

INT-1342

ENERGY IN LATIN AMERICA:  
THE HISTORICAL RECORD AND FUTURE PERSPECTIVES

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Exhibit 1

WORLD AND SELECTED COUNTRY GROUPINGS: GROWTH IN THE CONSUMPTION OF TOTAL ENERGY AND TOTAL ENERGY PER CAPITA, 1950 AND 1975

	1950				1975				Growth rate 1950-1975		
	Consumption Millions of tons P.E.	Percent age	Population Millions	Per capita consumption kg P.E.	Consumption Millions of tons P.E.	Percent age	Population Millions	Per capita consumption kg P.E.	Consump- tion	Popul- ation	
Developed countries a/	1 568	92.8	848	1 849	4 585	82.5	1 125	4 076	4.4	1.2	3.2
Developing countries	121	7.2	1 632	74	970	17.5	2 821	944	8.7	2.2	6.3
Latin America b/	43	2.6	158	272	219	4.0	321	682	6.7	2.9	3.8
Others	78	4.6	1 474	53	751	13.5	2 500	300	9.5	2.1	7.2
<b>World</b>	<b>1 689</b>	<b>100.0</b>	<b>2 480</b>	<b>681</b>	<b>5 555</b>	<b>100.0</b>	<b>2 946</b>	<b>1 408</b>	<b>4.9</b>	<b>1.9</b>	<b>3.7</b>

Sources: Latin America: CEPAL, on the basis of official data; other countries: CEPAL, on the basis of data from United Nations, World Energy Supplies, Series J, No. 19 and 20.  
 Note: P.E.: Petroleum equivalent.

a/ United States, Canada, Japan, Australia, New Zealand, Israel, South Africa, Soviet Union and European countries.

b/ Argentina, Bahamas, Barbados, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Chile, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Surinam, Trinidad and Tobago, Uruguay and Venezuela.

WORLD AND SELECTED COUNTRIES: POPULATION, ENERGY CONSUMPTION PER CAPITA, AND  
PER UNIT OF TOTAL REAL OUTPUT, 1972

	Population (millions)	Per capita commercial energy consumption (kg P.E.)	Per capita GDP, (\$ 1971)
Ethiopia	25.66	26	82
Malawi	4.67	43	98
Uganda	10.46	64	137
Zaire	22.91	87	95
Paraguay	2.58	97	267
Kenya	12.07	104	152
Indonesia	121.63	106	74
Pakistan	64.42	131	79
India	562.47	136	105
El Salvador	3.76	160	295
Guatemala	5.39	169	384
Morocco	15.85	174	266
Honduras	2.69	182	284
Ghana	9.09	184	230
Bolivia	5.19	204	220
Ecuador	6.51	215	260
Thailand	36.29	225	200
Philippines	39.04	228	204
Egypt	34.84	242	210
Dominican Republic	4.30	284	405
Nicaragua	1.99	296	...
Turkey	37.01	380	380
Costa Rica	1.84	451	583
Zambia	4.42	457	350
Peru	14.46	463	492
Brazil	98.85	467	460
Colombia	22.49	476	327
Korea	32.36	553	280
Panama	1.52	586	808
Iran	30.55	692	470
Uruguay	2.96	716	684
Mexico	52.44	829	730
Chile	10.04	1 049	766
Argentina	23.92	1 220	1 179
Spain	34.49	1 440	1 220
Venezuela	10.97	1 704	1 059
Israel	3.08	1 850	1 970
South Africa	22.99	2 040	790
Italy	54.35	2 120	2 050
Japan	106.96	2 510	2 610
France	51.70	2 770	3 600
Austria	7.49	2 930	2 510
Switzerland	6.39	3 480	4 300
United Kingdom	55.80	3 620	2 720
West Germany	61.67	3 700	3 930
Denmark	4.99	3 720	3 810
Netherlands	13.33	3 830	3 060
Australia	12.96	3 930	3 130
Belgium	9.71	3 940	3 400
Sweden	8.12	5 370	4 780
United States	208.84	7 920	5 350
Canada	21.85	8 080	4 490

Source: United Nations, *World Energy Supplies, 1950-1974*. (1976), World Bank, *World Bank Atlas: Population, per capita product and growth rates*.

WORLD AND SELECTED COUNTRY GROUPINGS; PRODUCTION AND CONSUMPTION OF FOSSIL FUELS AND ELECTRICITY, 1950

(Millions of tons of petroleum equivalent of 10 700 kcal/kg)

	Production						Consumption						
	Fossil fuels			Electricity			Fossil fuels			Electricity			
	Coal	Crude oil	Natural gas	Hydro	Nuclear	Total	Coal	Petro- leum derivatives	Natural gas	Heat	Electricity	Total	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
<b>Market economy countries:</b>													
<b>Developing</b>	34	481	170	106	-	1 491	728	402	152	1 121	161	267	1 388
Latin America	35	198	20	6	-	259	95	50	4	80	9	15	95
Venezuela	4	102	18	5	-	129	6	29	3	33	5	10	43
Others	4	78	14	5	-	92	6	26	2	29	5	10	44
<b>Others</b>	31	96	2	1	-	130	29	21	1	47	4	5	39
India	21	5	1	1	-	22	20	3	1	21	2	3	24
Indonesia	1	1	1	-	-	7	2	2	1	3	-	-	3
Korea	1	79	-	-	-	79	1	-	-	1	-	-	1
Arab countries a/	1	12	1	-	-	21	7	1	-	2	-	-	2
Others	8	-	-	-	-	8	15	1	-	20	2	-	22
<b>Developed</b>	699	289	150	100	-	1 232	693	352	148	1 041	152	252	1 293
United States	323	275	147	33	-	778	292	282	145	626	84	127	753
Western Europe	317	4	1	26	-	348	321	45	1	319	48	84	403
Japan	25	4	2	12	-	43	26	1	2	25	2	14	39
Canada	10	4	2	17	-	33	26	16	2	43	1	18	61
Australia	12	-	-	1	-	13	12	4	-	13	3	4	17
South Africa	17	-	-	1	-	18	15	2	-	13	4	1	18
Others b/	1	42	8	6	-	54	1	1	-	2	-	1	3
<b>Centrally-planned economies:</b>	298	-	-	1	-	299	274	37	8	278	41	47	325
<b>Developing</b>	24	-	-	1	-	25	28	-	-	26	2	3	29
China	21	-	-	1	-	22	28	-	-	26	2	3	29
Others a/	3	-	-	-	-	3	-	-	-	-	-	-	-
<b>Developed</b>	274	42	8	5	-	329	246	37	8	252	39	44	296
Soviet Union	167	36	5	4	-	210	149	33	5	161	26	30	191
Eastern European countries	107	6	2	1	-	115	97	4	3	91	13	14	105
<b>Worlds</b>	1 032	523	178	112	-	1 845	1 002	499	160	1 392	202	314	1 713
<b>Regions</b>													
Latin America	4	102	18	5	-	129	6	29	3	33	5	10	43
North America	333	279	150	50	-	812	318	299	147	669	95	145	814
Rest of America	31	4	1	36	-	352	321	2	1	2	2	84	2
Western Europe	274	42	8	5	-	329	246	37	8	252	39	44	296
Eastern Europe	19	82	-	-	-	84	19	8	-	22	5	5	27
Africa	2	11	1	14	-	102	76	10	1	81	6	20	101
Middle East	76	11	-	2	-	15	14	5	-	16	3	5	21
Far East	13	-	-	112	-	125	112	13	-	125	13	14	139
Oceania	1	-	-	-	-	1	-	-	-	-	-	-	-
<b>Total</b>	1 032	523	178	112	-	1 845	1 002	499	160	1 392	202	314	1 713

Source: See Exhibit 3b.

a/ Algeria, Libya, Iran, Iraq, Saudi Arabia, the Emirates and Kuwait. b/ Israel, New Zealand. c/ North Korea, Mongolia and Vietnam.

WORLD AND SELECTED COUNTRY GROUPINGS: PRODUCTION AND CONSUMPTION OF FOSSIL FUELS AND ELECTRICITY, 1975

(Millions of tons of petroleum equivalent of 10,700 kcal/kg)

	Production										Consumption			
	Fossil fuels					Electricity					Fossil fuels			
	Coal (1)	Crude oil (2)	Natural gas (3)	Hydro (4)	Nuclear (5)	Total (6)	Coal (7)	Petro- leum deriv- atives (8)	Natural gas (9)	Heat (10)	Elec- tricity (11)	Electricity (4+5+11) (12)	Total (10+12) (13)	
<b>Market economy countries:</b>	808	2 075	819	333	86	4 121	823	1 827	760	2 532	871	1 290	2 829	
Developing	25	1 486	145	66	2	1 724	101	210	78	408	81	149	557	
Latin America a/	9	228	80	39	1	357	11	135	34	151	29	69	220	
Venezuela	-	123	33	3	-	159	-	9	10	15	4	22	22	
Others	9	105	47	36	1	198	11	126	24	136	25	62	198	
Others	86	1 258	65	27	1	1 437	90	175	44	257	52	80	377	
India	63	61	5	13	1	88	23	20	1	61	23	37	98	
Indonesia	12	-	-	-	-	12	12	11	1	15	5	5	15	
Korea	1	1 005	45	-	-	1 050	1	33	26	53	9	9	62	
Arab countries b/	10	184	18	12	-	224	14	101	12	110	17	29	139	
Others	71	589	674	267	84	2 327	722	517	682	2 131	790	1 141	3 272	
<b>Developed</b>	375	452	142	86	15	1 070	302	680	475	1 090	399	524	1 622	
United States	217	28	140	102	29	516	241	525	153	674	243	374	1 050	
Western Europe	13	1	3	53	3	73	52	193	41	158	95	125	283	
Japan	15	72	65	4	-	215	16	73	41	115	15	71	186	
Canada	46	21	4	4	-	75	44	26	4	44	15	19	60	
Australia	46	-	-	-	-	46	44	11	-	36	12	19	55	
South Africa	1	5	-	5	-	11	1	9	1	7	9	9	16	
Others a/	217	568	310	52	4	1 851	891	476	208	1 330	445	401	1 731	
<b>Centrally-planned economies:</b>	337	77	3	14	-	431	336	64	3	377	26	40	477	
Developing	307	76	3	10	-	396	306	60	3	346	23	33	379	
China	30	1	-	4	-	35	30	4	-	21	9	7	38	
Others a/	500	421	307	28	4	1 420	552	422	205	252	212	261	814	
<b>Developed</b>	331	472	264	33	3	1 103	319	339	254	676	236	272	918	
Soviet Union	349	19	43	33	1	317	236	73	51	277	83	69	366	
Eastern European countries	1 725	2 643	1 129	385	20	5 972	1 714	2 303	1 068	3 869	1 216	1 691	5 560	
<b>World</b>	396	228	80	39	48	1 832	1 138	1 35	34	151	29	69	228	
<b>Regions</b>	396	534	527	133	48	1 632	358	733	516	1 213	414	593	1 808	
Latin America	217	28	140	102	29	516	241	525	153	674	243	374	1 050	
North America	580	491	307	38	4	1 420	555	422	305	953	319	361	1 314	
Rest of America	49	284	12	9	-	304	49	46	6	76	25	34	110	
Western Europe	5	946	33	3	-	987	5	51	25	69	12	15	84	
Eastern Europe	427	161	26	52	8	674	467	399	25	677	154	214	891	
Africa	48	21	4	9	-	82	28	31	4	46	17	26	72	
Middle East	1 725	2 643	1 129	385	20	5 972	1 714	2 303	1 068	3 869	1 216	1 691	5 560	
Far East														
Oceania														
Total														

Source: Latin America: CEPAL, on the basis of official data; other regions and countries: CEPAL, on the basis of official data; World Energy Supplies, 1950-1974 and World Energy Supplies, 1971-1975.

a/ Countries included are indicated in Exhibit 1. b/ Algeria, Libya, Iran, Iraq, Saudi Arabia, the Emirates and Kuwait. c/ Israel, New Zealand. d/ North Korea, Mongolia and Vietnam.

