

***China Light and Power Black Point Project:
The Government's Monitoring of
Electricity Supply Companies***

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CONTENTS

	<i>Page</i>
Executive Summary	
Part 1 - Introduction	1
Background	1
Objective, Scope and Methodology	1
Part 2 - Considerations taken into Account by the Administration in Assessing CLP's Demand Forecasts in 1992	2
Introduction	2
Development of the Manufacturing Sector in the 1980s	2
Development of CLP's Black Point Project	16
Part 3 - Purchase and Sale of Electricity of CLP	27
Introduction	27
<i>Summary of Findings</i>	27
Different Sources of Electricity Generated/Purchased by CLP	28
<i>Electricity Obtained in Hong Kong</i>	28
<i>Electricity Obtained from the Mainland</i>	28
Customers of CLP	30
Comparative Analysis on Purchase and Sale of Electricity between CLP and the Mainland	31
<i>Sale of Electricity to the Mainland</i>	31
<i>Electricity Purchased from and Sold to the Mainland</i>	33
Part 4 - CLP's Participation in the Daya Bay Nuclear Power Station Project	35
Background of the Daya Bay Project	35
Views of the Government, the Community and CLP on CLP's Participation in the Daya Bay Project	36
References	43

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EXECUTIVE SUMMARY

1. Available Legislative Council (LegCo) records show that when approval was given in December 1992 for additional generating facilities to be developed at Black Point, Burns & Roe (independent consultants) and the Administration had examined carefully the sales forecast and forecast of maximum demand for Hong Kong produced by China Light and Power (CLP) and concluded that they were reasonable. Although the Government took two and a half years between 1990 and 1992 to consider proposals from CLP, it was not clear how the Government conducted its demand forecasts in assessing CLP's proposals.
2. The manufacturing sector in Hong Kong began to shrink since the 1980s. The proportion of electricity distributed to the industrial sector dropped from 37% of total electricity supplied in 1980 to 22% in 1992. Between 1980 and 1992, except for the printing and publishing industry, all key industries in the manufacturing sector experienced a decline. In this period, the number of establishments in the manufacturing sector decreased by 5.8% from over 45 000 to 42 000 and the number of persons engaged dropped by 38% from 0.91 million to 0.56 million.
3. Two-thirds of the electricity sold by CLP in Hong Kong are generated at Castle Peak Power Company Limited (CAPCO), of which 40% is owned by CLP. The remaining one-third of electricity sold by CLP in Hong Kong is purchased from Guangdong Nuclear Power Station (GNPS) at Daya Bay. The amount purchased from Daya Bay is equivalent to about 70% of its output as a contractual obligation of CLP between 1994 and 2014. However, this purchase is not regulated by the Scheme of Control Agreement between CLP and the Hong Kong Government.
4. CLP also sells electricity to neighbouring Guangdong Province and Shekou. Sales to the Mainland increased since 1990 and peaked in 1993, after which it fell dramatically. The increase in sales was due to increased demand and the substantial drop was brought about by the commissioning of additional generating facilities in Guangdong Province. In the past three years, CLP's sales of electricity to the Mainland accounted for about 7% of its purchase of nuclear electricity from the Mainland. In 1998, CLP's non-Scheme of Control revenue from sales of electricity was \$0.3 billion while CLP's Scheme of Control revenue from sales of electricity was \$22.5 billion.
5. The Government reported that it did not take into account CLP's sales to the Mainland when assessing CLP's proposals for the Black Point Project in December 1992.

CHINA LIGHT AND POWER BLACK POINT PROJECT: THE GOVERNMENT'S MONITORING OF ELECTRICITY SUPPLY COMPANIES

PART 1 – INTRODUCTION

1. Background

1.1 At the meeting of the Public Accounts Committee (PAC) held on 21 July 1999 to consider Chapter 5 “The Government’s Monitoring of Electricity Supply Companies” of the Director of Audit’s Report No. 32, the Research and Library Services Division (RLS) was asked to provide information on the considerations which the Administration took into account in assessing China Light and Power (CLP)’s demand forecasts in 1992 when approval was given for additional generating facilities to be developed at Black Point. In this connection, PAC would also like to find out (a) the different sources of electricity generated/purchased by CLP and the different customers of CLP; (b) the unit cost of electricity generated by CLP in Hong Kong and the distribution and transmission costs of the nuclear electricity purchased from the Mainland; and (c) whether CLP or the Administration was aware of the fact that establishments in the manufacturing sector were relocating from Hong Kong to China when CLP decided to participate in the Daya Bay project.

2. Objective, Scope and Methodology

2.1 The objective of the research is to find out from available Legislative Council (LegCo) documents information relating to the request detailed in paragraph 1.1 above.

2.2 This research involves a combination of information collection, document review, correspondence and analysis.

2.3 This research report comprises three parts: Part 2 provides information on the considerations which the Administration took into account in assessing CLP’s demand forecasts in 1992 when approval was given for additional generating facilities to be developed at Black Point; Part 3 gives an overall picture as well as a breakdown of the different sources of electricity generated/purchased by CLP and the different customers of CLP; Part 4 provides information on considerations taken into account for CLP’s participation in the Daya Bay project. We have not been able to find appropriate information for calculating the unit cost of electricity generated by CLP in Hong Kong and the distribution and transmission costs of the nuclear electricity purchased from the Mainland.

PART 2 - CONSIDERATIONS TAKEN INTO ACCOUNT BY THE ADMINISTRATION IN ASSESSING CLP'S DEMAND FORECASTS IN 1992

3. Introduction

3.1 RLS went through all relevant LegCo papers and CLP's annual reports to look up information which shows the considerations that the Administration took into account in assessing CLP's demand forecast in 1992.

3.2 We found that these documents only contained information on the development and the Government's approval of the Black Point project, but they did not show how the government conducted its demand forecasts in 1992. It only recorded that *Burns & Roe and the Administration had examined carefully the sales forecast and forecast of maximum demand for Hong Kong produced by CLP and concluded that they were reasonable.* It was also clear from the documents that the Government would not release the information because they considered it as commercially sensitive.

4. Development of the Manufacturing Sector in the 1980s

4.1 Since there are indications from the CLP's annual reports¹ that the demand for electricity by the textile industry has decreased since 1980, therefore it becomes necessary to find out the state of development of the manufacturing sector in the 1980s and early 1990s. The following analysis shows that the manufacturing sector in Hong Kong commenced shrinking since the 1980s.

4.2 Table 1 and Figure 1 show the proportion of electricity distributed by all power companies² to various sectors between 1980 and 1998. In 1980, electricity distributed to the industrial sector accounted for 37.4% of total amount of electricity distributed. However, the proportion decreased to 21.6% in 1992.

¹ Chairman's Review, CLP Annual Report 1980-1982

² Before 1 January 1984, there were three electricity suppliers in Hong Kong, namely, CLP, Hong Kong Electric Company Limited and Cheung Chau Electric Company. After 1 January 1984, CLP took over Cheung Chau Electric Company; since then, there remained only two electricity suppliers in Hong Kong.

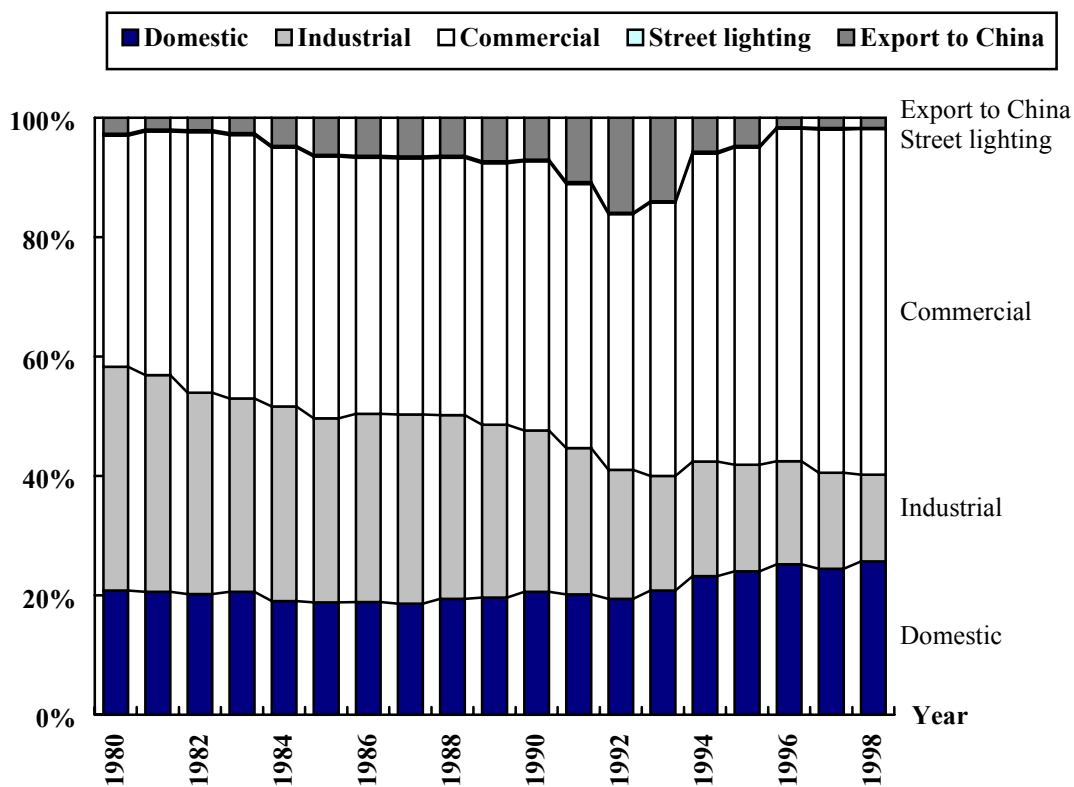
Table 1 – Proportion of Electricity Distributed to Various Sectors by Power Companies in Hong Kong 1980-1998 (%)

Year	Domestic	Industrial	Commercial	Street lighting	Export to China	Total
1980	20.8	37.4	38.7	0.3	2.7	100.0
1981	20.6	36.3	40.8	0.3	2.0	100.0
1982	20.2	33.7	43.6	0.3	2.1	100.0
1983	20.6	32.4	44.1	0.3	2.6	100.0
1984	19.0	32.6	43.3	0.3	4.7	100.0
1985	18.8	30.8	43.8	0.3	6.2	100.0
1986	18.9	31.5	42.9	0.3	6.4	100.0
1987	18.6	31.7	42.9	0.3	6.5	100.0
1988	19.4	30.8	43.1	0.3	6.4	100.0
1989	19.6	29.0	43.8	0.3	7.3	100.0
1990	20.6	27.0	45.1	0.3	7.0	100.0
1991	20.2	24.5	44.3	0.3	10.8	100.0
1992	19.4	21.6	42.8	0.2	15.9	100.0
1993*	20.8	19.2	45.8	0.2	14.0	100.0
1994	23.2	19.2	51.6	0.3	5.7	100.0
1995	24.0	17.9	53.1	0.3	4.7	100.0
1996	25.2	17.2	55.7	0.2	1.6	100.0
1997	24.5	16.1	57.5	0.3	1.7	100.0
1998	25.7	14.5	57.9	0.2	1.7	100.0

Remark : * The classification of commercial and industrial customers has been changed in 1993.

Sources : Hong Kong Annual Report 1981-1998, Chapter on Lands, Public works and Utilities

Figure 1 - Proportion of Electricity Distributed to Various Sectors by Power Companies in Hong Kong 1980-1998



Sources: Ibid.

4.3 The growth rate of the demand for electricity in the industrial sector experienced a downward trend from the highest +13.7% in 1986 to the lowest -7.8% in 1993 (Table 2 and Figure 2). One possible reason for the decrease during this period was the decrease in the number of establishments and persons engaged in the manufacturing industry, as shown in Table 3 and Table 4.

