house studies and public consultation conducted. The Planning Department is undertaking a Planning and Development Study on Hong Kong Island South and Lamma Island mainly to identify Strategic Growth Areas (SGAs). Preliminary findings have shown that no such SGA would be developed on Lamma Island, but should the outcome of this planning study require changes to the land use zoning, amendments to the OZP would be taken forward in accordance with normal planning procedures. In parallel, the reclamation procedures under the Foreshore and Seabed (Reclamations) Ordinance involving gazetting of the related works will proceed. On completion of these planning and reclamation procedures, further advice will be sought from the Executive Council in respect of the grant of land.

Transmission and Distribution

36. HEC has proposed transmission and distribution development plans to cope with the system growth. The plans include many projects such as new stations and substations, reinforcement of existing circuits and replacement or upgrading of certain existing cables. B&R agrees that HEC's transmission and distribution development plans are reasonable and should be approved, but recommend that HEC should review these plans before expiry of its current Financial Plan to identify improvements that might be desirable. Such a review should cover transmission and distribution capability to support increased interconnection and the possibility of transferring power from Southern China in the medium term.

Energy Conservation and Efficiency

37. HEC has included in its Financial Plan a package of DSM programmes for the next few years to encourage people to contribute to energy efficiency and environmental protection. The package 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. This programme is designed to achieve target savings representing 10MW in maximum demand over the coming three years. The package also includes other items such as promotional and educational programmes on energy efficiency as well as a trial on time-of-use tariff aimed to encourage shifting of electricity demand to the non-peak period.

38. B&R has advised that HEC's Programmes are appropriate for the Hong Kong market. We will review the effectiveness of HEC's programmes with the Company annually with a view to identifying possible improvements for the future and deciding whether and if so, in what manner DSM programmes should be extended to cover residential customers.

Financial Aspects of the Financial Plan

39. The main components of HEC's Financial Plan for 1999 to 2004 include capital expenditure, permitted and net return, the Development Fund and tariff levels. These are drawn up taking into account HEC's generation development plan and proposals for transmission and distribution systems.

(A) Capital Expenditure

40. HEC forecasts that total capital expenditure over the period 1999 to 2004 will amount to around $27 billion, of which around 20% relates specifically to the Lamma Extension and related generation facilities.

(B) Permitted Return and Net Return

41. The Permitted Return of HEC 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, HEC's projected average annual rate of Net Return on ANFA during the period covered by the Financial Plan is in line with the level under the previous Financial Plan.

(C) Development Fund

42. 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 net 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.

(D) Tariff Levels

43. HEC'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.

44. HEC froze its net tariff for 1999 and 2000 at the 1998 level. Taking into account the above tariff freeze, the estimated average annual increase in net tariff during HEC's Financial Plan period 1999 to 2004 is above Government's projected medium range inflation rate of about 2.5%. However, it should not have a significant inflationary effect given that spending on electricity generated by HEC only amounts to 0.35% of total household expenditure. 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 HEC during the Annual Tariff Review, taking into account any variations in the component parts of the Financial Plan.

FINANCIAL AND STAFFING IMPLICATIONS

45. When a site is eventually granted to HEC for construction of the Lamma Extension, Government would receive land premium from HEC, the amount of which would be assessed nearer the time. There would also be additional land premium for Government in respect of the sites for the new stations/substations proposed by HEC. There are no other financial and staffing implications for Government.

ECONOMIC IMPLICATIONS

46. The installation of additional generation capacity by HEC is to cater for future growth in demand for electricity from consumers to ensure reliability of supply. Disruptions to or shortfall in the electricity supply would cause delays and losses in production as well as inconvenience and risk to the community. They are unacceptable to the public and might tarnish Hong Kong's image as an international financial

and business centre. Whilst the estimated average annual increase in net tariff during HEC's Financial Plan period 1999 to 2004 is above Government's projected medium range inflation rate of about 2.5%, it should not have a significant inflationary effect given that spending on electricity generated by HEC only amounts to 0.35% of total household expenditure.

ENVIRONMENTAL IMPLICATIONS

47. HEC's EIA on the proposed 1,800 MW gas-fired power station at the Lamma Extension concluded that provided certain mitigation measures were adopted and implemented, environmental impacts could be controlled to meet environmental criteria during project implementation. The overall emission level of the proposed gas-fired combined cycle generation unit would be much lower than that of a coal-fired unit of similar capacity. As these new gas-fired units will be used for base load operation, their commissioning would reduce the running hours of the existing coal-fired units and result in significant reduction in emissions. According to the EIA, when the 1,800MW Lamma Extension is fully commissioned, the total annual emissions of sulphur dioxide, nitrogen oxides and carbon dioxide from the HEC system would drop by about 60%, 40% and 10% respectively when compared to the situation prior to its operation although the total electricity generation would increase by 43%.

48. The EIA report has gone through public consultation under the Environmental Impact Assessment Ordinance (EIAO). It was endorsed by the Advisory Council on the Environment in April 1999 on the condition that the new generation units are to be fuelled by natural gas, and approved by the Director of Environmental Protection in May 1999. B&R has also advised that HEC's proposed generation development plan is environmentally attractive as compared to other alternative fuel options.

49. A separate EIA is required under the EIAO to assess the potential cumulative environmental impacts arising from the repowering/conversion of L4/L5 and G5/G7 taking into account other existing and committed generation units. The use of light gas oil during gas disruptions has been covered in HEC's EIA for the Lamma Extension. A further EIA would however be needed if LNG could not be made available for the commissioning of L9 and light gas oil has to be used as a stop-gap measure for an extended period of time.

50. The construction of a LNG pipeline to Hong Kong by HEC might open up opportunities for utilizing natural gas as an alternative fuel

in other areas such as for motor vehicles, heating and cooking. This has the potential of bringing additional environmental benefits to Hong Kong.

51. We are examining the opportunity to maximise the use of public fill in the reclamation for the Lamma Extension. This should have environmental benefits by reducing the amount of public fill going into our landfills.

PUBLIC CONSULTATION

52. HEC has previously consulted the Islands and Southern Provisional District Boards on the Lamma Extension. They had no adverse comments. The Advisory Council on the Environment has been consulted and endorsed the EIA for the Lamma Extension conducted by HEC's consultants. The Energy Advisory Committee has been consulted on HEC's Financial Plan, particularly its key capital expenditure items including the Lamma Extension. The Committee endorsed these items but some members emphasized that when the land grant document in respect of the Lamma Extension was prepared in future, it would be necessary to incorporate adequate provisions to ensure that the land would be used for power generation and related purposes only.

PUBLICITY

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

ENQUIRIES

54. Enquiries relating to this Brief should be directed to Mr Howard Lee, Principal Assistant Secretary for Economic Services at telephone number 2810 2128.

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