Exhibit 4

LATIN AMERICA AND SELECTED LATIN AMERICA COUNTRIES: OIL AND TOTAL EXPORTS, 1950-1975

(Millions of dollars and percentages)

	1950	1955	1960	1965	1970	1975 <sup>a/</sup>
<b>Latin America</b>						
Total exports of crude oil and derivatives (millions of dollars)	1 327	2 092	2 526	2 702	2 642	11 748
Exports of crude oil and derivatives as a percentage of total exports	20	26	29	26	18	30
<b>Venezuela</b>						
Exports of crude oil and derivatives (millions of dollars)	1 217	1 952	2 411	2 552	2 496	10 530
Exports of crude oil and derivatives as a percentage of total national exports	97	96	92	93	95	94
Exports of crude oil and derivatives as a percentage of total Latin American exports of same products	92	93	95	94	94	90
<b>Ecuador</b>						
Exports of crude oil and derivatives (millions of dollars)	-	2	-	1	1 <sup>b/</sup>	51 <sup>b/</sup>
Exports of crude oil and derivatives as a percentage of total national exports	-	1	-	-	-	57
Exports of crude oil and derivatives as a percentage of total Latin American exports of same products	-	0.1	-	0	0	4.4
<b>Bolivia</b>						
Exports of crude oil and derivatives (millions of dollars)	-	2	4	-	13	115
Exports of crude oil and derivatives as a percentage of total national exports	-	3	7	-	6	26
Exports of crude oil and derivatives as a percentage of total Latin American exports of same products	-	0.1	0.2	-	0.5	0.2
Value of total exports of Venezuela, Ecuador and Bolivia (millions of dollars)	1 407	2 063	2 626	2 760	3 076	11 569
Value of exports of crude oil and derivatives by Venezuela, Ecuador and Bolivia (millions of dollars)	1 217	1 956	2 415	2 553	2 510	11 161
Venezuela, Ecuador, Bolivia: value of exports of crude oil and derivatives as a percentage of total exports	86	94	92	93	82	96

Source: 1950, 1955 and 1960: J. Grundwald and P. Musgrove, Natural Resources in Latin American Development, (The Johns Hopkins Press: Baltimore, 1970), pp. 280-281. Data for 1965, 1970 and 1975: CEPAL, with total exports of countries taken from International Financial Statistics (various issues), except for Venezuela's exports in 1975 (CEPAL figures).

a/ Estimate.

b/ Does not include refined products.

Exhibit 5  
 WORLD AND SELECTED COUNTRIES: OIL IMPORTS AND EXPORTS, 1975  
 (Millions of metric tons)

Main importing countries and areas	Main exporting countries and areas										Soviet Union and China	Total								
	Africa			Latin America			Middle East			Far East										
	Algeria	Libya	Nigeria	North America	Venezuela	Others	Total	Saudi Arabia	Emirates	Iraq	Iran	Qatar	Kuwait	Oman	Others	Total	Indonesia	Others	Total	
Africa	0.48	0.75	1.60	3.14	-	-	-	4.88	0.44	4.35	17.16	2.37	-	-	0.39	0.39	0.39	-	0.57	23.90
South Africa	0.48	0.75	1.60	3.14	-	-	-	4.88	0.14	12.70	4.46	1.77	-	-	0.39	0.39	0.39	-	0.57	15.00
Others	12.49	15.99	27.01	63.44	24.51	12.83	47.34	42.70	10.90	1.77	23.01	0.98	1.77	1.63	0.63	18.59	18.59	0.63	0.63	243.70
North America	0.15	0.55	0.85	3.67	13.33	0.15	13.48	9.41	1.71	1.67	9.30	0.08	1.46	0.65	-	18.59	18.59	-	-	41.43
Canada	12.34	15.44	26.16	59.77	21.18	12.68	32.86	33.29	9.19	0.10	13.71	0.90	0.31	0.98	-	18.59	18.59	-	-	202.27
United States	0.98	6.96	2.06	11.64	10.08	6.35	16.43	22.36	1.61	9.30	4.65	0.35	5.18	2.33	-	2.61	2.61	-	-	82.55
Latin America	0.76	2.48	2.80	6.68	0.92	0.90	0.90	5.00	0.75	8.29	0.30	0.35	5.18	2.33	-	2.61	2.61	-	-	13.17
Bahamas	0.22	2.11	0.26	3.05	9.16	5.30	14.46	6.21	0.86	1.01	2.55	-	-	0.56	-	2.34	2.34	-	-	34.22
Others	1.26	2.00	6.72	13.43	24.48	3.16	27.64	8.92	2.25	-	5.87	2.66	-	0.56	-	2.34	2.34	-	-	35.16
Caribbean	1.26	2.00	6.72	13.43	24.48	3.16	27.64	8.92	2.25	-	5.87	2.66	-	0.56	-	2.34	2.34	-	-	65.50
Netherlands	1.26	2.00	6.72	13.43	24.48	3.16	27.64	8.92	2.25	-	5.87	2.66	-	0.56	-	2.34	2.34	-	-	27.44
Antilles	1.26	2.00	6.72	13.43	24.48	3.16	27.64	8.92	2.25	-	5.87	2.66	-	0.56	-	2.34	2.34	-	-	27.44
Virgin Islands	1.26	2.00	6.72	13.43	24.48	3.16	27.64	8.92	2.25	-	5.87	2.66	-	0.56	-	2.34	2.34	-	-	27.44
Puerto Rico	1.26	2.00	6.72	13.43	24.48	3.16	27.64	8.92	2.25	-	5.87	2.66	-	0.56	-	2.34	2.34	-	-	27.44
Others	0.26	1.14	2.36	5.78	0.24	0.15	0.39	9.76	-	13.66	1.82	1.41	0.82	7.41	0.03	25.26	25.26	0.11	0.11	226.22
Middle East	0.26	1.14	2.36	5.78	0.24	0.15	0.39	9.76	-	13.66	1.82	1.41	0.82	7.41	0.03	25.26	25.26	0.11	0.11	226.22
Far East	0.26	1.14	2.36	5.78	0.24	0.15	0.39	9.76	-	13.66	1.82	1.41	0.82	7.41	0.03	25.26	25.26	0.11	0.11	226.22
Korea	0.26	1.14	2.36	5.78	0.24	0.15	0.39	9.76	-	13.66	1.82	1.41	0.82	7.41	0.03	25.26	25.26	0.11	0.11	226.22
India	0.26	1.14	2.36	5.78	0.24	0.15	0.39	9.76	-	13.66	1.82	1.41	0.82	7.41	0.03	25.26	25.26	0.11	0.11	226.22
Japan	0.26	1.14	2.36	5.78	0.24	0.15	0.39	9.76	-	13.66	1.82	1.41	0.82	7.41	0.03	25.26	25.26	0.11	0.11	226.22
Singapore	0.26	1.14	2.36	5.78	0.24	0.15	0.39	9.76	-	13.66	1.82	1.41	0.82	7.41	0.03	25.26	25.26	0.11	0.11	226.22
Others	0.26	1.14	2.36	5.78	0.24	0.15	0.39	9.76	-	13.66	1.82	1.41	0.82	7.41	0.03	25.26	25.26	0.11	0.11	226.22
Western Europe	24.18	26.69	44.16	119.11	7.41	0.17	7.58	151.28	42.82	55.89	99.74	11.92	25.12	5.01	8.65	410.50	410.50	0.60	0.60	569.21
West Germany	8.21	14.80	10.11	34.97	1.21	1.21	1.21	17.86	7.88	1.40	14.13	1.26	2.69	-	0.81	46.09	46.09	0.63	0.63	86.25
Belgium	0.88	0.61	1.22	3.16	0.37	0.37	0.37	12.74	1.45	1.62	5.38	0.12	2.30	-	-	23.61	23.61	0.42	0.42	28.06
Spain	1.60	4.05	0.10	7.95	0.84	0.84	0.84	17.58	2.93	6.03	4.51	0.11	1.55	-	-	32.71	32.71	0.98	0.98	42.50
France	2.88	2.01	9.71	20.27	0.68	0.68	0.68	31.44	13.80	12.01	13.23	2.36	6.40	1.05	1.86	82.31	82.31	0.98	0.98	105.64
Greece	0.18	0.22	7.48	8.48	-	-	-	5.40	5.74	1.94	17.42	0.96	5.44	0.50	2.21	44.39	44.39	-	-	13.80
Netherlands	0.48	0.52	7.48	8.48	-	-	-	12.39	5.74	1.94	17.42	0.96	5.44	0.50	2.21	44.39	44.39	-	-	13.80
United Kingdom	1.64	2.43	10.53	14.26	3.15	0.17	3.32	22.19	3.82	3.61	17.55	3.87	10.91	2.81	9.12	63.88	63.88	4.55	4.55	87.71
Italy	4.64	12.97	10.98	20.87	0.84	0.50	0.64	23.65	2.35	18.69	12.88	2.09	9.35	0.08	3.55	66.62	66.62	0.92	0.92	92.15
Sweden	0.06	2.08	2.88	5.66	0.50	0.02	0.50	2.15	1.33	10.51	3.09	0.81	0.47	-	-	7.96	7.96	0.24	0.24	10.77
Others	0.61	2.08	2.88	5.66	0.50	0.02	0.50	2.15	1.33	10.51	3.09	0.81	0.47	-	-	7.96	7.96	0.24	0.24	10.77
Eastern Europe	1.24	0.25	-	2.18	-	0.26	0.26	-	-	2.87	3.80	0.41	0.10	0.57	0.24	32.97	32.97	1.10	1.10	50.34
East Germany	0.15	0.11	-	0.45	-	-	-	-	-	2.87	3.80	0.41	0.10	0.57	0.24	32.97	32.97	1.10	1.10	50.34
Bulgaria	0.15	0.11	-	0.45	-	-	-	-	-	2.87	3.80	0.41	0.10	0.57	0.24	32.97	32.97	1.10	1.10	50.34
Czechoslovakia	0.15	0.11	-	0.45	-	-	-	-	-	2.87	3.80	0.41	0.10	0.57	0.24	32.97	32.97	1.10	1.10	50.34
Poland	0.15	0.11	-	0.45	-	-	-	-	-	2.87	3.80	0.41	0.10	0.57	0.24	32.97	32.97	1.10	1.10	50.34
Others	1.19	-	-	1.38	-	0.36	0.36	-	-	8.12	3.55	-	-	-	-	11.67	11.67	0.96	0.96	13.84
Cosentia	-	-	-	-	-	-	-	2.97	-	1.52	2.07	0.94	2.09	-	0.27	11.93	11.93	0.11	0.11	12.23
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.00
Total	40.22	69.18	84.21	219.89	76.72	22.87	99.59	288.19	80.38	103.22	233.72	20.70	90.94	17.06	2.52	883.74	48.83	13.12	61.95	1409.26

Source: CEPAL, on the basis of World Energy Supplies, Series J, No. 20.

Exhibit 6

WORLD: IMPORTS OF CRUDE OIL, REFINED OIL PRODUCTS, AND NATURAL GAS FROM LATIN AMERICA AND OTHERS REGIONS, 1975<sup>a/</sup>

(Millions of metric tons)

	North America	Western Europe	Latin America	Other Caribbean	Middle East	Far East	Japan	Africa	Oceania	Total
1960	37.44	16.19	13.42	41.73	0.16	0.10	-	0.17	0.06	109.27
1975	43.73	7.05	16.43	26.65	-	-	0.24	-	-	94.10
A. Imports of crude oil from Latin America <sup>b/</sup>										
1960	22.90	11.07	4.78	1.49	-	0.06	0.02	1.85	0.19	42.28
1975	23.15	3.09	5.28	2.99	-	-	0.05	1.07	0.01	35.64
B. Imports of petroleum derivatives from Latin America <sup>c/</sup>										
A. Imports of crude oil from all sources										
1960	70.73	169.68	20.07	41.99	17.20	14.58	26.79	1.52	11.26	373.82
1975	243.70	569.31	77.00	71.13	26.38	77.02	219.57	33.30	12.23	1 329.64
B. Imports of petroleum derivatives from all sources										
1960 <sup>d/</sup>	45.70	62.90	13.78	4.49	4.47	17.74	8.60	15.68	3.47	195.70
1975	93.24	121.57	10.86	7.15	4.02	19.29	13.88	10.66	7.05	287.72
A. Imports of crude from Latin America as a percentage of total imports										
1960	52.90	9.50	66.90	99.40	1.00	0.70	0.00	11.20	0.50	29.20
1975	17.90	1.20	21.30	37.50	-	-	-	-	-	7.10
B. Imports of derivatives from Latin America as a percentage of total imports										
1960 <sup>d/</sup>	56.90	17.60	31.50	40.30	0.20	0.90	0.90	11.00	0.70	33.50
1975	24.80	2.50	48.60	41.80	-	-	0.40	10.00	0.10	12.40
A. Imports of natural gas from Latin America (millions of cubic metres)										
1960	1 331	-	-	-	-	-	-	-	-	1 331
1975	-	-	1 430 <sup>e/</sup>	-	-	-	-	-	-	1 438

Source: United Nations, World Energy Supplies, 1958-1961 and World Energy Supplies, 1971-1975; Trinidad and Tobago, Overseas Trade, various issues; Venezuela, Petróleo y Otros Datos, various issues.