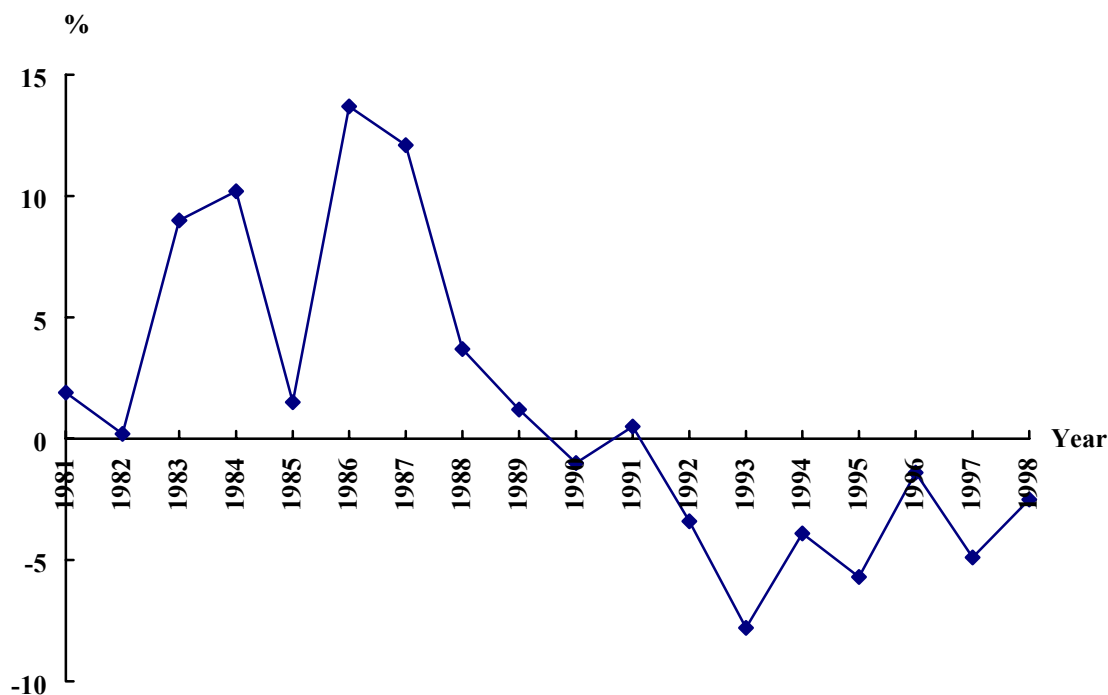
Table 2 – Growth Rate of Electricity Distributed to the Industrial Sector by Power Companies in Hong Kong 1980-1998

Year	Million megajoules	Growth rate (%)
1980	15 125	7.1
1981	15 406	1.9
1982	15 436	0.2
1983	16 820	9.0
1984	18 543	10.2
1985	18 819	1.5
1986	21 391	13.7
1987	23 979	12.1
1988	24 876	3.7
1989	25 178	1.2
1990	24 934	-1.0
1991	25 051	0.5
1992	24 194	-3.4
1993*	22 309	-7.8
1994	21 437	-3.9
1995	20 222	-5.7
1996	19 934	-1.4
1997	18 965	-4.9
1998	18 489	-2.5

Remark : * The classification of commercial and industrial customers has been changed in 1993.

Sources : Hong Kong Annual Report 1981-1998, Chapter on Lands, Public works and Utilities

Figure 2 – Growth Rate of Electricity Distributed to the Industrial Sector by Power Companies in Hong Kong 1980-1998



Sources: Ibid.

4.4 In the 1980s, the key industries in Hong Kong included the manufacturing of wearing apparels, textiles, plastic products, fabricated metal products, printing and publishing. Over 60% of total number of establishments in the manufacturing sector belonged to these categories and they employed over 70% of the workers in the manufacturing sector. Since then, except for the printing and publishing industry, there was a drop in the number of establishments and persons engaged in these industries. Between 1980 and 1992, the total number of establishments in the manufacturing sector decreased by 5.8% from 45 025 to 42 411 (Table 3) and the number of persons engaged decreased by 37.7% from 907 463 to 565 137 (Table 4). Such decrease indicated that there was a possibility that the manufacturing industry in Hong Kong was shrinking.

Table 3 - Number of Establishments in Selected Industries 1980-1997

Year	Wearing apparels, except footwear		Textiles		Plastic products		Fabricated metal products, except machinery and equipment		Printing, publishing & allied industries		All manufacturing industries	
	No.	% change	No.	% change	No.	% change	No.	% change	No.	% change	No.	% change
1980	8 654	0.1	4 970	6.8	4 939	5.7	7 519	2.6	2 654	8.0	45 025	6.5
1981	9 805	13.3	4 865	-2.1	5 431	10.0	7 747	3.0	2 874	8.3	47 996	6.6
1982	9 107	-7.1	4 854	-0.2	5 021	-7.5	7 119	-8.1	2 930	1.9	46 448	-3.2
1983	9 004	-1.1	4 737	-2.4	5 041	0.4	6 458	-9.3	2 809	-4.1	45 576	-1.9
1984	9 396	4.4	4 971	4.9	5 336	5.9	6 715	4.0	3 102	10.4	48 038	5.4
1985	8 559	-8.9	4 555	-8.4	5 031	-5.7	6 360	-5.3	3 246	4.6	45 915	-4.4
1986	8 798	2.8	4 809	5.6	5 506	9.4	6 243	-1.8	3 282	1.1	46 816	2.0
1987	9 126	3.7	5 196	8.0	5 605	1.8	6 696	7.3	3 574	8.9	49 403	5.5
1988	8 890	-2.6	5 188	-0.2	5 599	-0.1	6 727	0.5	3 765	5.3	49 843	0.9
1989	9 116	2.5	5 366	3.4	5 553	-0.8	6 497	-3.4	3 998	6.2	50 566	1.5
1990	8 139	-10.7	5 308	-1.1	5 015	-9.7	6 471	-0.4	4 415	10.4	49 449	-2.2
1991	6 914	-15.1	4 786	-9.8	4 290	-14.5	5 799	-10.4	4 388	-0.6	44 388	-10.2
1992	6 346	-8.2	4 429	-7.5	3 792	-11.6	5 388	-7.1	4 829	10.1	42 411	-4.5
1993	5 123	-19.3	3 888	-12.2	2 956	-22.0	4 850	-10.0	4 651	-3.7	36 847	-13.1
1994	4 093	-20.1	3 843	-1.2	2 551	-13.7	4 375	-9.8	4 801	3.2	33 863	-8.1
1995	3 585	-12.4	3 223	-16.1	2 303	-9.7	3 883	-11.2	4 755	-1.0	30 761	-9.2
1996	2 956	-17.5	2 704	-16.1	2 020	-12.3	3 355	-13.6	4 850	2.0	27 412	-10.9
1997	2 542	-14.0	2 698	-0.2	1 619	-19.9	3 190	-4.9	4 847	-0.1	25 724	-6.2

Remark : Up to 4th quarter 1990, figures are analyzed by the International Standard Industrial Classification (ISIC). As from March 1991, the Hong Kong Standard Industrial Classification (HSIC) is adopted for the classification of economic activities in place of ISIC. Figures from 1st quarter 1991 onwards are not strictly comparable to those in the past.

Sources : Hong Kong Annual Digest of Statistics 1990 edition, table 3.11, p.36; 1994 edition, table 3.10, p.33; 1996 edition, table 2.9, p.18 and 1998 edition, table 2.9, p.18

Table 4 – Number of Persons Engaged in Selected Industries 1980-1997

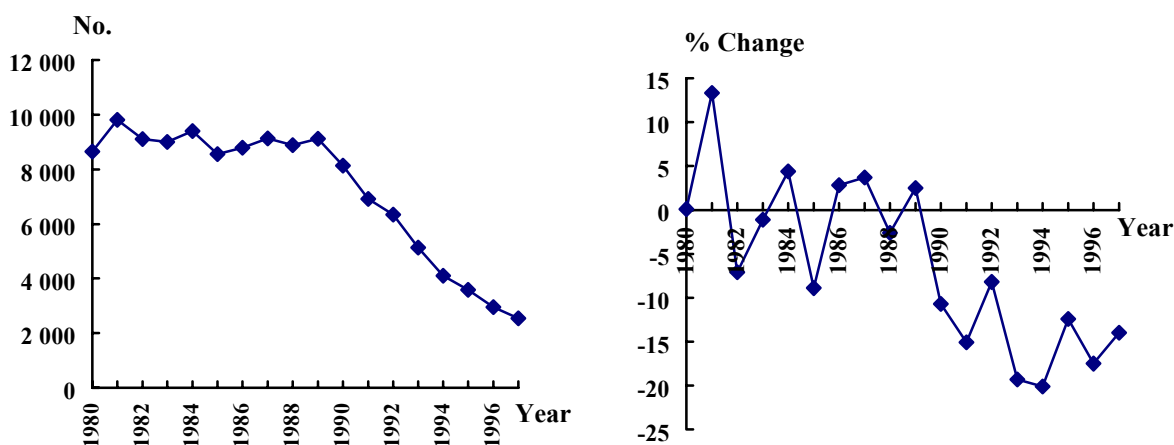
Year	Wearing apparels, except footwear		Textiles		Plastic products		Fabricated metal products, except machinery and equipment		Printing, publishing & allied industries		All manufacturing industries	
	No.	% change	No.	% change	No.	% change	No.	% change	No.	% change	No.	% change
1980	263 682	4.9	127 609	0.7	86 064	2.0	84 240	0.7	27 266	8.5	907 463	4.2
1981	259 709	-1.5	122 623	-3.9	89 131	3.6	82 419	-2.2	28 513	4.6	905 899	-0.2
1982	257 257	-0.9	111 871	-8.8	80 749	-9.4	70 820	-14.1	28 477	-0.1	847 194	-6.5
1983	253 307	-1.5	111 344	-0.5	81 076	0.4	66 134	-6.6	27 357	-3.9	855 417	1.0
1984	268 938	6.2	117 356	5.4	90 620	11.8	66 709	0.9	29 554	8.0	898 947	5.1
1985	264 569	-1.6	110 606	-5.8	82 517	-8.9	61 773	-7.4	30 809	4.2	847 615	-5.7
1986	263 428	-0.4	116 334	5.2	87 703	6.3	62 329	0.9	32 049	4.0	865 614	2.1
1987	258 221	-2.0	119 081	2.4	77 963	-11.1	60 800	-2.5	32 718	2.1	867 947	0.3
1988	247 557	-4.1	116 509	-2.2	70 145	-10.0	59 720	-1.8	35 800	9.4	837 072	-3.6
1989	237 345	-4.1	113 487	-2.6	59 248	-15.5	54 670	-8.5	35 351	-1.3	791 519	-5.4
1990	209 499	-11.7	100 353	-11.6	51 509	-13.1	51 495	-5.8	37 577	6.3	715 597	-9.6
1991	181 174	-13.5	94 073	-6.3	39 793	-22.7	43 607	-15.3	38 791	3.2	629 170	-12.1
1992	155 579	-14.1	81 914	-12.9	32 005	-19.6	38 715	-11.2	40 988	5.7	565 137	-10.2
1993	127 824	-17.8	71 465	-12.8	24 257	-24.2	33 231	-14.2	40 160	-2.0	483 628	-14.4
1994	96 981	-24.1	67 751	-5.2	19 233	-20.7	27 411	-17.5	42 029	4.7	423 015	-12.5
1995	80 222	-17.3	58 789	-13.2	14 511	-24.6	24 435	-10.9	43 505	3.5	375 766	-11.2
1996	63 779	-20.5	47 658	-18.9	14 134	-2.6	19 496	-20.2	43 729	0.5	325 068	-13.5
1997	53 172	-16.6	40 790	-14.4	10 292	-27.2	17 706	-9.2	44 642	2.1	288 887	-11.1

Remark : Up to 4th quarter 1990, figures are analyzed by the International Standard Industrial Classification (ISIC). As from March 1991, the Hong Kong Standard Industrial Classification (HSIC) is adopted for the classification of economic activities in place of ISIC. Figures from 1st quarter 1991 onwards are not strictly comparable to those in the past.

Sources : Hong Kong Annual Digest of Statistics 1990 edition, table 3.12, p.37; 1994 edition, table 3.11, p.34; 1996 edition, table 2.9, p.18 and 1998 edition, table 2.9, p.18

4.5 If one looks at a breakdown of the manufacturing sector by industrial groups, one can see that four out of the five key industries in Hong Kong were shrinking during the 1980s. Figure 3 shows the number and the growth rate of establishments which manufacture wearing apparels between 1980 and 1997. The number of establishments decreased by 26.7% from 8 654 in 1980 to 6 346 in 1992.