<sup>a/</sup> Excluding centrally planned economies.

<sup>b/</sup> Venezuela, Trinidad and Tobago, Ecuador and Bolivia.

<sup>c/</sup> Venezuela and Trinidad and Tobago.

<sup>d/</sup> 1961.

<sup>e/</sup> Bolivia.

Exhibit 7

LATIN AMERICA: EXPORTS OF CRUDE OIL AND REFINED OIL PRODUCTS, 1950-1975

(Thousands of metric tons)

Year	Liquefied gas	Gasoline	Kerosene	Gas oil/ diesel oil/ fuel oil	Subtotal	Crude oil	Total
1950	-	6 744	1 754	43 494	51 992	72 181	124 173
1951	-	6 448	2 356	48 334	57 138	78 656	135 774
1952	-	6 175	3 185	50 116	59 476	83 444	142 920
1953	-	6 294	3 219	50 863	60 376	76 055	136 431
1954	66	6 489	3 683	47 561	57 799	83 745	141 544
1955	68	5 648	4 025	53 795	63 536	93 048	156 584
1956	65	5 419	4 439	59 124	69 047	105 433	174 480
1957	67	5 419	4 912	56 957	67 355	115 449	182 804
1958	115	7 423	5 690	58 161	71 389	107 382	178 771
1959	167	6 514	5 518	62 324	74 523	111 133	185 656
1960	228	6 575	4 629	66 867	78 299	111 834	190 133
1961	276	6 948	5 387	70 712	83 323	114 814	198 137
1962	393	7 024	5 370	77 771	90 558	123 445	214 003
1963	363	7 593	6 737	82 869	97 562	124 029	221 591
1964	437	8 160	7 452	85 967	102 016	130 218	232 234
1965	408	8 055	7 837	88 797	105 097	129 735	234 832
1966	568	8 414	8 845	87 752	105 579	125 280	230 859
1967	664	9 058	9 816	89 473	109 011	135 047	244 058
1968	669	9 473	10 252	90 572	110 966	136 179	247 145
1969	687	9 461	10 403	96 113	116 664	137 924	254 588
1970	905	9 800	9 278	109 612	129 595	137 271	266 866
1971	1 375	10 186	8 143	108 416	128 120	129 375	257 495
1972	1 880	10 044	7 540	111 567	131 031	123 644	254 675
1973	1 653	9 505	8 194	120 515	139 807	133 888	273 695
1974	1 194	9 744	6 551	121 222	138 711	108 966	247 677
1975	1 407	10 705	5 019	78 106	95 317	99 569	194 886

Source: United Nations, *World Energy Supplies*, Series J, Nos. 19 and 20.

Note: This table covers both members and non-members of CEPAL.

Exhibit 8

LATIN AMERICA: INTRAREGIONAL AND INTERREGIONAL FUEL IMPORTS, 1960 AND 1975

	North America	Western Europe	Africa	Middle East	Far East	Oceania	Eastern Europe and Soviet Union	Latin America a/	Total	Total world imports
<b>A. Crude petroleum</b>										
(Millions of metric tons)										
1960	-	-	-	4.17	0.07	-	1.65	13.42	19.31	381.95
1975	0.29	-	16.43	45.78	2.61	-	5.80	12.34	83.25	1 409.26
<b>B. Petroleum derivatives</b>										
(Millions of metric tons)										
1960								4.78	11.10	180.28
1975								5.28	10.86	302.67
<b>C. Coal and coke</b>										
(Millions of tons of coal equivalent)										
1960	2.12	0.17	0.03	-	-	-	0.65	-	2.97	132.10
1975	3.46	0.03	-	-	-	0.16	1.26	-	4.91	193.26
<b>D. Natural gas</b>										
(Millions of cubic metres)										
1960	499	-	-	-	-	-	-	-	499	5 550
1975	269	-	-	-	-	-	-	1 438	1 707	120 988

Source: United Nations, World Energy Supplies, 1958-1961 and World Energy Supplies, 1971-1975.

a/ See list of component countries in Exhibit 1.

Exhibit 9

LATIN AMERICA: PROVEN RESERVES OF CRUDE OIL, PRODUCTION OF CRUDE OIL AND NATURAL GAS BY COUNTRY, 1976

	Crude oil (millions of barrels)		Natural gas (billions of cubic feet)	
	Reserves	Production	Reserves	Production
Argentina	2 300.0	144.4	6 800	364
Barbados	3.7	-	300	-
Bolivia	240.0	14.9	5 000	154
Brazil	800.0	60.7	900	58
Colombia	825.0	52.8	5 000	124
Chile	182.0	8.4	2 000	248
Ecuador	1 700.0	68.4	12 000	12
Guatemala	21.3	-	-	-
Mexico	7 000.0	327.3	12 000	772
Peru	747.0	28.0	2 200	71
Trinidad and Tobago	520.0	77.7	3 425	131
Venezuela	15 270.0	839.8	40 700	1 311
<u>Total</u>	<u>29 609.0</u>	<u>1 622.4</u>	<u>90 325</u>	<u>3 245</u>
<u>World</u>	<u>598 990.3</u>	<u>20 881.8</u>	<u>2 303 777</u>	...

Source: Reserves: Oil and Gas Journal, 27 December 1976; production: CEPAL, on the basis of official data.

Exhibit 10a

LATIN AMERICA: PRODUCTION AND CONSUMPTION OF ENERGY SOURCES BY COUNTRY, 1950

(Thousands of tons of petroleum equivalent of 10 700 kcal/kg)

	Production					Consumption					Total
	Coal	Crude oil	Natural gas	Hydroelectricity	Vegetable fuels	Coal	Petroleum derivatives	Natural gas	Hydroelectricity	Vegetable fuels	
Argentina	27	3 357	657	77	1 457	1 250	7 307	464	77	1 457	10 555
Bahamas	-	-	-	-	5	-	16	-	-	5	21
Barbados	-	-	2	-	126	-	21	-	-	126	147
Bolivia	-	60	-	110	536	7	122	-	110	536	775
Brazil	864	46	4	3 030	9 687	1 340	4 316	-	3 030	9 687	18 373
Chile	1 381	82	174	694	853	1 381	1 134	-	694	853	4 062
Colombia	720	4 699	1 044	362	2 299	710	931	180	362	2 299	4 492
Costa Rica	-	-	-	74	162	-	96	-	74	162	332
Cuba	-	22	-	6	3 241	36	1 720	20	6	3 241	5 023
Ecuador	-	347	115	30	657	-	230	-	30	657	917
El Salvador	-	-	-	17	325	-	91	-	17	325	453
Grenada	-	-	-	-	13	-	-	-	-	13	13
Guatemala	-	-	-	35	524	-	247	-	35	524	806
Guyana	-	-	-	-	194	-	85	-	-	194	279
Haiti	-	-	-	-	816	-	57	-	-	816	853
Honduras	-	-	-	3	256	-	145	-	3	256	404
Jamaica	-	-	-	21	345	-	82	-	21	345	448
Mexico	590	10 572	1 611	821	4 217	660	7 337	1 144	821	4 217	14 179
Nicaragua	-	-	-	15	217	-	67	-	15	217	299
Panama	-	-	-	2	114	-	182	-	2	114	298
Paraguay	-	-	-	-	263	-	11	-	-	263	274
Peru	74	2 006	712	299	1 424	40	1 097	4	299	1 424	2 864
Dominican Republic	-	-	-	-	662	-	130	-	-	662	792
Trinidad and Tobago	-	2 904	395	-	138	-	167	130	-	138	435
Uruguay	-	-	-	222	121	80	734	-	222	121	1 157
Venezuela	7	78 236	13 724	73	538	17	2 500	972	73	538	4 100
Latin America	3 663	102 351	18 438	5 891	29 190	5 521	28 805	2 924	5 891	29 190	72 331

Source: See Exhibit 10b.

Exhibit 10b

LATIN AMERICA: PRODUCTION AND CONSUMPTION OF ENERGY SOURCES BY COUNTRY, 1975<sup>a/</sup>  
(Thousands of tons of petroleum equivalent of 10 700 kcal/kg)

	Production					Consumption					Total
	Coal	Crude oil	Natural gas	Hydro-electricity b/c/	Vegetable fuels	Coal	Petroleum derivatives	Natural gas	Hydro-electricity b/c/	Vegetable fuels	
Argentina	291	20 667	8 931	2 307	1 669	950	19 846	6 640	2 307	1 669	31 412
Barbados	-	-	-	-	6	-	842	-	-	6	848
Barbados	-	-	-	-	64	-	168	-	-	64	232
Bolivia	-	1 920	3 379	239	858	-	817	63	239	858	1 977
Brazil	1 752	8 582	1 412	22 081	15 475	2 850	35 827	435*	22 081	15 475	76 668
Chile	999	1 166	6 168	1 835	565	842	3 992	1 093*	1 835	565	8 327
Colombia	2 093	7 920	2 953	2 945	2 753	2 093	6 596	1 530*	2 945	2 753	15 917
Costa Rica	-	-	-	380	297	-	586	-	380	297	1 263
Cuba	-	226	-	19	3 809	100	6 995	-	19	3 809	10 923
Ecuador	-	7 754	260	193	1 396	-	1 989	52*	193	1 396	3 630
El Salvador	-	-	-	120	546	-	622	-	120	546	1 288
Grenada	-	-	-	-	15	-	20	-	-	15	35
Guatemala	-	-	-	84	1 059	-	906	-	84	1 059	2 049
Guyana	-	-	-	-	307	-	628	-	-	307	935
Haiti	-	-	-	43	1 146	-	79	-	43	1 146	1 268
Honduras	-	-	-	126	494	-	410	-	126	494	1 030
Jamaica	-	-	-	39	380	-	1 885	-	39	380	2 304
Mexico	3 380	42 115	19 361	4 509	5 655	3 720	30 968	12 807	4 509	5 655	57 659
Nicaragua	-	-	-	121	410	-	666	-	121	410	1 197
Panama	-	-	-	29	181	-	1 111	-	29	181	1 321
Paraguay	-	-	-	156	452	-	229	-	156	452	837
Peru	56	3 512	1 649	1 651	1 725	203	5 645	435*	1 651	1 725	9 659
Dominican Republic	-	-	-	27	1 101	-	1 385	-	27	1 101	2 513
Trinidad and Tobago	-	11 251	3 113	-	147	-	1 317	1 148	-	147	2 612
Uruguay	-	-	-	339	102	20	1 592	-	339	102	2 053
Venezuela	45	122 546	33 035	2 665	767	210	9 286	9 498	2 665	767	22 426
Latin America	8 616	227 659	80 261	29 908	41 379	10 988	134 407	33 701	29 908	41 379	260 383

Source: CEPAL, on the basis of official data. CEPAL estimates in the case of vegetable fuels.

a/ Preliminary figures. b/ Nuclear, geothermal, and hydro-power output converted to implicit energy inputs using the average heat rate of thermal plants in the region in 1975: 3 200 kcal per 1 kWh (= 860 kcal). c/ Including electric energy generated by nuclear and geothermal plants.

## Exhibit 11

## LATIN AMERICA: CRUDE OIL PRODUCTION BY COUNTRY, 1950-1975 (SELECTED YEARS)

(Thousands of m<sup>3</sup>)

	1950	1960	1970	1973	1974	1975
Argentina	3 730	10 178	22 797	24 441	24 024	22 968
Bolivia	98	569	1 402	2 745	2 640	2 342
Brazil	54	4 708	9 685	9 876	10 295	9 979
Colombia	5 401	8 867	12 728	10 667	9 760	9 104
Cuba	25	25	174	153	187	251
Chile	100	1 150	1 976	1 817	1 599	1 422
Ecuador	418	438	230	12 116	10 274	9 342
Mexico a/	11 747	17 293	28 238	30 442	37 890	46 794
Peru	2 389	3 063	4 176	3 977	4 293	4 181
Trinidad and Tobago	3 227	6 735	8 116	9 646	10 830	12 501
Venezuela	86 929	165 613	215 177	195 331	172 713	136 162
<u>Total</u>	<u>114 118</u>	<u>218 639</u>	<u>304 699</u>	<u>301 211</u>	<u>284 505</u>	<u>255 046</u>
<u>Total (excluding Venezuela)</u>	<u>27 189</u>	<u>53 026</u>	<u>89 522</u>	<u>105 880</u>	<u>111 792</u>	<u>118 884</u>
<u>World</u>	<u>604 677</u>	<u>1 210 496</u>	<u>2 606 352</u>	<u>3 204 286</u>	<u>3 291 861</u>	<u>3 125 185</u>
<u>Latin America as a percentage of world total</u>	<u>18.9</u>	<u>18.1</u>	<u>11.7</u>	<u>9.4</u>	<u>8.6</u>	<u>8.2</u>

Source: Latin America: CEPAL, on the basis of official data; world: Oil and Gas Journal, several issues.

a/ Includes natural gas liquids.

Exhibit 12

LATIN AMERICA: CONSUMPTION OF REFINED OIL PRODUCTS AND PRODUCTION OF CRUDE OIL BY COUNTRY, 1950-1975 (SELECTED YEARS)

(Thousands of tons of petroleum equivalent of 10 700 kcal/kg)

	1950		1970		1973		1975	
	Consumption of petroleum derivatives	Production of crude oil	Consumption of petroleum derivatives	Production of crude oil	Consumption of petroleum derivatives	Production of crude oil	Consumption of petroleum derivatives	Production of crude oil
Argentina	7 307	3 357	20 136	20 519	21 708	21 997	19 846	20 667
Bolivia	122	80	508	1 150	617	2 251	817	1 920
Brazil	4 316	46	23 413	8 329	33 416	8 493	35 827	8 582
Colombia	931	4 699	4 997	11 073	6 165	9 280	6 596	7 920
Cuba	1 716	23	5 890	157	6 875	138	6 995	226
Chile	1 134	82	4 424	1 620	4 904	1 490	3 992	1 166
Ecuador	230	347	1 186	191	1 398	10 056	1 989	7 754
Mexico	7 337	10 572	21 702	25 414	27 290	27 398	30 968	42 115
Peru	1 097	2 007	4 584	3 508	5 070	3 341	5 645	3 512
Trinidad and Tobago	178	2 904	1 571	7 304	1 590	8 681	1 317	11 251
Venezuela	1 700	78 236	6 229	193 659	8 185	175 798	9 286	122 546
<u>Total</u>	<u>26 068</u>	<u>102 353</u>	<u>94 580</u>	<u>272 924</u>	<u>117 218</u>	<u>268 923</u>	<u>123 278</u>	<u>227 659</u>
<u>Total group A a/</u>	<u>11 473</u>	<u>98 765</u>	<u>55 143</u>	<u>259 119</u>	<u>66 953</u>	<u>255 461</u>	<u>70 812</u>	<u>214 173</u>
<u>Total group B b/</u>	<u>14 595</u>	<u>3 588</u>	<u>39 437</u>	<u>13 805</u>	<u>50 265</u>	<u>13 462</u>	<u>52 459</u>	<u>13 486</u>

Source: CEPAL, on the basis of official data.

a/ This group comprises those countries in which the production of petroleum is greater than the consumption of petroleum derivatives.

b/ This group comprises those countries in which the production of crude is less than the consumption of petroleum derivatives.

Exhibit 13

LATIN AMERICA: REVIEW OF OIL DRILLING ACTIVITY IN THE-POSTWAR (II) ERA BY COUNTRY

Country	Period	Wells			Number of feet drilled
		Exploratory wells	Productive exploratory wells	Total	
Brazil	1949-1972	1 441*	303*	3 680	≈ 16 130 000
Argentina	1951-1972	1 725	522*	<u>20 644</u>	68 543 000 <sup>a/*</sup>
Mexico	1949-1972	2 662	801*	<u>16 554</u>	71 805 000*
Peru	1948-1972	734	292*	9 700*	20 200 000 <sup>a/*</sup>
Colombia	≤ 1972	920*	250*	<u>3 857</u>	18 755 000*
Venezuela	1949-1972	2 655	401*	<u>28 571</u>	118 900 000 <sup>a/*</sup>
Bolivia	1949-1972	231*	72*	765	4 847 000 <sup>a/*</sup>
Paraguay	1949-1972	22	...	<u>29</u>	76 082
Ecuador	1949-1972	309	166	<u>2 970</u>	4 887 193 <sup>a/</sup>
Chile	1945-1972	353	78	<u>1 520</u>	10 488 000
Nicaragua	1949-1972	20	...	20	>178 912 <sup>b/</sup>
Honduras	1949-1972	6	...	6	56 277
Uruguay	< 1972	...	...	...	...
Guatemala	1949-1972	17	0	17	68 410 <sup>c/</sup>
Panama	1949-1972	12	...	12	> 65 484 <sup>b/*</sup>
Surinam	1949-1972	33	0	33	102 148 <sup>b/*</sup>
Guyana	1949-1972	9	0	9	48 336
Cuba	1949-1964	>201	>11	>524	>1 712 723
French Guiana	≤ 1972	...	...	...	...
Dominican Republic	1949-1970	18*	0	18	>44 419
Jamaica	1949-1972	8	...	8	29 581 <sup>c/</sup>
Belize	1949-1972	28	...	28	>94 987 <sup>c/</sup>
Trinidad and Tobago	1949-1972	515 <sup>a/*</sup>	230 <sup>a/*</sup>	<u>8 450*</u>	25 266 001
El Salvador	≤ 1972	0	0	0	0
Haiti	1949-1972	3	0	3	>12 930 <sup>b/</sup>
Costa Rica	≤ 1972	19	...	<u>19</u>	131 103
Barbados	1950-1971	17	6	19	149 760 <sup>b/</sup>
<b>Cumulative total</b>		<u>11 958</u>	<u>4 132</u>	<u>91 962</u>	<u>362 592 346</u>

Source: B. F. Grossling, Latin America's Petroleum Prospects, Geological Survey Bulletin 1411, United States Government Printing Office, Washington, D. C., 1975, p. 28, table 12.

Note: The average depth of the wells is 4 263 feet. The exploratory wells represent 14 per cent of the total; 35 per cent of the exploratory wells were productive. The figures underlined indicate total cumulative values up to 1972.

- a/ No information available for several years.
- b/ No information available for one year.
- c/ No information available for two years.

Exhibit 14

LATIN AMERICA: WELLS DRILLED AND INVESTMENTS IN OIL AND GAS EXPLORATION AND PRODUCTION IN VENEZUELA AND OTHER LATIN AMERICAN COUNTRIES, 1958-1975

(Millions of dollars and units)

	Venezuela						Rest of Latin America <sup>a/</sup>	
	Investment		Number of wells drilled <sup>b/</sup>				Investment	
	Explora- tion	Exploita- tion	Explora- tion wells	Develop- ment wells	Exploita- tion wells	Total	Explora- tion	Exploita- tion
1958	50	500	168	430	586	1 184	65	300
1959	40	375	103	238	351	692	85	436
1960	30	225	62	214	168	444	75	485
1961	20	165	77	202	198	477	65	480
1962	15	160	69	128	339	536	75	425
1963	10	170	54	116	328	498	75	330
1964	10	155	61	118	442	621	60	265
1965	10	175	64	117	513	694	60	245
1966	10	120	45	45	304	394	50	255
1967	15	120	30	45	243	318	60	250
1968	15	175	28	72	338	438	75	350
1969	20	200	34	68	387	489	75	325
1970	15	205	37	65	520	622	85	360
1971	30	210	44	121	436	601	75	525
1972	25	150	64	105	329	498	75	550
1973	25	200	58	88	275	421	75	575
1974	30	290	69	96	242	407	150	925
1975	30	240	36	94	151	281	150	950

Source: Chase Manhattan Bank, Energy Economics Division, Capital Investment of the World Petroleum Industry.

<sup>a/</sup> Western Hemisphere, excluding the United States, Canada and Venezuela.

<sup>b/</sup> These figures were taken from Ministerio de Minas e Hidrocarburos de Venezuela, Petróleo y otros Datos Estadísticos, 1971 and 1975.

## Exhibit 15

VENEZUELA: PROVEN OIL RESERVES<sup>a/</sup> AND PRODUCTION OF CRUDE OIL, 1950-1975

Year	Reserves (billions of barrels) (a)	Production (thousands of barrels/ day) (b)	Percentage (a)/(b)	Year	Reserves (billions of barrels) (a)	Production (thousands of barrels/ day) (b)	Percentage (a)/(b)
1950	8.7	1 498	15.8	1963	17.0	3 248	14.3
1951	9.1	1 705	14.7	1964	17.2	3 395	14.4
1952	9.2	1 804	14.0	1965	17.2	3 505	13.4
1953	10.2	1 765	15.9	1966	16.9	3 400	13.6
1954	10.9	1 895	15.8	1967	15.9	3 575	12.2
1955	12.4	2 157	15.7	1968	15.7	3 640	11.8
1956	14.0	2 457	15.6	1969	14.9	3 639	11.2
1957	15.6	2 779	15.4	1970	15.1	3 708	11.2
1958	16.8	2 615	17.7	1971	14.8	3 549	11.4
1959	17.0	2 771	16.8	1972	13.9	3 220	11.8
1960	17.4	2 846	16.7	1973	14.1	3 366	11.5
1961	16.9	2 920	15.8	1974	18.6	2 976	17.1
1962	16.8	3 200	14.4	1975	18.5	2 346	21.5

Source: Ministerio de Minas e Hidrocarburos de Venezuela, Petróleo y otros Datos Estadísticos, 1971 and 1975.

a/ At the end of the year indicated.

Exhibit 16

LATIN AMERICA: IMPORTS OF CRUDE OIL AND REFINED<sup>e/</sup> OIL PRODUCTS BY COUNTRY, 1950-1975 (SELECTED YEARS)  
(Thousands of m<sup>3</sup>)

	1950		1960		1970		1973		1974		1975	
	Crude	Derivates	Crude	Derivates	Crude	Derivates	Crude	Derivates	Crude	Derivates	Crude	Derivates
Argentina	3 599	2 703	3 685	1 929	1 684	1 490	3 995	1 268	3 427	1 023	2 495	1 484
Bolivia	-	75	-	42	-	16	-	17	-	18	-	19
Brazil	13	4 978	6 704	4 816	18 675	2 521	41 523	1 221	40 261	1 238	40 784	269
Colombia	-	244	-	98	-	36	-	-	-	92	-	314
Chile	-	1 348	588	989	2 366	1 044	3 641	406	4 769	96	3 146	-
Ecuador	-	8	252	96	1 132	30	1 052	25	1 499	87	1 314	80
Guyana	-	...	-	243	-	567	-	549	-	...	-	...
Paraguay	-	13	-	124	208	42	124	30	144	45	228	50
Peru	-	44	60	608	791	519	2 034	280	1 899	351	2 724	500
Uruguay	864	44	1 500	104	1 929	147	1 963	103	2 003	153	2 099	105
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Mexico	-	347	-	471	-	2 251	3 751	4 605	983	3 597	-	3 698
Central America b/	-	736	-	1 434	2 721	653	3 890	470	3 658	366	3 416	796
Panama	-	212	-	414	4 179	47	4 167	24	4 006	44	4 750	68
Barbados	6	24 <sup>c/</sup>	12	52	90	262	176	269	167	318	172*	300*
Cuba	269	1 037 <sup>c/</sup>	3 736	2 024 <sup>c/</sup>	4 898	1 850	6 026	2 092	6 753	2 097	6 663	2 132
Jamaica	-	...	-	948	1 825	285	1 687	1 160	1 744	1 151	1 653	1 439
Haiti	-	44	-	102	-	115	-	98*	-	119*	-	110*
Dominican Republic	-	120	-	358	-	954	912	345	1 668	203	1 391*	244
Trinidad and Tobago	1 520	-	6 395	-	17 978	-	16 888	-	17 091	560	9 025	-
<b>Total</b>	<b>6 231</b>	<b>11 977</b>	<b>22 932</b>	<b>14 852</b>	<b>58 496</b>	<b>12 829</b>	<b>91 229</b>	<b>12 962</b>	<b>90 072</b>	<b>11 558</b>	<b>79 860</b>	<b>11 608</b>

Source: CEPAL, on the basis of official data.

a/ Include only liquefied gas, kerosene, jet fuel, gas oil/diesel oil and fuel oil.

b/ Central America comprises Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua.

c/ These figures represent only Venezuela's exports to Cuba.