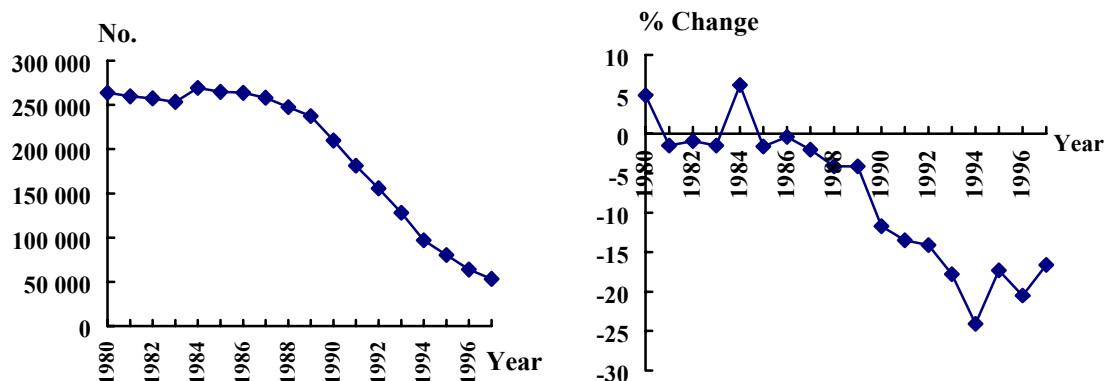
Figure 3 - Number of Establishments in the Manufacturing of Wearing Apparels Industry 1980-1997



Sources: Same as in Table 3

4.6 Figure 4 shows the number and the growth rate of the persons engaged in the manufacturing of wearing apparels between 1980 and 1997. The number of persons engaged dropped by 41.0% from 263 682 to 155 579.

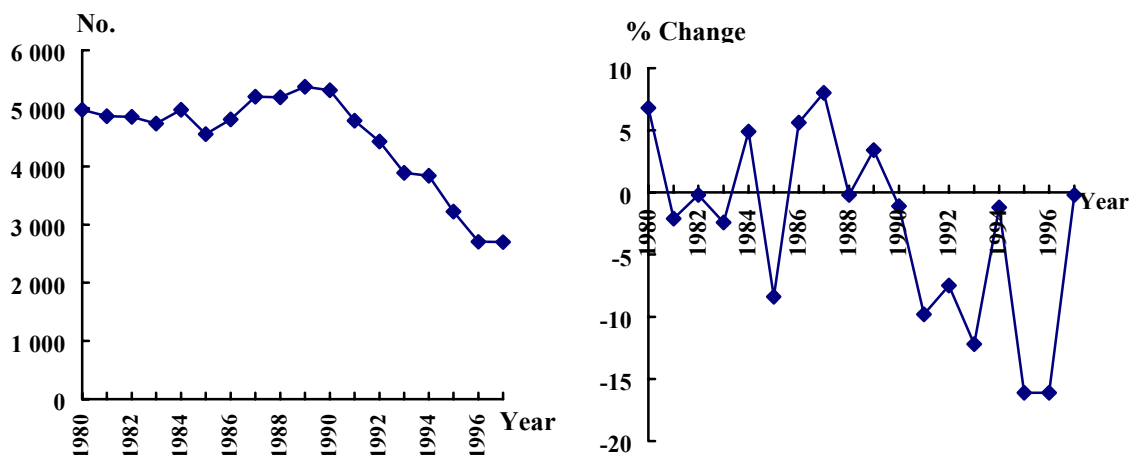
Figure 4 - Number of Persons Engaged in the Manufacturing of Wearing Apparels Industry 1980-1997



Sources: Same as in Table 4

4.7 Figure 5 shows the number and the growth rate of establishments in the textile industry between 1980 and 1997. The number of establishments decreased by 10.9% from 4 970 in 1980 to 4 429 in 1992.

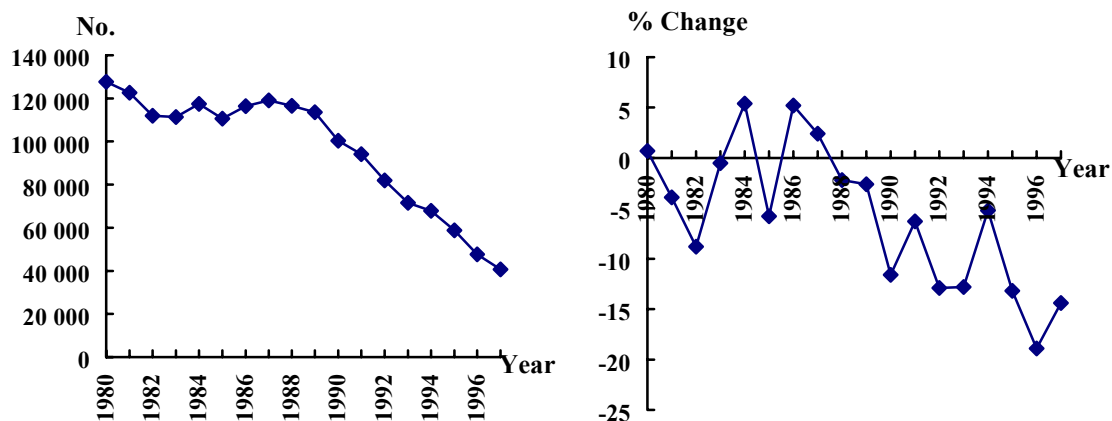
Figure 5 - Number of Establishments in the Textile Industry 1980-1997



Sources: Same as in Table 3

4.8 Figure 6 shows the number and the growth rate of the persons engaged in the textile industry between 1980 and 1997. The number of persons engaged decreased by 35.8% from 127 609 in 1980 to 81 914 in 1992.

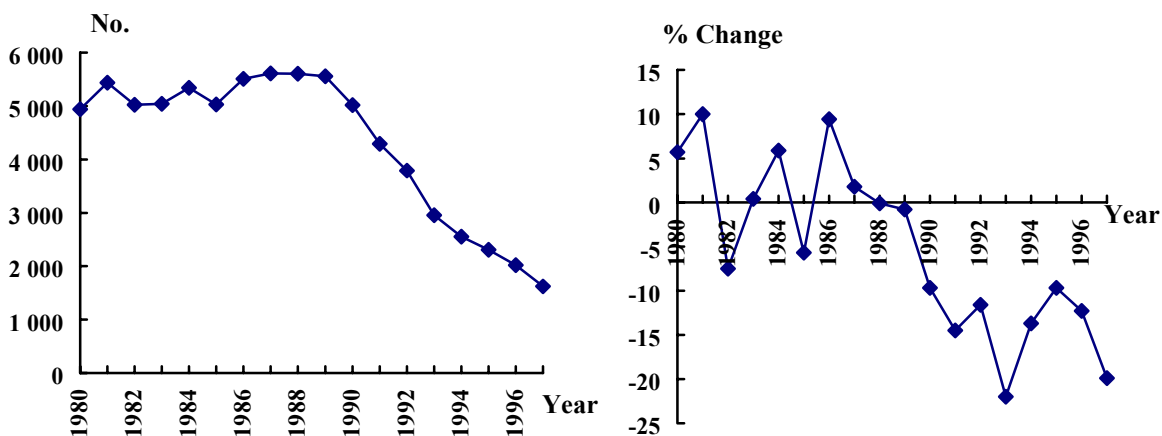
Figure 6 - Numbers of Persons Engaged in the Textile Industry 1980-1997



Sources: Same as in Table 4

4.9 Figure 7 shows the number and the growth rate of establishments in the plastics industry between 1980 and 1997. The number of establishments decreased by 23.2% from 4 939 in 1980 to 3 792 in 1992.

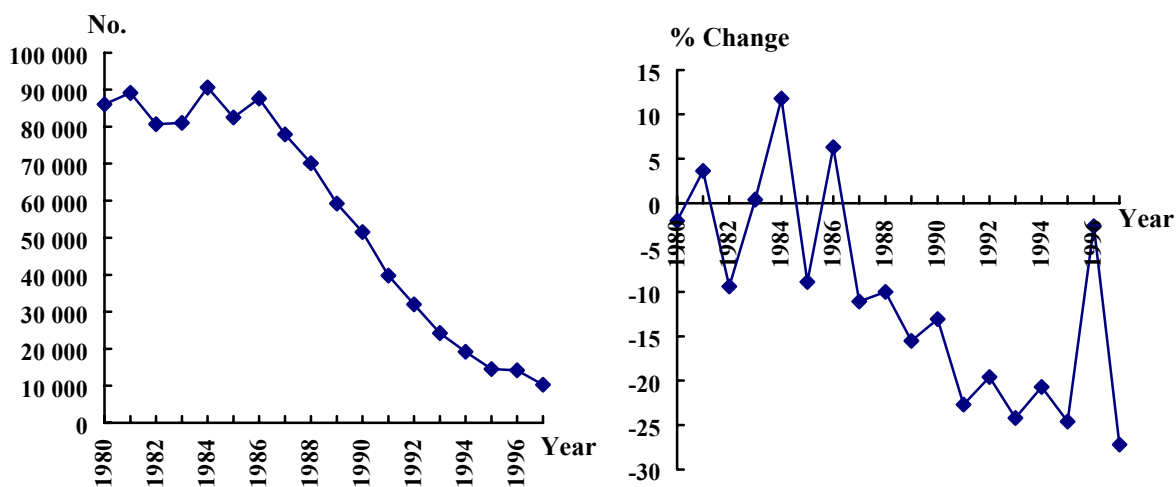
Figure 7 - Number of Establishments in the Plastics Industry 1980-1997



Sources: Same as in Table 3

4.10 Figure 8 shows the number and the growth rate of the persons engaged in the plastics industry between 1980 and 1997. The number of persons engaged decreased drastically by 62.8% from 86 064 in 1980 to 32 005 in 1992.

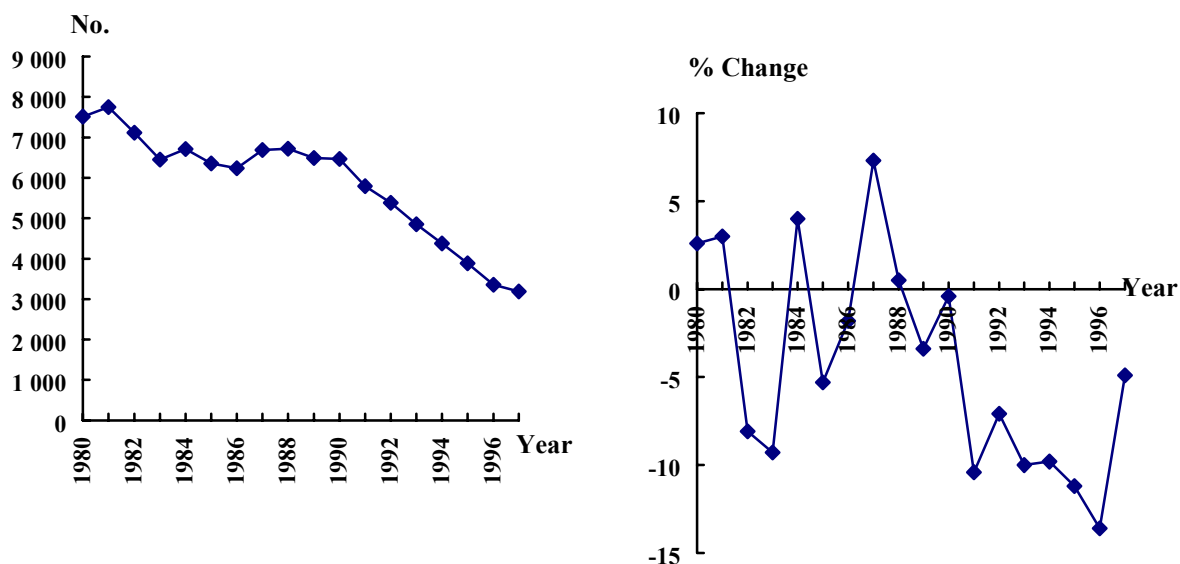
Figure 8 - Numbers of Persons Engaged in the Plastics Industry 1980-1997



Sources: Same as in Table 4

4.11 Figure 9 shows the number and the growth rate of establishments in the fabricated metal industry between 1980 and 1997. The number of establishments decreased by 28.3% from 7 519 in 1980 to 5 388 in 1992.