Exhibit 17

LATIN AMERICA: OIL REFINING AND NET CRUDE OIL IMPORTS BY COUNTRY, 1950-1975 (SELECTED YEARS)  
(Thousands of b<sup>3</sup>)

	Crude oil																			
	1950				1960				1970				1974				1975			
	Refined output (a)	Net imports (b)	Percent age (b)/(a)	Refined output (c)	Net imports (d)	Percent age (d)/(c)	Refined output (e)	Net imports (f)	Percent age (f)/(e)	Refined output (g)	Net imports (h)	Percent age (h)/(g)	Refined output (i)	Net imports (j)	Percent age (j)/(i)					
Argentina	7 114	3 559	50	13 627	3 685	27	24 513	1 648	7	27 004	3 351	12	25 109	2 477	10					
Bolivia	99	-	-	359	-	-	726	-	-	943	-	-	1 171	-	-					
Brazil	86	13	15	10 412	5 971	57	29 592	18 595	63	47 144	39 848	85	51 804	39 527	76					
Colombia	1 512	-	-	3 950	-	-	7 902	-	-	9 627	-	-	8 994	-	-					
Cuba	291	269	92	3 756*	3 736	99	4 950	4 898	99	6 400	6 733	105	6 869	6 663	97					
Chile	-	-	-	1 727	588	34	4 404	2 386	54	5 960	4 557	76	4 752	3 146	66					
Ecuador	257	-	-	674	252	37	1 386	1 099	79	2 028	-	-	2 313	-	-					
Mexico	9 050	-	-	17 028	-	-	29 132	-	-	36 473	64	-	38 455	-	-					
Peru	1 935	-	-	2 637	-	-	4 576	441	10	6 317	1 699	27	6 538	2 488	38					
Trinidad and Tobago	4 558	1 520	33	13 092	5 589	43	24 623	15 102	61	20 800	9 543	46	11 753	6 684	57					
Venezuela	14 497	-	-	51 339	-	-	74 996	-	-	66 283	-	-	50 107	-	-					
<b>Total</b>	<b>39 399</b>	<b>5 361</b>	<b>14</b>	<b>118 601</b>	<b>21 421</b>	<b>18</b>	<b>206 800</b>	<b>44 169</b>	<b>21</b>	<b>250 979</b>	<b>65 815</b>	<b>28</b>	<b>207 865</b>	<b>60 985</b>	<b>29</b>					

Source: CEPAL, on the basis of official data.

Exhibit 18

LATIN AMERICA AND WORLD: OIL REFINING CAPACITY BY TYPE AND BY COUNTRY, 1954, 1960, 1970 AND 1975  
(Thousands of barrels per day)

	On 1 January 1954				On 1 January 1960				On 1 January 1970				On 1 January 1975			
	No of re- finer- ies	Crude oil	Crack- ing	Reform- ing	No of re- finer- ies	Crude oil	Crack- ing	Reform- ing	No of re- finer- ies	Crude oil	Crack- ing	Reform- ing	No of re- finer- ies	Crude oil	Crack- ing	Reform- ing
Antigua	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Argentina	16	186.1	65.4	-	14	238.4	87.4	3.3	14	457.2	219.2	18.9	14	720.7	101.2	51.4
Bahamas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barbados	-	-	-	-	-	-	-	-	1	3.0	...	...	1	3.0	...	...
Bolivia	4	12.3	-	-	4	12.2	...	...	5	11.6	...	...	5	25.5	...	...
Brazil	9	105.8	29.5	19.7	8	156.3	66.3	...	11	501.6	86.9	38.7	10	961.8	183.0	21.0
Chile	1	20.0	13.4	-	1	24.0	9.5	4.0	2	91.0	32.5	10.0	3	123.5	26.3	10.0
Colombia	3	39.5	16.5	15.1	5	51.2	60.8	...	5	137.4	76.0	...	6	172.1	48.5	2.0
Costa Rica	-	-	-	-	-	-	-	-	1	8.0	3.0	1.2	1	11.0	...	1.5
Cuba	3	7.7	2.4	-	6	86.9	24.5	10.9	3	93.0	24.0	15.6	3	122.0	14.6	11.7
Dominican Republic	-	-	-	-	-	-	-	-	-	-	-	-	-	45.5	...	7.0
Ecuador	2	5.4	-	-	2	7.4	...	...	2	33.0	6.0	1.0	4	44.3	...	...
El Salvador	-	-	-	-	-	-	-	-	1	14.0	...	2.0	1	14.0	...	2.6
Guatemala	-	-	-	-	-	-	-	-	2	20.5	...	6.0	2	24.8	...	5.5
Honduras	-	-	-	-	-	-	-	-	1	10.0	...	1.6	1	14.0	...	1.8
Jamaica	-	-	-	-	-	-	-	-	1	32.0	...	3.1	1	32.6	...	3.0
Martinique	-	-	-	-	-	-	-	-	-	-	-	-	-	10.4	...	2.5
Mexico	8	243.5	32.0	-	8	357.0	87.0	...	6	494.5	102.0	56.6	6	760.0	109.0	35.3
Aruba and Curaçao	2	640.0	393.0	44.0	2	680.0	478.0	20.0	2	840.0	510.0	23.0	2	900.0	35.0	15.0
Nicaragua	-	-	-	-	-	-	-	-	1	21.8	...	4.4	1	13.2	...	2.6
Panama	-	-	-	-	-	-	-	-	1	78.0	23.5	8.0	1	100.0	...	7.5
Paraguay	-	-	-	-	-	-	-	-	1	5.0	...	...	1	5.0	...	...
Peru	3	47.5	15.2	-	3	49.2	20.8	...	4	91.5	25.0	1.2	5	129.6	26.0	1.8
Puerto Rico	-	-	-	-	2	83.7	82.4	7.5	2	155.0	70.5	13.5	3	283.8	47.8	75.5
Trinidad and Tobago	3	115.0	35.0	15.0	3	182.0	53.0	8.5	3	430.0	26.5	32.0	2	461.0	26.5	27.0
Uruguay	1	28.0	2.0	7.0	1	28.0	2.0	...	1	40.0	5.0	3.0	1	43.0	4.0	3.0
Venezuela	14	528.3	85.5	-	14	826.0	118.5	19.8	12	1 313.4	215.9	22.3	12	1 531.7	46.6	20.6
Total	69	1 974.1	689.9	100.8	73	2 842.3	1 090.2	74.0	82	4 881.5	1 426.0	262.1	91	7 068.5	668.5	310.3
World a/	597	15 186.6	4 030.4	3 513.4	595	20 915.7	9 329.1	3 264.0	704	41 842.6	10 242.0	6 144.6	720	56 232.0	6 933.2	7 127.9
Total Latin America b/	50	1 087.3	176.4	41.8	52	1 010.6	358.3	18.2	63	2 143.1	603.1	171.3	71	3 392.0	512.6	172.2

Source: Oil and Gas Journal, December 1953, 1954, 1969 and 1974.  
a/ Excluding countries with centrally planned economies. b/ Excluding Aruba and Curaçao, Bahamas, Puerto Rico, Trinidad and Tobago and Venezuela.

Exhibit 19

LATIN AMERICA: NUMBER AND CAPACITY OF REFINERIES BY COUNTRY, 1957 AND 1976  
(Thousands of barrels per day)

	On 1 January 1957					On 1 January 1976					Total capacity							
	Num ber a/	Capac- ity	Num ber a/	Capac- ity	Total capacity	Num ber a/	Capac- ity	Num ber a/	Capac- ity	Total capacity								
Argentina	11	38 300	3	64 000	15	197 300	6	33 401	2	45 304	1	33 335	1	92 000	3	479 803	13	683 843
Bolivia	4	11 710	-	-	4	11 710	4	12 575	1	21 100	-	-	-	-	-	-	5	33 675
Brazil	6	28 800	1	20 000	8	113 800	3	28 900	-	-	1	33 600	3	215 700	3	708 100	10	986 300
Chile	-	-	1	20 000	1	20 000	1	13 000	-	-	-	-	2	136 200	-	-	3	149 200
Colombia	3	7 700	1	26 500	5	70 700	4	11 500	-	-	1	50 000	-	-	1	110 000	6	171 500
Ecuador	2	5 625	-	-	2	5 625	2	9 000	-	-	1	34 900	-	-	-	-	3	43 900
Paraguay	2	2 200	-	-	3	49 200	3	12 700	-	-	1	37 000	-	80 000	-	-	1	5 000
Peru	-	-	1	28 000	1	28 000	-	-	-	-	1	45 900	-	-	-	-	5	129 700
Uruguay	-	-	1	20 000	2	126 000	3	20 600	1	30 000	2	72 000	2	131 500	4	1 196 715	12	1 450 815
Venezuela	5	14 800	1	20 000	12	755 800	3	146 676	4	96 404	8	306 735	9	655 400	11	2 494 618	52	3 599 833
Total South America	33	109 135	8	178 500	51	1 252 135	27	146 676	4	96 404	27	306 735	27	655 400	41	2 494 618	112	1 450 815
Costa Rica	-	-	-	-	-	-	1	8 000	-	-	-	-	-	-	-	-	1	8 000
El Salvador	-	-	-	-	-	-	-	-	1	15 700	-	-	-	-	-	-	1	15 700
Guatemala	-	-	-	-	-	-	2	25 000	-	-	-	-	-	-	-	-	2	25 000
Honduras	-	-	-	-	-	-	1	14 000	-	-	-	-	-	-	-	-	1	14 000
Nicaragua	-	-	-	-	-	-	1	13 200	-	-	-	-	-	-	-	-	1	13 200
Panama	-	-	-	-	-	-	-	-	-	-	-	-	1	100 000	-	-	1	100 000
Mexico	2	24 000	-	-	8	444 000	-	-	2	47 500	-	-	1	100 000	4	612 500	7	760 000
Total Central America and Mexico	2	24 000	-	-	8	444 000	5	60 200	3	63 200	-	-	2	200 000	4	612 500	14	935 500
Aruba and Curaçao	-	-	-	-	2	650 000	-	-	-	-	-	-	-	-	2	849 000	2	849 000
Bahamas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	500 000	1	500 000
Virgin Islands	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	728 000	1	728 000
Puerto Rico	1	13 500	-	-	2	72 300	-	-	-	-	-	37 800	1	85 000	1	161 000	3	283 800
Trinidad and Tobago	1	4 000	-	-	3	141 000	-	-	-	-	-	-	1	100 000	1	361 000	2	461 000
Total West Indies exporters	2	17 500	-	-	2	863 300	-	-	-	-	-	37 800	2	185 000	6	2 599 000	9	2 821 800
Antigua	-	-	-	-	-	-	-	-	1	16 000	-	-	-	-	-	-	1	16 000
Barbados	-	-	-	-	-	-	1	3 000	-	-	-	-	-	-	-	-	1	3 000
Cuba	2	2 200	2	47 000	5	84 200	1	4 970	-	-	1	42 000	1	75 000	-	-	3	121 970
Jamaica	-	-	-	-	-	-	-	-	-	-	-	32 600	-	-	-	-	1	32 600
Martinique	-	-	-	-	-	-	1	10 400	-	-	-	-	-	-	-	-	1	10 400
Dominican Republic	-	-	-	-	-	-	-	-	2	48 000	-	-	-	-	-	-	2	48 000
Total West Indies importers	2	2 200	2	47 000	5	84 200	3	18 370	3	64 000	2	74 600	1	75 000	-	-	9	231 970
Total Latin America	39	152 835	10	225 500	71	2 643 635	35	225 246	10	223 604	11	419 135	14	1 115 400	21	5 706 118	91	7 689 503

Source: Oil and Gas Journal, Dec. 29, 1975, pp. 86-87.  
a/ Number of refineries.

Exhibit 20

LATIN AMERICA: EXPORTS OF CRUDE OIL AND REFINED OIL PRODUCTS BY COUNTRY, 1950-1975<sup>a/</sup> (SELECTED YEARS)

(Thousands of m<sup>3</sup>)

	1950		1960		1970		1973		1974		1975	
	Crude oil	Petroleum derivatives	Crude oil	Petroleum derivatives	Crude oil	Petroleum derivatives	Crude oil	Petroleum derivatives	Crude oil	Petroleum derivatives	Crude oil	Petroleum derivatives
Argentina	-	-	-	-	36	152	32	69	81	58	18	48
Aruba and Curaçao b/	944	40 445	283	37 899	206	46 374	568	46 993	697	39 729	459	27 971
Bolivia	9	3	247	7	741	-	1 883	-	1 717	-	1 317	-
Brazil	-	-	733	66	80	-	998	2 826	773	2 411	1 257	2 089
Colombia	4 495	-	4 991	644	5 311	1 686	1 494	1 677	76	1 632	-	1 382
Ecuador	149	-	-	-	33	6	11 324	-	9 418	-	8 311	-
Mexico	1 864	1 034	166	1 192	-	171	-	839	922	916	5 466	408
Panama	-	-	-	-	-	1 048	-	670	-	2 675	-	2 964
Peru	445	706	446	536	350	2	196	504	200*	428	236	358
Trinidad and Tobago	...	...	806	11 824	2 876	21 260	5 323	18 560	7 548	17 728	8 718	11 251
Venezuela c/	71 931	10 688	116 214	40 028	141 292	60 065	123 240	99 580	102 623	57 085	85 438	35 632
<b>Total</b>	<b>79 837</b>	<b>52 876</b>	<b>123 886</b>	<b>92 196</b>	<b>150 925</b>	<b>130 764</b>	<b>145 058</b>	<b>131 718</b>	<b>124 055</b>	<b>122 722</b>	<b>111 220</b>	<b>82 103</b>

Source: CEPAL, on the basis of official data.

a/ Including liquefied gas, gasoline, kerosene, jet fuel, gas oil/diesel oil and fuel oil.

b/ Aruba and Curaçao do not produce crude oil. Therefore, the figures for crude represent re-exports.

c/ Exports include both petroleum fuels and non-fuels and exclude fuel for ships.

Exhibit 21

VENEZUELA: EXPORTS OF CRUDE OIL AND FUEL OIL BY IMPORTING COUNTRIES AND REGIONS, 1950-1975 (SELECTED YEARS)

(Thousands of m<sup>3</sup>)

	1950	1960	1970	1973	1974	1975
<b>A. Crude oil</b>						
United States	16 615	28 255	24 099	28 924	21 716	23 589
Canada	4 846	11 658	19 083	17 380	19 358	14 844
Puerto Rico	-	4 192	7 164	10 534	5 114	5 583
Latin America a/	3 246	14 981	21 702	17 834	14 039	10 455
Aruba and Curaçao	43 560	40 886	44 975	34 007	31 048	21 416
Europe	3 538	15 785	23 508	13 889	10 898	9 288
Other countries	126	466	751	672	450	263
<b>Total</b>	<b>71 951</b>	<b>116 223</b>	<b>141 282</b>	<b>123 240</b>	<b>102 623</b>	<b>85 438</b>
<b>B. Fuel oil</b>						
United States	3 850	18 514	34 323	34 615	30 708	13 486
Canada	314	684	2 405	2 059	1 760	814
Puerto Rico	21	60	34	228	788	71
Panama Canal Zone	-	-	947	1 334	878	825
Latin America b/	1 101	2 752	2 518	1 865	2 546	2 365
Aruba and Curaçao	1 812	1 467	1 262	5 214	4 889	6 212
Europe	312	4 046	1 440	2 023	1 968	1 387
Other countries	68	431	342	47	212	92
<b>Total</b>	<b>7 478</b>	<b>27 954</b>	<b>43 272</b>	<b>47 385</b>	<b>43 749</b>	<b>25 252</b>

Source: Ministerio de Minas e Hidrocarburos de Venezuela, Petróleo y Otros Datos Estadísticos, October 1966 and October 1976.

Note: The fuel oil figures for 1950, 1955 and 1960 were supplied directly by the Venezuelan Ministry of Mines and Hydrocarbons.

a/ Excluding Puerto Rico, and Aruba and Curaçao.

b/ Excluding Puerto Rico, the Panama Canal Zone, and Aruba and Curaçao.

Exhibit 22

VENEZUELA: VALUE OF HYDROCARBON EXPORTS, 1950-1975<sup>a/</sup> (SELECTED YEARS)  
(Millions of dollars)

Year	Value		Year	Value	
	Not adjusted for freight costs	Adjusted for freight costs <u>b/</u>		Not adjusted for freight costs	Adjusted for freight costs <u>b/</u>
1950	...	-	1966	2 221	-
1955	1 791	-	1967	2 333	-
1960	2 175	-	1968	2 425	-
1961	2 276	-	1969	2 449	-
1962	2 370	-	1970	2 496	-
1963	2 300	-	1971	2 912	3 127
1964	2 341	-	1972	2 924	3 509
1965	2 305	-	1973	4 463	5 294
			1974	10 520	14 669
			1975	9 890	10 635

Source: Ministerio de Minas e Hidrocarburos de Venezuela, Petróleo y otros Datos Estadísticos, October 1966 and October 1976.

a/ 1955-1966: at actual prices.

1967-1970: at reference prices.

1971-1975: at export prices. The values not adjusted for freight costs in those years were taken from International Financial Statistics, April 1976, to which were applied the rates of exchange mentioned on page 146 of Petróleo y otros Datos Estadísticos, 1975, of the Ministry of Mines and Hydrocarbons of Venezuela.

b/ From 1971 onwards, an amount additional to the value of exports of crude oil and petroleum derivate hydrocarbons was established according to geographical position, in terms of freight rates, and will be calculated quarterly at a rate of 0.01605 bolívares per cubic metre for every tenth of a percentage point in the Worldscale tariff.

Exhibit 23

LATIN AMERICA: IMPORTS OF CRUDE OIL BY EXPORTING COUNTRIES AND REGIONS, 1955-1975 (SELECTED YEARS)  
(Thousands of b<sup>3</sup>)

Importing country	Area of origin		Latin America	Middle East	USSR	Indonesia	Others	Total	Latin America as a percentage of the total
	Venezuela	Others							
<u>Argentina</u>									
1955	2 398	277	2 675	1 755	110	-	42	4 621	57.9
1960	3 317	269	3 586	99	-	-	-	3 685	97.3
1970	386	616	1 002	628	-	-	32	1 684	59.5
1975	71	789	850	-	-	-	-	2 495	34.1
<u>Brazil</u>									
1955	2 158	-	2 158	1 965	-	-	-	4 123	62.3
1960	3 513	72	3 585	3 084	35	-	-	6 704	53.6
1970	2 634	56	2 690	11 466	-	-	-	18 675	14.4
1975	671	263	934	32 100	154	-	14 897	51 804	1.8
<u>Chile</u>									
1955	380	-	380	-	-	-	-	380	100.0
1960	585	3	588	-	-	-	-	588	100.0
1970	555	860	1 415	971	-	-	-	2 386	59.3
1975	418	821	1 239	1 668	-	-	-	3 146	39.4
<u>Trinidad and Tobago</u>									
1955	2 622	-	2 622	-	-	-	389	3 011	87.1
1960	4 362	413	4 775	1 484	-	84	-	6 395	74.7
1970	8 255	190	8 445	3 483	-	831	529	17 978	46.9
1975	63	11	74	5 984	-	2 898	-	9 025	0.8
<u>Uruguay</u>									
1955	1 004	364	1 368	-	-	-	-	1 368	100.0
1960	1 361	-	1 361	115	24	-	-	1 500	90.7
1970	105	-	105	1 177	-	-	-	1 929	5.4
1975	226	28	254	1 700	-	-	-	2 099	12.1
<u>Other countries a/</u>									
1955	516	-	516	-	-	-	-	516	100.0
1960	4 060	-	4 060	-	-	-	-	4 060	100.0
1970	10 775	-	10 775	-	4 898	-	-	15 673	68.7
1975	10 347	3 952	14 299	16 387	6 663	2 044	144	49 475	28.9
<u>Total</u>									
1955	9 078	641	9 719	3 720	110	-	431	14 019	69.3
1960	17 198	757	17 955	4 782	59	84	-	22 932	78.3
1970	22 710	1 722	24 432	17 725	4 898	831	561	58 325	41.9
1975	11 796	5 864	17 660	59 839	6 817	4 942	15 041	116 409	15.2

Source: CEPAL, on the basis of official data.

a/ Bahamas, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Nicaragua, Panama, Peru and Dominican Republic.

## Exhibit 24

LATIN AMERICA: CONSUMPTION OF REFINED OIL PRODUCTS BY COUNTRY, 1950-1975<sup>a/</sup> (SELECTED YEARS)

(Thousands of tons of petroleum equivalent of 10 700 kcal/kg)

	1950	1960	1970	1973	1974	1975 <sup>b/</sup>
Argentina	7 307	12 628	20 136	21 708	21 057	19 846
Barbados	22	54	166	184	183	168
Bolivia	122	278	508	617	697	817
Brazil	4 316	12 376	23 413	33 416	35 592	35 827
Colombia	931	2 786	4 997	6 165	6 536	6 596
Costa Rica	97	188	441	565	524	586
Cuba	1 716	4 084	5 850	6 875	6 905	6 995
Chile	1 134	2 237	4 424	4 904	4 868	3 992
Ecuador	230	530	1 186	1 398	1 614	1 989
El Salvador	93	198	443	593	556	622
Guatemala	246	464	710	949	900	906
Guyana	85	215	515	577	476	628
Haiti	34	85	94	84	81	79
Honduras	34	186	390	447	407	410
Jamaica	75	444	1 608	1 842	1 875	1 885
Mexico	7 337	12 855	21 702	27 290	30 054	30 968
Nicaragua	68	213	447	592	567	666
Panama	153	349	669	1 030	1 099	1 111
Paraguay	11	103	192	277	261	229
Peru	1 097	2 300	4 584	5 070	5 354	5 645
Dominican Republic	101	311	839	1 182	1 272	1 385
Trinidad and Tobago <sup>c/</sup>	178	291	1 571	1 590	1 464	1 317
Uruguay	734	1 210	1 548	1 646	1 550	1 592
Venezuela <sup>c/</sup>	1 700	3 906	6 229	8 185	8 458	9 286
<u>Total</u>	<u>27 821</u>	<u>58 291</u>	<u>102 662</u>	<u>127 186</u>	<u>132 350</u>	<u>133 545</u>

Source: CEPAL, on the basis of official data; for Guyana, Barbados, Cuba, Jamaica, Haiti, Dominican Republic and Trinidad and Tobago: United Nations, World Energy Supplies.

a/ Including liquefied gas, gasoline, kerosene, jet fuel, gas oil/diesel oil and fuel oil.

b/ Preliminary figures.

c/ Does not include bunkering of ships.