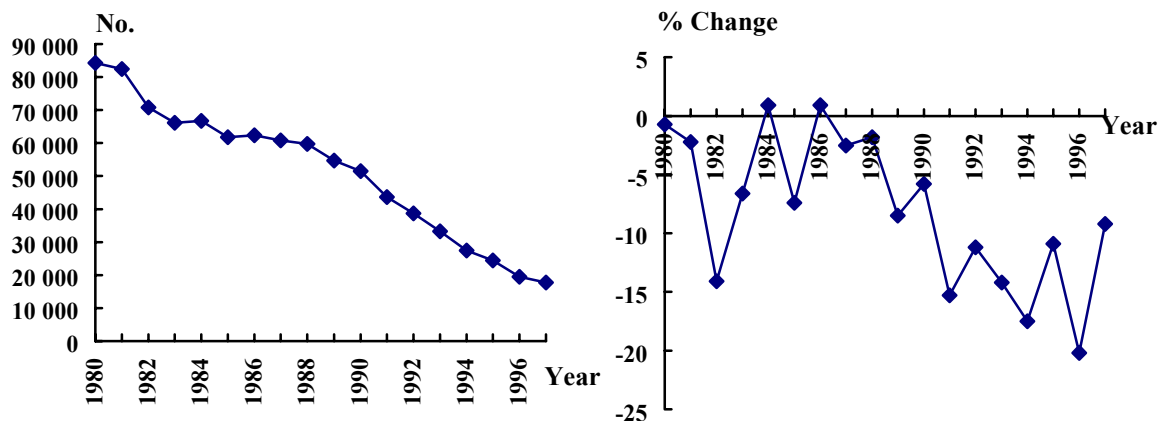
Figure 9 - Number of Establishments in the Fabricated Metal Industry 1980-1997



Sources: Same as in Table 3

4.12 Figure 10 shows the number and the growth rate of the persons engaged in the fabricated metal industry between 1980 and 1997. The number of persons engaged decreased by 54.0% from 84 240 in 1980 to 38 715 in 1992.

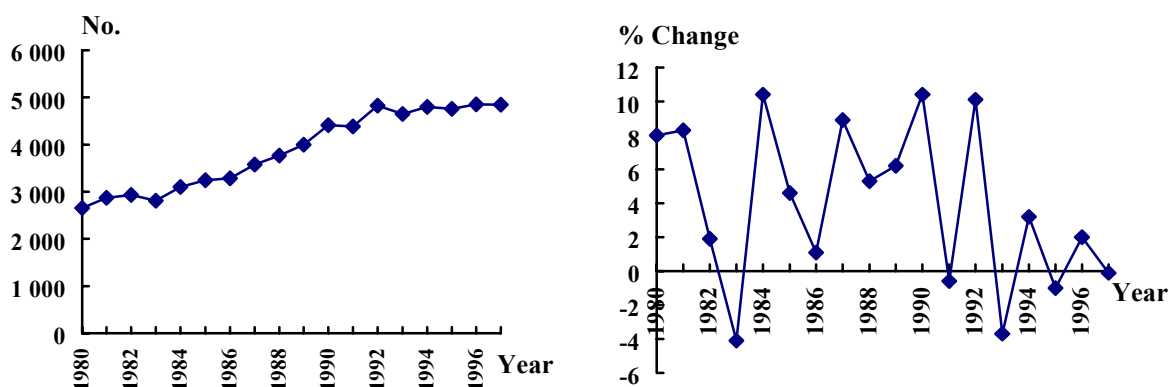
Figure 10 - Numbers of Persons Engaged in the Fabricated Metal Industry 1980-1997



Sources: Same as in Table 4

4.13 Figure 11 shows the number and the growth rate of establishments in the printing and publishing industry between 1980 and 1997. In the whole analysis, this is the only key industry that experienced a substantial growth by 82.0% from 2 654 in 1980 to 4 829 in 1992.

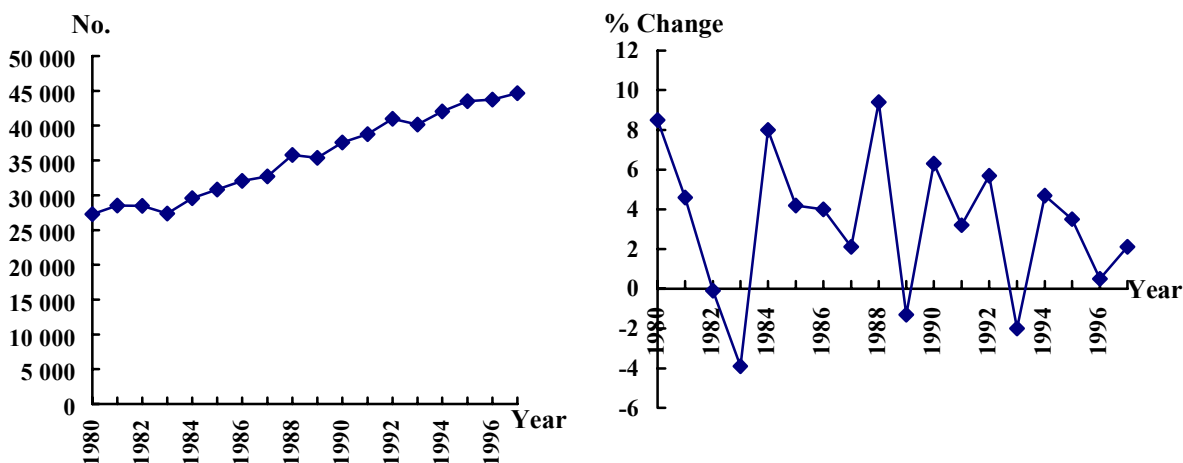
Figure 11 - Number of Establishments in the Printing and Publishing Industry 1980-1997



Sources: Same as in Table 3

4.14 Figure 12 shows the number and the growth rate of the persons engaged in the printing and publishing industry between 1980 and 1997. The number of persons engaged also increased by 50.3% from 27 266 in 1980 to 40 988 in 1992.

Figure 12 - Numbers of Persons Engaged in the Printing and Publishing Industry 1980-1997



Sources: Same as in Table 4

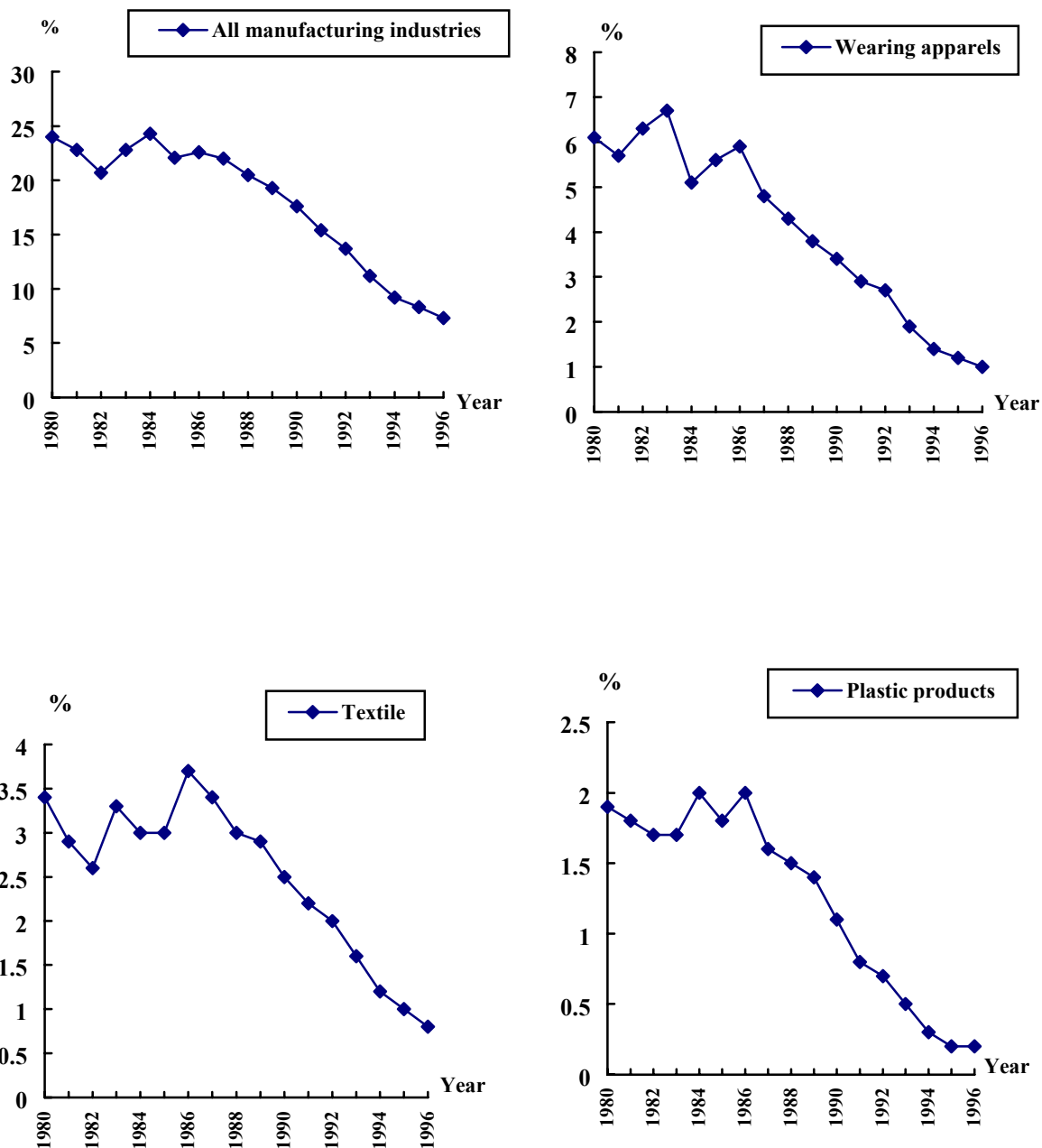
4.15 To further illustrate the significance of the above industries in the economy, Table 5 and Figure 13 present the economic contributions of these industries to Gross Domestic Product (GDP). In 1980, economic contributions by the manufacture of wearing apparels, textile and plastics accounted for 6.2%, 3.4% and 1.9% of GDP at factor cost respectively. It slid to 2.7%, 2.0% and 0.7% respectively in 1992. (Information on economic contributions by fabricated metal, printing and publishing industries is not available). One can conclude that the relative contribution made by all manufacturing industries to the Hong Kong economy has shrunk by almost half between 1980 and 1992.

Table 5 - Economic Contribution of Selected Industries to GDP 1980 - 1996

Year	All manufacturing industries		Wearing apparels		Textile		Plastic products	
	HK\$m	%	HK\$m	%	HK\$m	%	HK\$m	%
1980	30,549	23.8	7,880	6.1	4,387	3.4	2,383	1.9
1981	36,049	22.8	9,057	5.7	4,594	2.9	2,923	1.8
1982	36,390	20.7	9,600	6.3	4,537	2.6	2,919	1.7
1983	44,140	22.8	11,132	6.7	6,409	3.3	3,252	1.7
1984	58,329	24.3	12,908	5.1	7,297	3.0	4,705	2.0
1985	56,192	22.1	12,169	5.6	7,512	3.0	4,666	1.8
1986	66,836	22.6	14,251	5.9	10,993	3.7	6,058	2.0
1987	80,713	22.0	17,480	4.8	12,583	3.4	5,935	1.6
1988	90,035	20.5	17,502	4.3	12,930	3.0	6,480	1.5
1989	96,170	19.3	18,812	3.8	14,302	2.9	6,788	1.4
1990	98,352	17.6	18,924	3.4	14,051	2.5	5,923	1.1
1991	97,223	15.4	18,424	2.9	14,009	2.2	5,238	0.8
1992	99,764	13.6	19,540	2.7	14,800	2.0	4,824	0.7
1993	92,582	11.2	16,011	1.9	13,180	1.6	3,804	0.5
1994	87,354	9.2	13,515	1.4	11,595	1.2	2,495	0.3
1995	84,770	8.3	12,255	1.2	10,179	1.0	2,380	0.2
1996	82,448	7.3	11,004	1.0	9,470	0.8	2,280	0.2

Sources : Hong Kong Annual Digest of Statistics 1991 edition, Table 4.6, p.57; Table 7.8, p.118
 Hong Kong Annual Digest of Statistics 1994 edition, Table 4.6, p.53; Table 7.8, p.117
 Hong Kong Annual Digest of Statistics 1995 edition, Table 4.2, p.54
 Hong Kong Annual Digest of Statistics 1996 edition, Table 4.2, p.58; Table 17.8, p.307
 Hong Kong Annual Digest of Statistics 1997 edition, Table 4.4, p.58; Table 17.8, p.314
 Hong Kong Annual Digest of Statistics 1998 edition, Table 4.4, p.58; Table 17.8, p.313

Figure 13 - Economic Contribution of Selected Industries to GDP 1980 -1996



Sources : Ibid.