Exhibit 25

LATIN AMERICA: CONSUMPTION OF SPECIFIC REFINED OIL PRODUCTS BY COUNTRIES, 1950, 1970, 1974 AND 1975

(Thousands of m<sup>3</sup>)

	1950					1970					1974					1975								
	Lique- fied gas	Gasoline	Kero- sene	Diesel		Total	Lique- fied gas	Gasoline	Kero- sene	Diesel		Total	Lique- fied gas	Gasoline	Kero- sene	Diesel		Total	Lique- fied gas	Gasoline	Kero- sene	Diesel		Total
				gas	oil					gas	oil					gas	oil					gas	oil	
Argentina	48	2 138	724	856	4 642	8 408	1 687	5 421	1 304	6 060	9 177	23 649	1 700*	6 161	1 462	6 522	9 064	24 909	1 692	5 249	1 535	7 786	8 106	24 368
Bolivia	-	67	11	28	40	146	9	287	135	95	101	627	51	392	217	173	144	967	56	412	255	191	154	1 068
Brazil	29	2 281	321	676	1 820	5 127	2 392	9 807	1 398	6 515	8 116	28 218	3 127	14 737	2 132	10 219	12 187	42 402	3 243	14 724	2 157	11 609	11 437	43 170
Colombia	6	520	69	102	410	1 107	360	2 739	737	844	1 444	6 124	464	3 658	862	1 121	1 861	7 966	475	3 662	917	1 129	1 857	8 040
Chile	-	344	54	116	782	1 296	549	1 697	580	862	1 663	5 351	788	1 507	648	1 040	1 912	5 895	738	1 134	522	987	1 476	4 857
Ecuador	-	101	20	32	121	274	11	535	171	278	416	1 411	33	764	98	451	525*	1 871	50	919	299	510	602	2 380
Guyana	-	12	6	a/	75	92	9	58	33	a/	466	566	9	55	16	a/	442	522	9	66	41	193	381	690
Paraguay	-	10	1	-	2	13	5	75	27	90	34	231	3*	76	30	161	40	310	9	76	26	128	36	275
Peru	3	405	143	125	599	1 275	100	1 654	890	1 091	1 710	5 445	185	2 230	1 101	1 262	1 876	6 654	196	2 126	1 160	1 308	1 920	6 710
Uruguay	-	229	132	57	39	457	57	345	220	382	791	1 795	67	279	228	416	802	1 792	66	278	229	450	907	1 930
Venezuela	...	861	271	453	1 315	2 900	376	4 104	681	1 312	1 005	7 478	825*	5 494	673	2 260	1 263	10 515	998	6 152	689	2 409	1 336	11 584
Mexico	172	2 199	707	650	4 725	8 453	3 620	8 840	2 575	5 521	6 135	26 691	4 668	11 393	2 862	7 849	9 890	36 662	4 570	11 682	2 930	9 167	11 291	39 640
Central America	-	204	31	123	268	626	93	774	289	957	663	2 776	119	927	307	1 221	977	3 551	100	872	272	1 317	1 015	3 576
Panama	-	47	17	27	85	176	33	232	111	157	252	785	54	322	160	250	537	1 323	65	356	132	279	479	1 311
Barbados	-	11	7	a/	8	26	5	64	55	a/	75	189	9	84	26	a/	101	220	14	77	23	a/	89	203
Cuba	16	495	73	a/	1 357	1 941	100	1 069	518	a/	4 852	6 539	123	1 324	560	a/	5 720	7 727	132	1 324	567	a/	5 805	7 828
Jamaica	-	57	14	a/	23	94	32	453	112	a/	1 213	1 810	73	285	229	a/	1 500	2 087	74	373	172	a/	1 480	2 099
Haiti	2	23	4	a/	14	42	2	38	4	a/	66	110	2	38	5	a/	50	95	2	38	5	a/	49	94
Dominican Republic	-	49	7	a/	63	119	51	277	94	a/	560	982	70	354	64	a/	951	1 439	64	438	63	a/	1 007	1 572
Trinidad and Tobago	-	66	18	a/	120	204	25	446	1 176	a/	288	1 935	26	452	972	a/	344	1 794	23	293	957	a/	328	1 601
<b>Total</b>	<b>276</b>	<b>10 119</b>	<b>2 630</b>	<b>3 245</b>	<b>16 508</b>	<b>32 778</b>	<b>9 516</b>	<b>38 915</b>	<b>11 100</b>	<b>24 164</b>	<b>39 027</b>	<b>122 722</b>	<b>12 396</b>	<b>50 522</b>	<b>12 652</b>	<b>32 945</b>	<b>50 186</b>	<b>158 701</b>	<b>12 576</b>	<b>50 251</b>	<b>12 951</b>	<b>37 463</b>	<b>49 755</b>	<b>162 996</b>

Source: CEPAL, on the basis of official data and United Nations, World Energy Supplies. (Various issues).

a/ Included in fuel oil.

Exhibit 26

LATIN AMERICA: STATE PARTICIPATION IN THE OIL INDUSTRY BY COUNTRY: 1955, 1960, 1970, AND 1975.

(Percentages)

Country	State enterprise	Production						Refining				Marketing			
		Petroleum			Natural gas			1955	1960	1970	1976	1972	1972		
		1955	1960	1970	1955	1960	1970	1955	1960	1970	1976	1972	1972		
Argentina	Yacimientos Petrolíferos Fiscales (YPF)	84	95	99	99	...	95	100	100	66	57	61	66	67	100
Bolivia	Yacimientos Petrolíferos Fiscales Bolivianos (YPFB)	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Brazil	Petróleo Brasileiro (PETROBRAS)	100	100	100	100	100	100	100	100	63	73	89	98	...	...
Colombia	Empresa Colombiana del Petróleo (ECOPETROL)	29	18	17	17	29	29	45	...	...	48	56	64	15	10
Cuba	Empresa Consolidada del Petróleo	0	100	100	100	-	-	-	-	0	100	100	100	-	-
Chile	Empresa Nacional del Petróleo (ENAP)	100	100	100	100	100	100	100	100	100	100	100	100	25	100
Ecuador	Corporación Ecuatoriana del Petróleo (CEPE)	0	0	0	0	0	0	0	0	0	0	0	0	11	-
Mexico	Petróleos Mexicanos (PEMEX)	100	100	100	100	100	100	100	100	100	100	100	100	98	87
Peru	Empresa Petrolera Fiscal (E.P.F.) b/	3	5	40	...	0	0	54	...	0	2	91	100	95	30
Uruguay	Administración Nacional de Combustibles Alcohol y Portland (ANCAP)	-	-	-	-	-	-	-	-	100	100	100	100	62	-
Venezuela	Corporación Venezolana del Petróleo (C.V.P.) c/	0	0	1	100	0	0	1	100	0	0	2	100	23	71

Source: CEPAL, on the basis of official data and of Oil and Gas Journal, several issues. For marketing: Asociación de Asistencia Recíproca Petrolera Estatal Latinoamericana (ARPEL), Datos Estadísticos de las Empresas Petroleras Estatales Latinoamericanas, November 1973.

a/ Semi-public enterprises.

b/ Now called Petróleos del Perú (PETROPERU).

c/ The oil industry was nationalized in January 1976.

Exhibit 27

LATIN AMERICA AND WORLD PARTICIPATION OF THE EIGHT MAJOR INTERNATIONAL OIL COMPANIES IN THE OIL REFINING INDUSTRY, BY COUNTRY, 1957, 1966 AND 1977

(Thousands of barrels per day and percentages)

	1957			1966			1977			Refining capacity by enterprise in 1976							
	Refining capacity	Eight com- panies	Per- cent- age	Refining capacity	Eight com- panies	Per- cent- age	Refining capacity	Eight com- panies	Per- cent- age	ESSO	MOBIL	SHELL	SOCAL	TEXACO	GULF	CFP	BP
Antigua	-	-	-	-	-	-	16.0	-	-	-	-	-	-	-	-	-	-
Argentina	197.3	55.3	28.0	435.5	159.0	36.5	703.1	224.0	31.9	109.0	-	115.0	-	-	-	-	-
Aruba and Curacao	650.0	650.0	100.0	795.0	795.0	100.0	810.0	810.0	100.0	440.0	-	370.0	-	-	-	-	-
Bahamas	-	-	-	-	-	-	500.0	...	...	-	-	-	-	-	-	-	-
Barbados	-	-	-	3.0	3.0	100.0	3.0	3.0	100.0	-	3.0	-	-	-	-	-	-
Bolivia	11.7	-	-	14.5	-	-	37.1	-	-	-	-	-	-	-	-	-	-
Brazil	113.8	-	-	370.4	-	-	1 117.6	-	-	-	-	-	-	-	-	-	-
Colombia	70.7	29.7	42.0	129.3	53.3	41.2	165.0	8.5	5.2	-	5.0	-	3.5	-	-	-	-
Costa Rica	-	-	-	8.0	-	-	8.0	...	-	-	-	-	-	-	-	-	-
Cuba	84.2	82.0	97.4	...	-	-	122.0	-	-	-	-	-	-	-	-	-	-
Chile	20.0	-	-	91.0	-	-	139.5	-	-	-	-	-	-	-	-	-	-
Ecuador	5.6	-	-	11.5	1.5	13.0	40.9	8.6	21.0	-	-	-	-	1.0	-	-	-
El Salvador	-	-	-	13.5	12.8	94.8	15.7	12.8	81.5	8.1	-	4.7	-	-	-	-	-
Guatemala	-	-	-	20.5	20.5	100.0	14.0	...	-	-	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	-	14.0	14.0	100.0	-	-	-	14.0	-	-	-	-
Virgin Islands	-	-	-	50.0	-	-	728.0	...	-	32.6	-	-	-	-	-	-	-
Jamaica	-	-	-	28.0	28.0	100.0	32.6	32.6	100.0	-	-	-	-	-	-	-	-
Martinique	-	-	-	-	-	-	10.4	...	-	-	-	-	-	-	-	-	-
Mexico	444.0	-	-	394.0	-	-	935.0	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	5.6	5.6	100.0	14.9	14.9	100.0	14.9	-	-	-	-	-	-	-
Panama	-	-	-	55.0	-	-	100.0	...	-	-	-	-	-	-	-	-	-
Paraguay	-	-	-	5.0	-	-	5.0	...	-	-	-	-	-	-	-	-	-
Peru	49.2	47.0	95.5	63.6	59.5	93.6	115.9	-	-	-	-	-	-	-	-	-	-
Puerto Rico	72.3	6.5	8.9	155.0	40.0	25.8	283.8	37.8	13.3	-	-	-	-	37.8	-	-	-
Dominican Republic	-	-	-	-	-	-	46.5	...	-	-	-	-	-	-	-	-	-
Trinidad and Tobago	141.0	133.0	94.3	390.0	390.0	100.0	461.0	461.0	100.0	-	-	100.0	-	361.0	-	-	-
Uruguay	28.0	-	-	40.0	-	-	45.9	-	-	-	-	-	-	-	-	-	-
Venezuela	755.8	696.0	92.1	1 194.2	1 150.0	96.3	1 446.3	-	-	-	-	-	-	-	-	-	-
Total	2 643.6	1 699.5	64.2	4 272.6	2 718.2	63.6	7 931.2	1 627.2	20.5	604.6	8.0	589.7	-	379.5	45.4	-	-
World c/	7 993.6	5 466.9	-	20 426.0	11 866.8	-	61 706.9	11 605.8	-	2 311.7	1 170.5	3 756.5	440.0	739.5	355.2	1 326.1	1 526.3
World (percentage)	100.0	68.4	-	100.0	58.1	-	100.0	18.8	-	3.7	1.9	6.1	0.7	1.2	0.5	2.2	2.5

Sources: December 1957 and December 1966; M.A. Adelman, The World Petroleum Market, published for Resources for the Future Inc., by Johns Hopkins Press, Baltimore and London, pp. 327 and 332; 1977: data are as of Jan. 1, 1977 and were taken from The Oil and Gas Journal, Dec. 27, 1976, pp. 104-105.

Note: CFP: Compagnie Francaise de Pétrole.

BP: British Petroleum.

a/ Bahamas Oil Refining Company.

b/ Hess Oil, Virgin Islands.

c/ Excluding countries with centrally planned economies.