5. Development of CLP's Black Point Project

5.1 The Government took two and a half years between 1990 and 1992 to consider proposals from CLP before it gave approval for additional power generation facilities to be installed at Black Point. In the process, Economic Services Branch engaged Burns and Roe Company, independent consultants, to assist in assessing CLP's proposals.

5.2 In July 1990, CLP submitted proposals for developing power generation facilities up to 1999 to meet forecast increases in demand for electricity. These identified a need for the construction of a new large thermal power station, the first generating unit of which would need to be commissioned in 1996.

5.3 In October 1991, the Governor in Council approved in principle the reservation of a site at Black Point for CLP to develop a new large thermal power station. Further approval would be sought from Executive Council (ExCo) regarding the overall generation strategy once CLP had finalized a financing plan.

5.4 According to the Secretary for Economic Services (Mrs. Anson CHAN in December 1991), the approval for reserving a site at Black Point for CLP to develop a power station was made in the light of recommendations of two studies. The first study was a technical assessment of the proposals contained in CLP's Generation Development Plan for the period 1990-1999 (undertaken with the assistance of overseas expert consultants) which examined CLP's forecast of growth in demand for electricity during this period and the best development strategy for meeting this demand. The other study was a site search study, the purpose of which was to identify the most suitable site for this project.

5.5 Based on the first study, that is, the technical assessment which examined CLP's demand forecast and the best development strategy, the Government was satisfied that in order to safeguard a reliable supply of electricity, it was necessary for CLP to develop a new power station in the mid 1990s.

5.6 As far as public consultation was concerned, the Government did not publish the first study report because it contained commercially sensitive information supplied to the Government by CLP on a confidential basis. The Government only consulted the Tuen Mun District Board and the Heung Yee Kuk regarding the site search report and on the environmental impact assessment study.

5.7 In early 1992, CLP recommended a generation development plan to the Government and also finalized a corresponding financing plan for 1992 to 1999. Burns and Roe recommended the adoption of the generation development plan because they considered it economically attractive and provided significant environmental benefits to Hong Kong. In making this recommendation, Burns and Roe had considered CLP's forecast of demand amongst other considerations. The Government concurred with Burns and Roe's recommendation and concluded that CLP's forecast of demand was reasonable. The Governor in Council approved on 15 December 1992 CLP's proposals for additional generating facilities (i.e. Black Point Project) and financing plan for 1992 to 1999. We have not been able to find from existing LegCo records information on how the Government conducted its demand forecast.

5.8 Table 6 lists the extracts from available LegCo documents relating to the development of the Black Point Project. Table 7 presents the discussions on the considerations taken into account by the Government in assessing CLP's 1992 demand forecasts by LegCo Members. Table 8 shows CLP's comments on the demand for electricity by the manufacturing sector from 1980 to 1984. For information on the demand for electricity by the manufacturing sector after 1984, please refer to the Information Note – Relocation of the Manufacturing Sector Outside Hong Kong in the 1980s and the early 1990s (IN 1/98-99).

Table 6 – Extracts from Available LegCo Documents Relating to the Development of the Black Point Project

Date	Extract	Source of Information
07/90	CLP submitted proposals for generation development up to 1999.	LegCo Brief, “CLP Proposals for Additional Generation Facilities and Financing Plan for 1992 to 1999” prepared by Economic Services Branch 21/12/92
01/10/91	The Council ADVISED and the Governor ORDERED that approval in principle should be given for the reservation of a site of approximately 120 hectares at Black Point for the development of a new power station by CLP.	LegCo Brief, “CLP Proposals for Additional Generation Facilities and Financing Plan for 1992 to 1999” prepared by Economic Services Branch 21/12/92
13/11/91	“Even if there is only a 1% error margin in the company’s (CLP) forecast of electricity consumption, we can see that the consumers will have to make up for the huge profit discrepancies.”	Speech made by the Hon. LAU Chin-Shek on the motion “Control Schemes and Franchise Agreements with Public Utility and Public Transport Companies”, Hong Kong Hansard, 13/11/91

Date	Extract	Source of Information
13/11/91	<p>I also emphasized the vital importance of ensuring continued investment in the power supply industry given that demand continues to increase and that the current investment climate is not altogether favourable. Hong Kong's international credit rating was downgraded from A2 in 1989 and is now A3, the same as Malaysia, but below that of many of our competitors such as Thailand, Singapore and Korea.</p> <p>Mr Deputy President, let me stress that the Administration has conducted these negotiations [with CLP on a new SCA] conscientiously and with the interests of consumers very much in the forefront of our mind. We were certainly aware of the public concerns relating to this particular SCA, ...</p> <p>Another concern of which we were aware was that by linking the rate of permitted return to the average value of net fixed assets the SCA appears to reward over-investment. I believe this concern is misplaced, for under the terms of the agreements the companies are required to justify to Government in great detail the assumptions behind their demand forecasts and the development plans they consider necessary to meet that demand. These plans are very carefully scrutinized not only by government officials, but also by independent overseas consultants to ensure that the most cost-effective and economical generating plan is selected. Nevertheless, as a further safeguard the new SCA will incorporate amendment which help to ensure that assets are not replaced prematurely and that alternatives such as refurbishment to extend the life of assets are fully considered.</p>	<p>Speech made by Secretary for Economic Services (Mrs. Anson CHAN) on the motion "Control Schemes and Franchise Agreements with Public Utility and Public Transport Companies", Hong Kong Hansard, 13/11/91</p>

Date	Extract	Source of Information
04/12/91	<p>“..... This decision (Executive Council’s (ExCo) approval to reserve a site at Black Point for construction of a power station) was taken in the light of the recommendations in two studies.</p> <p>The first study: a technical assessment of the proposals contained in China Light and Power’s Generation Development Plan for the period 1990-1999 (undertaken with the assistance of overseas expert consultants) examined the Company’s forecast of growth in demand for electricity during this period and the best development strategy for meeting this demand. <i>On the basis of this study the Government is satisfied that in order to safeguard a reliable supply, it is necessary for CLP to construct a new large thermal power station some time in the latter half of this decade.</i></p> <p>A second study was carried out to identify the most suitable site for the new power station The consultants recommended, however, that the cumulative air quality impact of the proposed station and the existing Castle Peak Power Station should be subject to further detailed assessment in a full environmental impact assessment.”</p> <p>“As far as public consultation is concerned, <i>it is not intended to publish the first study report</i> as it contains commercially sensitive information supplied to Government by the Company on a confidential basis. Regarding the site search report, the Tuen Mun District Board and the Heung Yee Kuk have been consulted on the results of the study..... These organizations will be consulted further in the course of the environmental impact assessment study which is currently in progress. A final decision on the construction of the power station will be taken when the environmental impact has been fully assessed.”</p>	Written answer by Secretary for Economic Services (Mrs. Anson CHAN) to Question raised by Rev. the Hon. FUNG Chi-Wood, Hong Kong Hansard, 04/12/91

Date	Extract	Source of Information
18/12/91	<p>“No Financing Review has yet been submitted by the Companies for the first phase of Black Point; therefore Government does not have any projections of future tariff levels.”</p> <p>“All proposals put forward by the Companies (CLP & its associates) will be subject to rigorous scrutiny by the Administration, with the assistance of international consultants, to ensure that consumers continue to receive an efficient and reliable electricity supply at a reasonable cost.”</p>	Answer by Secretary for Economic Services (Mrs. Anson CHAN) to Question raised by the Hon. TAM Yiu-Chung, Hong Kong Hansard, 18/12/91
15/12/92	<p>At the meeting of the ExCo on 15 December 1992, the Council ADVISED and the Governor ORDERED that</p> <p>a) CLP’s proposal to install two 600 MW combined cycle generating units in a new power station at Black Point and commission them in 1996 and 1997 respectively should be accepted;</p> <p>b) The commissioning by CLP of two further 600 MW combined cycle generating units in the period 1998 to 2001 should be accepted, subject to further studies being carried out to determine their optimum location and years of commissioning within the periods 1998 to 2000 for the third unit and 1999 to 2001 for the fourth unit.</p>	LegCo Brief, “CLP Proposals for Additional Generation Facilities and Financing Plan for 1992 to 1999” prepared by Economic Services Branch, 21/12/92
21/12/92	CLP’s proposals had been considered carefully (by the Government) with the assistance of independent consultants Burns & Roe Company of the United States, who had performed many previous energy-related assignments for the Government.	LegCo Brief, “CLP Proposals for Additional Generation Facilities and Financing Plan for 1992 to 1999” prepared by Economic Services Branch, 21/12/92

Date	Extract	Source of Information
21/12/92	<i>Burns & Roe and the Administration had examined carefully the sales forecast and forecast of maximum demand for Hong Kong produced by CLP and concluded that they are reasonable.</i>	LegCo Brief, "CLP Proposals for Additional Generation Facilities and Financing Plan for 1992 to 1999" prepared by Economic Services Branch, 21/12/92
21/12/92	Burns & Roe concluded that the Modified Gas Option (MGO), the generation development plan was an economically attractive plan which provided fairly significant environmental benefits. <i>They recommended its adoption. The Administration concurred with their recommendation</i> but felt it was necessary to maintain some flexibility over the location and timing of the third and fourth combined cycle units.	LegCo Brief, "CLP Proposals for Additional Generation Facilities and Financing Plan for 1992 to 1999" prepared by Economic Services Branch, 21/12/92
21/12/92	CLP had given a general briefing on its generation proposals and the intention to use natural gas to the OMELCO Panels on Economic Services and Public Utilities and Environmental Affairs.	LegCo Brief, "CLP Proposals for Additional Generation Facilities and Financing Plan for 1992 to 1999" prepared by Economic Services Branch, 21/12/92
02/05/95	"Mr. Gordon Siu (Secretary for Economic Services) added that the forecasting of reserve margin was dependent on a lot of variables which changed over time. The Administration could only rely on what information was available at the time of review, such as economic factors, previous pattern of power consumption, etc."	Notes of Meeting, LegCo Panel on Economic Services, 02/05/95

Date	Extract	Source of Information
19/03/97	<p>“One of the main factors that lead to the actual electricity demand turning out to be lower than the forecast is that the manufacturing industry has declined much more rapidly than that assumed in 1992. I do not intend to comment on whether or not the blame of inaccurate forecast should be put on the Government.”</p> <p>“Before the CLP made the commercial decision of investing in building a new power plant, it naturally had to make forecast on electricity demand. Facts now prove that the forecast at that time was inaccurate. As a responsible public utility company, the CLP should definitely shoulder the responsibility to the society for the commercial decision it made and take appropriate measures to protect the interests of its customers.”</p> <p>“I hope that the CLP and the Castle Peak Power Company Limited can come to a decision as soon as possible and bear the responsibility for the consequences of their overestimating the electricity demand back then, I hope that they would give a satisfactory explanation to the customers and the community so that their long-standing good reputation can be maintained.”</p>	Speech by Secretary for Economic Services (Mr. Stephen IP) on the motion “CLP’s Excess Generating Capacity and the Scheme of Control Agreement”, Hong Kong Hansard, 19/03/97

Note: Sentences in bold and italics are emphases added to the original quote.

Table 7 – Discussions on the Considerations Taken into Account by the Government in Assessing CLP's 1992 Demand Forecasts by LegCo Members

Date	Extract	Source of Information
19/03/97	“The CLP attributed its erroneous forecasts of growth in electricity demand made in 1992 to its under-estimation of the pace of northbound movement of factories from Hong Kong..... While being responsible for monitoring the operation and development of the CLP on behalf of consumers, the Government also has access to the latest figures concerning the industrial transformation in Hong Kong and the northbound movement of its factories.”	Speech made by the Hon. CHAN Kam-Lam on the motion “CLP’s Excess Generating Capacity and the Scheme of Control Agreement”, Hong Kong Hansard, 19/03/97
19/03/97	“In 1992 the CLP estimated that the power consumption of the industrial sector would grow by 0.9% but the actual growth rate saw a drop of 4.8%. The CLP blamed the Government for its misleading information. All along I have doubted that the CLP still failed to foresee the moving of our manufacturing industries to China in 1992 and expected that power consumption would increase simply because they did not review the situation at that time and allowed the Black Point project to proceed in full gear.”	Speech made by the Hon. Henry TANG on the motion “CLP’s Excess Generating Capacity and the Scheme of Control Agreement”, Hong Kong Hansard, 19/03/97
19/03/97	“In fact, the manufacturing sector had largely moved to China by 1992. An example is the dyeing industry, which accounts for a large consumption of electricity and water. The number of dyeing factories decreased from 1100 to 100 or so within a decade.”	Speech made by the Hon. CHOY Kan-Pui on the motion “CLP’s Excess Generating Capacity and the Scheme of Control Agreement”, Hong Kong Hansard, 19/03/97
19/03/97	“The Government should review its mechanism as to what exactly had led to her (Mrs. Anson CHAN) making such a seriously wrong decision in 1992.” “At the meeting of the Economic Services Panel, there was an absurd incident in which the CLP claimed that they had already given information to the Government but the Government said that it had not received it and both sides tangled upon this matter.”	Speech made by the Hon. SIN Chung-Kai on the motion “CLP’s Excess Generating Capacity and the Scheme of Control Agreement”, Hong Kong Hansard, 19/03/97

Date	Extract	Source of Information
02/12/98	“.....CLP’s estimation of 6% to 7% annual growth rate in the electricity demand at its highest point was seriously on the extreme high side. The Honourable LAU Chin-Shek even pointed out specifically that a 1% error in the CLP’s estimation would lead to exorbitant extra tariffs to be borne by the consumers. Making no response at all to our query, the Government completely endorsed the CLP’s development plan.”	Speech made by the Hon. LEE Cheuk-Yan on the motion “The Government’s Scheme of Control Agreements with the Two Power Companies”, Hong Kong Hansard, 02/12/98

Table 8 -CLP’s Comments on the Demand for Electricity by the Manufacturing Sector from 1980 to 1984*

Date	Extract	Source of Information
1980	While demand for electricity by domestic and commercial consumers and most industrial undertakings continued to increase at a satisfactory rate, sales to the spinning and weaving sector of the textile industry reflected a decrease of 4.6% as compared to 1979. This decrease is of particular significance because sales to that sector account for approximately 13% of your Company’s total sales.	<u>Chairman’s (Sir Lawrence Kadoorie) Review</u> , CLP Annual Report 1980, p.6
1981	Sales to domestic and service industry consumers continued to expand with increases of 6.6% and 13.9% respectively being recorded. However, sales to manufacturing industries showed an increase of only 3.0%, the low rate of growth being due principally to a substantial reduction in demand by the spinning and weaving sector of the textile industry – an indication of the difficulties currently being experienced by that industry.	<u>Chairman’s (The Lord Kadoorie) Review</u> , CLP Annual Report 1981, p.7

Date	Extract	Source of Information
1982	Although increases were recorded in all three sectors – domestic, service industries and manufacturing industries – the overall sales growth was below that budgeted due to a number of factors, the principal ones being: the continuing decrease in demand for electricity by the spinning and weaving sector of the textile industry;.....	<u>Chairman's (The Lord Kadoorie) Review, CLP Annual Report 1982, p.7</u>
1983	Sales to manufacturing industries also showed an upward trend throughout the year..... This progressive increase in sales to the manufacturing industries is most encouraging and indicates a resumption of overall economic growth in that sector. I am also pleased to report an increase in demand by the spinning and weaving sector of the textile industry. Although this increase is small, it is the first growth recorded for this industry in many years. On one hand our industries are prospering, on the other hand, there is uncertainty and a general reluctance to invest in our long-term future.	<u>Chairman's (The Lord Kadoorie) Review, CLP Annual Report 1983, p.6-7 and p.13</u>
1984	It is particularly pleasing to record a continued improvement in demand by the spinning and weaving sector of the textile industry. Although this improvement is modest, it indicates a possible resumption of economic growth in that industry. Significant increases in demand were recorded in the electronics and in the leather, rubber and plastic manufacturing sectors.	<u>Chairman's (The Lord Kadoorie) Review, CLP Annual Report 1984, p.7</u>

Remark: * For information on the demand for electricity by the manufacturing sector after 1984, please refer to the Information Note – Relocation of the Manufacturing Sector Outside Hong Kong in the 1980s and the early 1990s (IN 1/98-99).

PART 3 - PURCHASE AND SALE OF ELECTRICITY OF CLP

6. Introduction

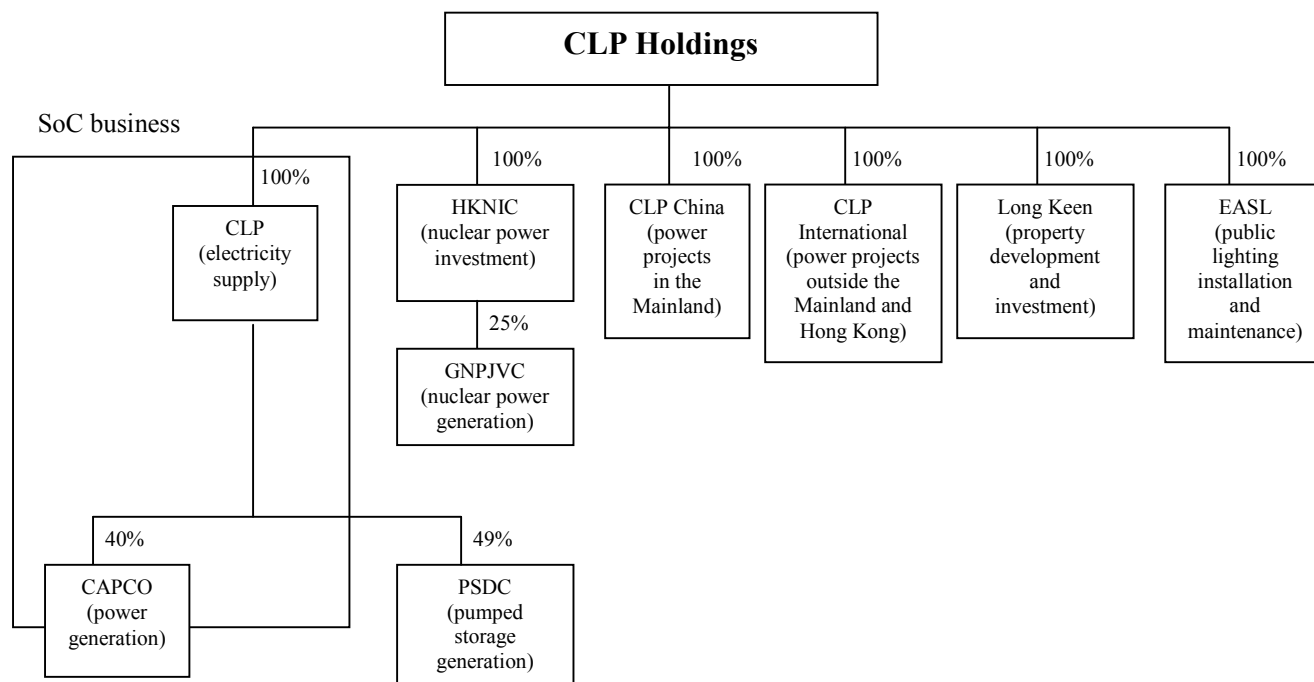
6.1 This part presents different sources of electricity generated/purchased by CLP and the different customers of CLP.

6.2 Available LegCo records show that the Government did not take into account CLP's sales to the Mainland when assessing CLP's proposals for the Black Point Project.³

Summary of Findings

6.3 CLP operates an electricity utility business in Hong Kong which is regulated by a Scheme of Control (SoC) Agreement.⁴ Figure 14 shows the corporate structure of the CLP Group.

Figure 14 - Corporate Structure of the CLP Group



Source : CLP Annual Report 1997, p.8

³ Legislative Council Brief prepared by Economic Services Branch on 21 December 1992.

⁴ The Scheme of Control Agreement requires CLP to seek the Government's approval for certain aspects of its financing plans, including projected tariff levels.

6.4 CLP supplies electricity to its Hong Kong customers through Castle Peak Power Company Limited (CAPCO), of which it owns 40% share. Two-thirds of the electricity sold by CLP in Hong Kong are generated at CAPCO. The remaining one-third of electricity sold by CLP in Hong Kong is purchased from Guangdong Nuclear Power Station at Daya Bay. CLP also sells electricity to neighbouring Guangdong Province and Shekou, but this amount to only 2.4% of CLP's total sales of electricity in 1998.

7. Different Sources of Electricity Generated/Purchased by CLP

7.1 CLP supplies electricity to its customers in Hong Kong through CLP's generating plants in Hong Kong and the Mainland.

Electricity Obtained in Hong Kong

7.2 In Hong Kong, CLP obtains its electricity from CAPCO. CAPCO is a power generating company owned by CLP (40% share) and Exxon Energy Limited (60% share). Under the Electricity Supply Contract between CLP and CAPCO, CLP is obliged to purchase all the electricity generated by CAPCO.

7.3 In 1998, CAPCO supplies electricity to CLP from its Black Point (1 875 MW), Castle Peak (4 168 MW) and Penny's Bay (300 MW) power stations, with the total installed capacity being 6 343 MW.

Electricity Obtained from the Mainland

7.4 CLP also has contractual share in two power stations in the Mainland, namely, the Guangdong Nuclear Power Station (GNPS) and the Guangzhou Pumped Storage Power Station (GPS). According to the contract, CLP is obliged to purchase electricity from these stations. Nevertheless, GPS only provides an energy storage service at off-peak period for re-generation during the on-peak period; the electricity obtained is not directly sold and charged to CLP's Hong Kong customers.

Purchases from Guangdong Nuclear Power Station

7.5 CLP is obliged to purchase a total of 70% of the power produced by the GNPS. GNPS at Daya Bay is constructed and operated by the Guangdong Nuclear Power Joint Venture Company, Limited (GNPJVC). In this project, CLP through its wholly owned subsidiary, Hong Kong Nuclear Investment Company Limited (HKNIC), owns 25% equity interest while Guangdong Nuclear Investment Company (GNIC), a PRC government-owned enterprise, owns the remaining 75%. CLP is obliged to purchase its 25% equity share of GNPJVC's power output and an additional 45% of such power output as resale from the GNIC for 20 years from 1994 until 2014.

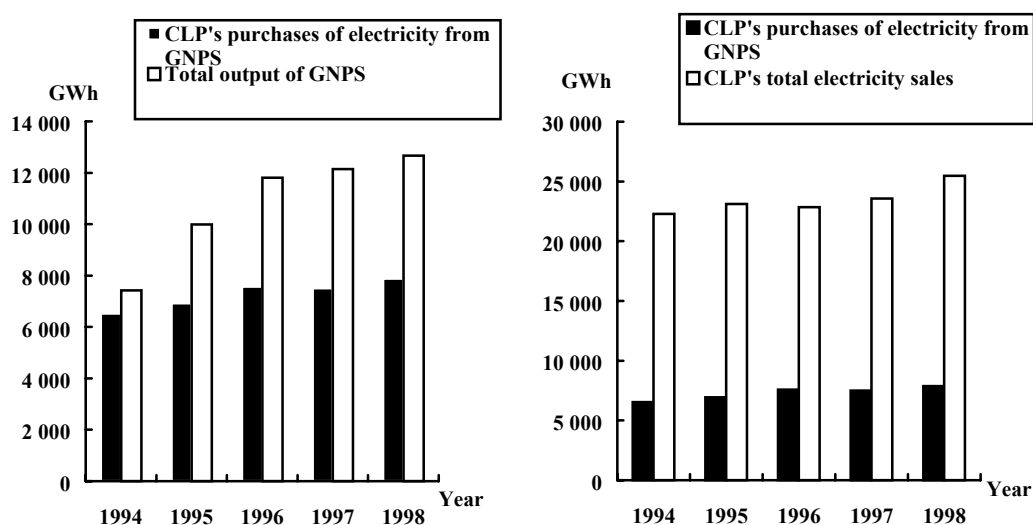
7.6 Table 9 and Figure 15 show the purchases of nuclear electricity from GNPS between 1994 and 1998.⁵ During this period, total purchases increased by 21% from 6 528 GWh to 7 888 GWh; and in each year, purchases of nuclear electricity accounted for one-third of CLP's total electricity sales in Hong Kong.

Table 9 – Purchases of Nuclear Electricity from Guangdong Nuclear Power Station 1994-1998

Year	Purchases of electricity from GNPS (a)	Total output of GNPS (b)	(a) / (b)	CLP's total sales of electricity (d)	(a) / (d)
	GWh	GWh	%	GWh	%
1994	6 528	7 429	87.9	22 297	29.3
1995	6 931	9 992	69.4	23 116	30.0
1996	7 575	11 805	64.2	22 839	33.2
1997	7 509	12 145	61.8	23 574	31.9
1998	7 888	12 669	62.2	25 482	31.0

Sources : CLP
CLP Annual Report 1994, p.27; 1995, p.33; 1996, p.22; 1997, p.19; 1998, p.26, p.80-81

Figure 15 – Purchases of Nuclear Electricity from Guangdong Nuclear Power Station 1994-1998



Sources : Ibid.

⁵ Guangdong Nuclear Power Station commenced operation in 1994.

8. Customers of CLP

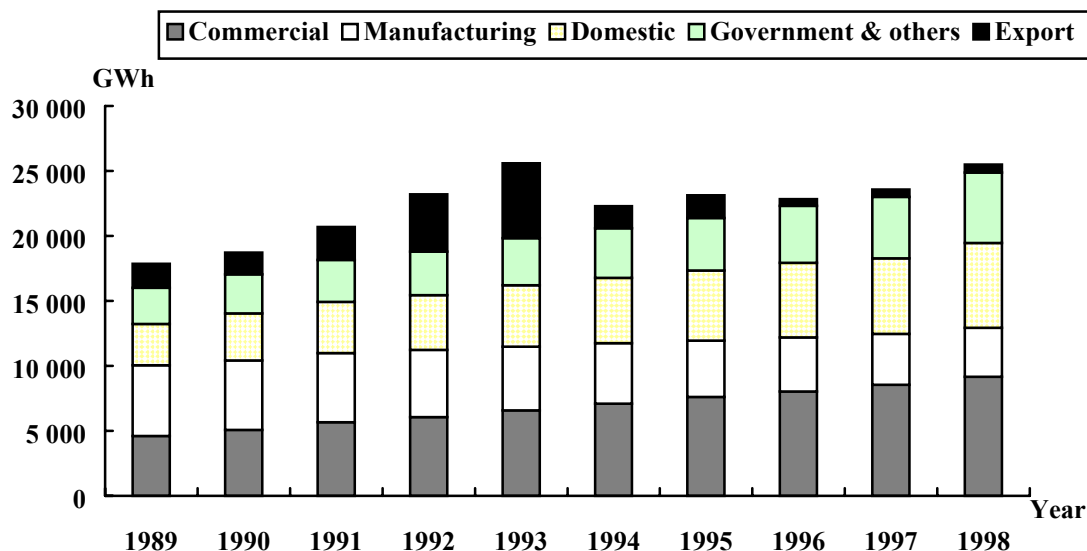
8.1 CLP supplies electricity to customers in Hong Kong and the Mainland. In Hong Kong, CLP supplies electricity to Kowloon and the New Territories. In the Mainland, CLP has an agreement with Guangdong Electric Power Holding Company (GPHC) under which CLP supplies electricity to Guangdong Province. CLP also has contractual agreement with China Merchants Steam Navigation Company Limited under which CLP supplies electricity to Shekou industrial zone and the adjacent Chi Wan area. Such sales are made from existing reserve generating capacity and are governed by an agreement with the Government, signed in March 1992, under which CLP's consumers receive priority of supply and 80% of the profit from the sales.

8.2 Table 10 and Figure 16 show CLP's sales of electricity to its customers between 1989 and 1998. During this period, sales to the commercial and residential sectors doubled from 4 611 GWh and 3 169 GWh to 9 157 GWh and 6 524 GWh respectively while sales to the manufacturing sector and the Mainland decreased by two-thirds from 5 440 GWh and 1 846 GWh to 3 776 GWh and 601 GWh respectively.

Table 10 – CLP's Sales of Electricity to Various Customers 1989-1998 (GWh)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Commercial	4 611	5 064	5 658	6 071	6 567	7 096	7 603	8 038	8 542	9 157
Manufacturing	5 440	5 351	5 328	5 170	4 915	4 654	4 344	4 162	3 928	3 776
Domestic	3 169	3 617	3 951	4 195	4 733	5 024	5 382	5 723	5 811	6 524
Government & others	2 792	3 012	3 219	3 368	3 607	3 808	4 059	4 395	4 736	5 424
Local	16 012	17 045	18 156	18 805	19 822	20 583	21 388	22 318	23 017	24 881
Export	1 846	1 679	2 542	4 387	5 777	1 714	1 728	520	557	601
Total	17 858	18 723	20 698	23 191	25 598	22 297	23 116	22 839	23 574	25 482

Source : CLP Annual Report 1998, p.80-81

Figure 16 – CLP's Sales of Electricity to Various Customers 1989-1998 (GWh)

Source : Ibid.

8.3 The decline in the demand for electricity by the manufacturing sector between 1989 and 1998 was due to the relocation of factories outside of Hong Kong.⁶ The decrease in demand for electricity in the Mainland since 1994 was brought about by the commissioning of additional generating facilities and the availability of hydro electricity generation in the Guangdong Province.⁷

9. Comparative Analysis on Purchase and Sale of Electricity between CLP and the Mainland

Sale of Electricity to the Mainland

9.1 Early in April 1979, the electricity distribution system of CLP was connected to that of Guangdong Electric Company (the present GPHC) for CLP to supply approximately 50 MW (equivalent to one million units a day) of electricity to Guangdong Province. In 1985, CLP also signed an agreement with China Merchants Steam Navigation Company Limited to supply electricity to Shekou industrial zone and the adjacent Chi Wan area for 20 years commenced November 1986.

⁶ CLP Annual Report 1998, p.19

⁷ CLP Annual Report 1994, p.13

9.2 Table 11 and Figures 17 show the amount of electricity CLP sold to the Mainland between 1989 and 1998.

9.3 Two trends are quite clear from Table 11. Sales of electricity to the Mainland increased since 1990 and peaked in 1993, after which it fell dramatically. In 1998, the volume of sales of 601 GWh was only 10% of that in 1993. According to CLP's annual reports, the rapid growth of electricity sales to the Mainland between 1991 and 1993 was due to the addition of new supply circuits which strengthened CLP's ability to deliver electricity to Guangdong General Power Company (the present GPHC). It was also due to the migration of Hong Kong's manufacturing business into southern China.⁸ Another reason was that the rapid infrastructure and economic development in Guangdong Province led to an increase in demand for electricity.⁹ The substantial drop in sales to China which commenced 1994 was brought about by the commissioning of additional generating facilities and the availability of hydro electricity generation in the Guangdong Province as discussed in paragraph 8.3.

Table 11 – Sales of Electricity to the Mainland 1989-1998 (GWh)

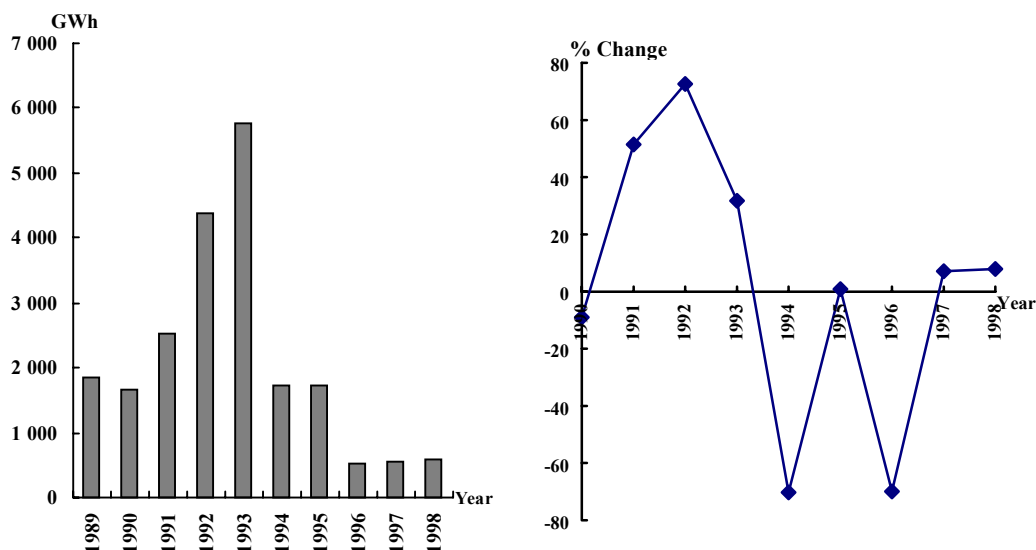
Year	Sales to the Mainland	% Growth
1989	1 846	Not available
1990	1 679	-9.0
1991	2 542	51.4
1992	4 387	72.6
1993	5 777	31.7
1994	1 714	-70.3
1995	1 728	0.8
1996	520	-69.9
1997	557	7.1
1998	601	7.9

Source : CLP Annual Report 1998, p.80-81

⁸ CLP Annual Report 1991, p.12, 1992, p.14

⁹ CLP Annual Report 1993, p.20

Figure 17 – Sales of Electricity to the Mainland 1989-1998 (GWh)



Source: Ibid.

Electricity Purchased from and Sold to the Mainland

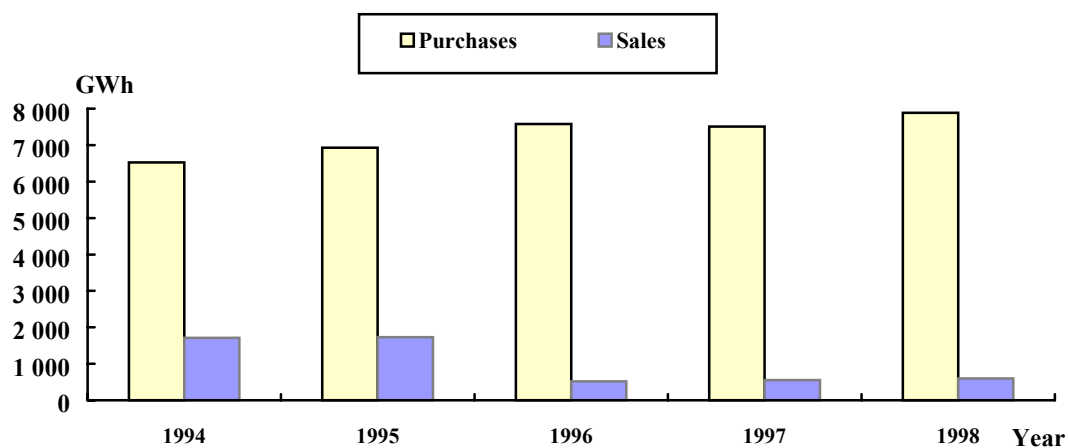
9.4 Since electricity is both purchased from Daya Bay and sold to Guangdong Province and Shekou, it might be useful to make a comparison of the purchase and sale. Table 12 and Figure 18 show the amount of electricity purchased and sold to the Mainland between 1994 and 1998. Sales to the Mainland accounted for one-fourth of purchase from the Mainland in 1994 and 1995. However, the proportion dropped substantially since 1996. In the past three years, CLP’s sales of electricity to the Mainland accounted for about 7% of its purchase of nuclear electricity from the Mainland. In 1998, CLP’s non-Scheme of Control revenue from sales of electricity was \$0.3 billion while CLP’s Scheme of Control revenue from sales of electricity was \$22.5 billion.¹⁰ One can see that sales of electricity to the Mainland is not the most important business of CLP.

¹⁰ CLP Annual Report 1998

**Table 12 - Electricity Purchased from and Sold to the Mainland by CLP
1994-1998 (GWh)**

Year	Sales to the Mainland (a)	Purchases from GNPS (b)	% of Sales to Purchases (a) / (b)
1994	1 714	6 528	26.3
1995	1 728	6 931	24.9
1996	520	7 575	6.9
1997	557	7 509	7.4
1998	601	7 888	7.6

Sources : CLP
CLP Annual Report 1998, p80-81

**Figure 18 - Electricity Purchased from and Sold to the Mainland by CLP
1994-1998 (GWh)**

Sources: Ibid.

PART 4 - CLP's PARTICIPATION IN THE DAYA BAY NUCLEAR POWER STATION PROJECT

10. Background of the Daya Bay Project

10.1 In 1980, the Guangdong Power Company and CLP agreed to conduct a joint study on the viability of constructing a nuclear power station in Guangdong to supply electricity to both the Province and Hong Kong. In late 1982, the Chinese Government completed its review of the feasibility study and announced its decision to proceed with the development of the nuclear power station at Daya Bay. In November 1983, the Hong Kong Government announced its endorsement of the purchase of electricity to be generated by the nuclear station and CLP's participation in the project. The station comprised of two 985 MW pressurized water reactors and these two units were put into commercial operation in February and May 1994 respectively.

10.2 The nuclear power station was built and operated by the Guangdong Nuclear Power Joint Venture Company (GNPJVC) in which the Guangdong Nuclear Investment Company (GNIC) has 75% interest and the Hong Kong Nuclear Investment Company (HKNIC), a wholly-owned subsidiary of CLP, has a 25% interest. Thus, CLP is obliged to purchase its 25% equity share of GNPJVC's power output. According to the contractual agreement, CLP should also purchase an additional 45% of such power output as resale from the GNIC for 20 years from 1994 until 2014. As such, CLP is obliged to purchase a total of 70% of the power produced by the nuclear power station.

11. Views of the Government, the Community and CLP on CLP's Participation in the Daya Bay Project

11.1 Information on CLP's participation in the development of a nuclear power station in Daya Bay and the purchase of electricity from this station is found in Hong Kong Hansard and CLP's annual reports. The following is a summary of the information available in LegCo papers showing the views of the Government, the community and CLP on CLP's participation in the Daya Bay Project.

1. To maintain the confidence of foreign investors;
2. Nuclear generation cheaper than coal-fired generation;
3. To meet consumer demand in the 1990s;
4. China able to obtain a lower cost of export financing as a result of CLP's participation;
5. Capping on the selling price of electricity which was less than the cost of coal-fired electricity for six years;
6. To dampen the effect of fuel shortage or price fluctuations;
7. To assist China to implement its modernization programmes;
8. Since the capital assets of Daya Bay plant were outside the scope of Scheme of Control, they were not counted as a base for calculating the permitted return and should have no effect on the tariff; and
9. No need to raise initial capital to finance the construction of another power plant to meet expected increasing demand for electricity in the 1990s.

11.2 Table 13 contains the views of the Government regarding CLP's participation in the Daya Bay Project. Table 14 presents the discussions on CLP's participation in the Daya Bay Project by LegCo Members. Table 15 and Table 16 list the views of the GNPJVC and CLP respectively on CLP's participation in the Daya Bay Project.

11.3 It should be noted that there was no information in available LegCo records to show that the CLP's participation in the Daya Bay Project was to facilitate the manufacturing sector which had been relocating from Hong Kong to China during the 1980s.

Table 13 – Views of the Government on CLP's Participation in the Daya Bay Project

Date	Extract	Source of Information
07/05/86	“A statement was made to LegCo on 9 November 1983 on the commercial and fiscal issues related to the Daya Bay Project. In particular, Government was concerned that these arrangements should be such that the purchase of nuclear power would indeed prove to be an attractive option for Hong Kong.”	Answer by Financial Secretary (Sir John Henry Bremridge) to Question raised by Mr. Martin LEE on Daya Bay Nuclear Power Station, Hong Kong Hansard, 07/05/86
16/07/86	“..... at the time the joint venture agreement was announced there was a clear understanding of its importance, and in most quarters support for this tangible evidence of co-operation between all the parties concerned. It augured well for the future.”	Speech made by Financial Secretary (Mr. Piers Jacobs) on the motion “The Hong Kong and Daya Bay Nuclear Power Project”, Hong Kong Hansard, 16/07/86
15/10/86	<p>“One of the main considerations that we took into account was the potential cost and financing of a new coal-fired station in Hong Kong. Large sums of money would have been involved and there might well have been difficulties in obtaining investment of that magnitude without considerable financial strain.”</p> <p>“The share of Hong Kong Nuclear Investment Company (HKNIC) in the Daya Bay nuclear power station will not constitute part of the CLP group of companies net fixed assets for the purpose of calculating permitted return under the provisions of the Scheme of Control.”</p> <p>“..... the reasons why the nuclear option was chosen. Following a comprehensive joint feasibility study undertaken by CLP and the Guangdong Power Corporation it was concluded that the joint development of a nuclear power station in Guangdong was both technically and financially feasible.”</p>	Speech made by Financial Secretary (Mr. Piers Jacobs) on the motion “Daya Bay Nuclear Power Plant”, Hong Kong Hansard, 15/10/86

Date	Extract	Source of Information
15/10/86	<p>“After a year of intense negotiations, additional benefits for consumers were secured. These included: concessionary tax rates for the project; the introduction of a flexibility provision concerning the purchase of electricity, should demand be less than that forecast; and, for the larger part of the electricity to be bought, a ceiling on the price that would be paid during the first six years. It was on the basis of these successful negotiations that the Government, in January 1985, indicated to CLP and HKNIC that it had no objection to their entering into the contractual arrangements that had been agreed for the formation of the joint venture company, and the purchase of electricity from the project.”</p>	Ibid.

Table 14 – Discussions on CLP’s Participation in the Daya Bay Project by LegCo Members

Date	Extract	Source of Information
16/07/86	<p>“I trust that in the years leading up to and during the Sino-British negotiation on the future of Hong Kong, the fact that the Guangdong Nuclear Power Joint Company is investing US\$400 million on this project helped to maintain the confidence of foreign investors in Hong Kong.”</p>	Speech made by the Hon. Maria TAM on the motion “The Hong Kong and Daya Bay Nuclear Power Project”, Hong Kong Hansard, 16/07/86
16/07/86	<p>“According to the latest financial calculations it is probable by 1996, electricity generated by nuclear power will cost 24% less to produce than by way of coal fire, given some assumptions of inflation and coal prices.”</p> <p>“Another attraction of the project is the ability of China to obtain lower cost in export financing.”</p>	Speech made by the Hon. CHAM Yau-Sum on the motion “The Hong Kong and Daya Bay Nuclear Power Project”, Hong Kong Hansard, 16/07/86

Date	Extract	Source of Information
16/07/86	“The relevant joint venture contracts provide that electricity to be purchased from the Guangdong Nuclear Investment Company cannot exceed the cost of coal-burnt electricity for the first six years of the nuclear plant’s operation.”	Ibid.
16/07/86	<p>“..... the price of nuclear power is cheaper and more stable, and with its high degree of reliability, the economic value of nuclear power should by no means be under-rated or denied.”</p> <p>“....., even though oil prices have dropped drastically while Hong Kong’s power companies have largely converted to coal-fired generation, we are still unable to free ourselves from the menace of fuel shortage or price fluctuations.....To mitigate the devastating effect of this menace on the one hand, and to cope with the growth of electricity demand on the other, it might not be a wrong choice, in the long term, for Hong Kong to satisfy part of her electricity demand with nuclear power.”</p>	Speech made by the Hon. NGAI Shiu-Kit on the motion “The Hong Kong and Daya Bay Nuclear Power Project”, Hong Kong Hansard, 16/07/86
16/07/86	“.....electric companies had to explore cheap generating methods. Furthermore, China was anxious to implement her four modernization programmes.”	Speech made by the Hon. HUI Yin-Fat on the motion “The Hong Kong and Daya Bay Nuclear Power Project”, Hong Kong Hansard, 16/07/86
16/07/86	“The Government has not objected to the purchase of electricity by CLP from China, nuclear in nature, and the reason is that having conducted feasibility studies, nuclear plant seems to be cheaper, but the arguments and the premises behind the data have never been disclosed to the public.”	Speech made by the Hon. Andrew WONG on the motion “The Hong Kong and Daya Bay Nuclear Power Project”, Hong Kong Hansard, 16/07/86

Date	Extract	Source of Information
15/10/86	<p>“Apart from the transmission network which is an asset dedicated to transmit power from Daya Bay to Hong Kong, the bulk of the capital assets of Daya Bay plant would be outside the scope of the Scheme of Control. Hong Kong would in fact have the benefit of the service of a 1 260 MW energy source (i.e. 70% of the Daya Bay power plant of 1 800MW) without having to raise the capital to finance its construction. On the other hand, if a coal-fired power station of equivalent capacity were to be built in Hong Kong to replace the Daya Bay plant, its entire capital asset will have to be brought into the Scheme of Control and be fully reflected in the future electricity tariffs structure. Moreover, Hong Kong would have to raise the necessary initial capital to finance the project.”</p>	<p>Speech made by the Hon. CHEN Shou-Lum on the motion “Daya Bay Nuclear Power Plant”, Hong Kong Hansard, 15/10/86</p>
15/10/86	<p>“Given the fact that the Chinese Government is determined to proceed with the Daya Bay Project with or without Hong Kong’s participation and that Hong Kong will have to live with any possible risk of pollution from a nuclear installation near its border, then why should Hong Kong not reap some of the economic benefits by way of purchasing electricity from China?”</p> <p>“If there were no Daya Bay power plant, we would have to build in our own territory an additional power station in the latter half of 1980s to meet anticipated demand in 1993. To find a site for a new power station, which must have access to deep water and must meet stringent environmental requirements, would be extremely difficult. The infrastructure and construction costs would be prohibitive.”</p>	<p>Speech made by Dr. the Hon. HO Kam-Fai on the motion “Daya Bay Nuclear Power Plant”, Hong Kong Hansard, 15/10/86</p>
15/10/86	<p>“I see it as an important objective for Hong Kong to seek to contribute towards a steady course of modernization in China.”</p>	<p>Speech made by the Hon. Allen LEE on the motion “Daya Bay Nuclear Power Plant”, Hong Kong Hansard, 15/10/86</p>

Date	Extract	Source of Information
15/10/86	“Another favourable condition is that China has her own uranium deposit and the facilities to process the mineral up to the concentration applicable for use as nuclear fuel for the Daya Bay plant. Therefore we have the reason to believe that the price of electricity from Daya Bay will be cheaper not only for the first six years of operation but for many years thereafter.”	Speech made by the Hon. WONG Po-Yan on the motion “Daya Bay Nuclear Power Plant”, Hong Kong Hansard, 15/10/86

Table 15 – Views of the Guangdong Nuclear Power Joint Venture Company on CLP’s Participation in the Daya Bay Project

Date	Extract	Source of Information
16/07/86	“The present overall situation is that despite the softening of the prices of fossil fuels, nuclear generation is still likely to be cheaper than fossil-fired generation in the long run.”	Written answer by the Guangdong Nuclear Power Joint Venture Company to Question 13 raised by UMELCO, Hong Kong Hansard, 16/07/86
16/07/86	<p>“Castle Peak Power Station will be completed by 1990, and without additional plant being added to the system thereafter, there will be insufficient generation capacity to meet the consumers demand in the 1990s, resulting in blackouts and brownouts which will be detrimental to the economy of Hong Kong. The purchase of power from the nuclear power station will be able to meet the electricity demand growth of Hong Kong consumers for the period up to 1995.”</p> <p>“If the Daya Bay Project is delayed or cancelled, the existing power stations in Hong Kong will not be adequate to serve Hong Kong’s need in the 1990s. A new coal-fired power station will have to be built for commissioning in the early 1990s.”</p>	Written answer by the Guangdong Nuclear Power Joint Venture Company to Question 14 raised by UMELCO, Hong Kong Hansard, 16/07/86

Table 16 – Views of CLP on its Participation in the Daya Bay Project

Date	Extract	Source of Information
1980 that a project of such magnitude is beyond the financial capability of your Company, which operates under a Scheme of Control administered by the Hong Kong Government. This aspect, together with political implications and the ramifications of entering the nuclear power field such as fuel procurement, storage and disposal, makes it clear that this project can be implemented only on a Government to Government basis.	<u>Chairman's (Sir Lawrence Kadoorie) Review, CLP Annual Report 1980, p.9</u>
1982The present proposal is that 60% of the output of the station would be supplied to Hong Kong over a period of twenty years. The foreign exchange obtained from these sales would be utilized to service the international loans required to finance the project.	<u>Chairman's (The Lord Kadoorie) Review, CLP Annual Report 1982, p.11</u>
1984	Our forecasts show that the cost of nuclear-generated electricity will be lower than that of equivalent coal-fired generation in Hong Kong. From the security of supply viewpoint, the nuclear station will provide an alternative energy source.	<u>Chairman's (The Lord Kadoorie) Review, CLP Annual Report 1984, p.11</u>
1985	Our forecasts show that the cost of electricity purchased from the nuclear station will be lower than that of an equivalent coal-fired station commissioned in Hong Kong in the same time scale. The purchase of nuclear power will assist in meeting projected demand in the 1990's and will permit the deferment of a decision to proceed with another power station.	<u>Chairman's (The Lord Kadoorie) Review, CLP Annual Report 1985, p.13</u>

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