## Exhibit 28

## LATIN AMERICA: PRODUCTION OF NATURAL GAS BY COUNTRY, 1955-1975 (SELECTED YEARS)

(Millions of m<sup>3</sup>)

	1950	1955	1960	1965	1970	1973	1974	1975
Argentina	755	1 065	3 550	6 236	7 665	8 914	9 428	10 275
Bolivia	-	-	168	212	866	4 281	4 081	3 888
Brazil	5	62	535	683	1 264	1 180	1 488	1 625
Colombia	1 200*	1 800	2 338	2 658	2 971	3 222	3 303	3 398*
Cuba	-	-	-	-	-	-	-	-
Chile	200	466	2 194	6 215	7 628	7 376	7 042	7 097
Ecuador	132	180	185	251	172	155	348	299
Mexico	1 852	3 412	9 665	13 965	18 839	19 169	21 087	22 275
Peru	818 <sup>a/</sup>	1 011	1 954	1 847	2 119	1 792	1 956	1 897*
Trinidad and Tobago	...	...	2 765	3 263	3 053	3 214	3 616	3 582
Venezuela	15 775	24 308	31 561	40 846	48 427	49 433	46 426	38 008
<u>Total</u>	<u>20 737</u>	<u>32 304</u>	<u>54 915</u>	<u>76 176</u>	<u>93 004</u>	<u>98 736</u>	<u>98 775</u>	<u>92 344</u>

Source: CEPAL, on the basis of official data.

a/ Figure for 1951.

## Exhibit 29

## LATIN AMERICA: PRODUCTION AND USE OF NATURAL GAS BY COUNTRY, 1955-1974 (SELECTED YEARS)

(Millions of m<sup>3</sup>)

	Produced	Reinjected a/	Consumed b/	Burned	Imported	Exported	Processed
<b>Argentina</b>							
1955	1 065	6	719	719	-	-	...
1965	6 236	230	4 502	1 763	18	-	...
1970	7 665	8	6 102	1 598	-	-	...
1974	9 428	397	7 222	1 779	1 542	-	...
<b>Bolivia</b>							
1955	-	-	-	-	-	-	-
1965	212	76	80	56	-	-	-
1970	866	462	14	228	-	-	-
1974	4 081	1 924	72	449	-	1 546	...
<b>Brazil</b>							
1955	62	...	...	...	-	-	-
1965	683	263	90	331	-	-	-
1970	1 264	246	118	899	-	-	...
1974	1 488	658	429	399	-	-	...
<b>Colombia</b>							
1955	1 800	...	...	...	-	-	...
1965	2 658	795	875	1 100	-	-	...
1970	2 971	937	1 343	569	-	-	1 931
1974	3 303	884	1 735	555	-	-	1 926
<b>Chile</b>							
1955	466	324	80 <sup>c/</sup>	...	-	-	329
1965	6 215	4 486	51 <sup>d/</sup>	...	-	-	4 448
1970	7 628	4 954	1 219 <sup>d/</sup>	...	-	-	4 111
1974	7 042	3 431	1 150*	...	-	-	4 710
<b>Ecuador</b>							
1955	180	...	...	...	-	-	-
1965	251	...	...	...	-	-	-
1970	172	13	66	22	-	-	28
1974	348	...	...	...	-	-	...
<b>Mexico</b>							
1955	3 412	391	1 684	1 714	558	...	...
1965	13 965	1 251	8 930	2 813	276	1 539	...
1970	18 839	294	12 206	4 908	505	1 260	...
1974	21 087	63	14 677	5 108	355	12	...
<b>Peru</b>							
1955	1 011	70	...	116	-	-	769
1965	1 847	439	341	599	-	-	933
1970	2 119	205	395	1 033	-	-	655
1974	1 956	80	897	979	-	-	...
<b>Trinidad and Tobago</b>							
1955	...	...	...	...	-	-	...
1965	3 263	392	1 174	...	-	-	273
1970	3 053	539	1 600	296	-	-	488
1974	3 616	162	1 418	270	-	-	230
<b>Venezuela</b>							
1955	24 308	3 891	2 748	17 353	-	-	316
1965	40 846	17 720	6 538	16 052	-	-	536
1970	48 427	20 110	8 979	18 444	-	-	881
1974	46 426	29 086	11 632	9 862	-	-	1 846
<b>Total</b>							
1955	32 304	4 682	5 231	19 902	558	-	1 414
1965	76 176	25 652	23 047	22 714	294	1 539	6 190
1970	93 004	27 768	32 042	27 997	505	1 260	8 094
1974	98 775	38 144	39 232	19 401	1 897	1 558	8 712

Source: CEPAL, on the basis of official data.

a/ Including dry gas in those countries where natural gas was liquefied.

b/ In importing countries, consumption includes imported natural gas (as in Argentina and Mexico).

c/ Consumed in the Magallanes gas fields, according to a publication of the Production Development Corporation (CORFO).

d/ Data published by PETROTECNIA of the Argentine Petroleum Institute.

Exhibit 30

LATIN AMERICA: PRODUCTION, IMPORTS, EXPORTS AND CONSUMPTION OF COAL BY COUNTRY, 1950, 1960 AND 1975  
(Thousands of tons of coal equivalent)

	1950				1960				1975			
	Production	Imports	Exports a/	Apparent consump- tion b/	Production	Imports	Exports a/	Apparent consump- tion b/	Production	Imports	Exports	Apparent consump- tion
Argentina	26	1 465	-	1 491	175	1 465	-	1 640	502	1 037	3	1 536
Brazil	1 959	1 115	-	3 074	1 277	1 062	-	2 339	2 717	2 720	-	5 437
Chile	1 779	66	75	1 768	1 321	352	35	1 698	1 362	164	1	1 525
Colombia	1 010	-	-	1 010	2 600	-	-	2 600	3 200	-	17	3 183
Mexico	942	27	-	969	1 776	53	-	1 829	5 128	580	-	5 708
Peru	196	-	57	139	162	13	27	148	85	274	-	359
Venezuela	1	1	-	2	35	1	-	36	60	208	-	268
<u>Subtotal</u>	<u>5 913</u>	<u>2 674</u>	<u>132</u>	<u>8 453</u>	<u>7 346</u>	<u>2 946</u>	<u>62</u>	<u>10 290</u>	<u>13 054</u>	<u>4 983</u>	<u>21</u>	<u>18 016</u>
Bolivia	-	1	-	1	-	3	-	3	-	-	-	-
Uruguay	-	129	-	129	-	79	-	79	-	41	-	41
Cuba	-	62	-	62	-	63	-	63	-	119	-	119
Dominican Republic	-	-	-	-	-	1	-	1	-	1	-	1
Jamaica	-	16	10	6	-	-	-	-	-	1	-	1
Panama	-	-	-	-	-	-	-	-	-	16	-	16
Trinidad and Tobago	-	26	20	1	-	3	1	2	-	-	-	-
<u>Subtotal</u>	-	<u>234</u>	<u>30</u>	<u>199</u>	-	<u>149</u>	<u>1</u>	<u>148</u>	-	<u>178</u>	-	<u>178</u>
<u>Total</u>	<u>5 913</u>	<u>2 908</u>	<u>162</u>	<u>8 652</u>	<u>7 346</u>	<u>3 095</u>	<u>63</u>	<u>10 438</u>	<u>13 054</u>	<u>5 161</u>	<u>21</u>	<u>18 194</u>

Source: 1950 and 1960: United Nations, World Energy Supplies, 1950-1974; 1975: United Nations, World Energy Supplies, 1971-1975.

a/ Including bunkers in Jamaica and Trinidad and Tobago.

b/ Including changes in stocks in Chile and Trinidad and Tobago.

Exhibit 31

WORLD: COAL RESERVES AND PRODUCTION, 1975 <sup>a/</sup>

(Billions of metric tons)

	Production 1975	Reserves		Total
		Proven	Probable additional reserves	
Latin America	0.01	20	10	30
North America	0.60	1 560	2 520	4 080
United States	(0.58)	(1 420)	(1 490)	(2 910)
Europe	0.70	560	190	750
Oceania	0.07	50	70	120
USSR	0.52	5 900	2 720	8 620
Asia	0.66	450	910	1 360
Africa	0.08	70	150	220
World	2.64	8 610	6 570	15 180

Source: Reserves: J. Darmstadter and others, Energy in the World Economy, published for Resources for the Future Inc. by Johns Hopkins Press, 1971, p. 46; production: United Nations, World Energy Supplies, 1971-1975, series J, No. 20.

<sup>a/</sup> Estimates published in 1972.

Exhibit 32

LATIN AMERICA: CONSUMPTION OF ELECTRICITY BY PRINCIPAL USES AND COUNTRY, 1950, 1960 AND 1975  
(Percentages, and millions of KWH)

	1950						1960						1975							
	R and C		I and M		Total	L	R and C		I and M		Total	L	R and C		I and M		Total	L	Total	
	PS	SS	PS	SS			PS	SS	PS	SS			PS	SS	PS	SS				PS
Argentina	27.1	22.1	47.4	10.8	14.7	5	303	29.8	25.4	23.6	50.0	5.4	15.8	30.2	29.7	16.7	46.4	9.1	14.3	29 469
Bolivia	20.8	23.2	64.8	1.0	13.4	8	298	31.5	23.5	29.1	52.6	2.2	13.7	30.7	28.4	26.6	55.0	1.7	12.6	1 057
Brazil	19.4	25.0	33.2	30.4	17.0	8	208	24.5	29.2	18.1	47.3	15.1	13.1	28.4	46.0	5.5	51.5	10.6	9.5	80 233
Chile	11.9	14.8	72.4	7.6	8.1	2	943	13.7	19.8	46.6	66.4	8.6	11.3	20.7	31.5	29.0	60.5	9.7	9.1	8 732
Colombia	37.0	16.5	33.0	15.0	15.0	1	270	39.0	17.4	19.6	37.0	9.2	14.8	40.6	27.6	13.0	40.6	5.6	13.1	14 599
Costa Rica	54.9	6.6	12.6	3.4	22.5	182	67.4	7.3	5.5	12.8	5.7	5.7	14.1	57.3	14.0	1.4	15.4	2.5	24.8	1 493
Ecuador	27.6	5.3	26.3	9.9	30.9	152	41.6	12.4	19.5	31.9	12.3	14.2	38.9	37.1	30.3	10.4	40.7	10.3	11.9	1 848
El Salvador	20.5	19.3	43.2	19.3	17.0	88	40.2	27.0	2.7	29.7	17.6	17.6	25.6	30.8	26.4	1.1	27.5	10.4	31.3	1 026
Guatemala	33.6	20.7	41.4	8.6	16.4	116	38.1	18.0	19.7	37.7	6.8	12.4	31.0	30.0	30.7	15.7	46.4	9.8	13.8	1 117
Guyana	...	...	...	...	...	...	33.3	22.2	27.8	50.0	2.3	14.4	90	14.6	23.2	47.6	70.8	1.6	13.0	384
Haiti	...	...	...	...	...	...	18.9	12.2	32.2	44.4	4.5	32.2	90	19.1	29.3	13.6	42.9	13.0	25.0	184
Honduras	14.0	6.0	72.0	4.0	10.0	50	29.9	19.6	29.9	49.5	8.2	12.4	97	30.9	44.4	4.1	48.5	5.0	15.6	540
Jamaica	41.7	8.3	43.3	4.2	10.8	120	32.4	7.6	46.9	54.5	2.5	10.6	510	32.4	6.1	42.4	48.5	8.5	10.6	2 271
Mexico	14.7	31.6	50.4	20.3	14.6	4 424	19.4	32.6	18.9	51.6	15.8	13.3	10 728	21.0	47.2	9.4	56.6	11.1	11.4	43 506
Nicaragua	12.5	6.2	66.3	5.0	10.0	80	30.1	13.6	39.8	53.4	7.4	9.1	176	26.1	31.5	10.7	42.2	18.7	13.0	918
Panama	48.1	14.4	24.0	7.7	20.2	104	53.4	12.8	12.4	25.2	8.6	12.8	234	57.6	10.7	-	10.7	13.3	18.4	1 220
Paraguay	27.5	20.0	45.0	7.5	20.0	40	34.4	14.6	30.2	44.8	6.2	14.6	96	25.7	13.7	9.8	23.5	39.2 <sup>a/</sup>	11.6	592
Peru	20.1	21.3	65.4	3.6	10.9	820	16.2	20.0	52.7	72.7	3.0	8.1	2 648	24.0	16.9	36.1	53.0	11.0	12.0	7 696
Dominican Republic	...	...	...	...	...	...	27.8	23.2	28.4	51.6	11.4	9.2	349	36.9	26.1	-	26.1	7.6	29.4	1 632
Trinidad and Tobago	12.5	10.0	66.2	1.9	9.4	160	15.1	23.2	42.3	65.5	2.8	16.6	470	30.2	49.2	7.4	56.6	0.8	12.4	1 220
Uruguay	31.3	40.1	40.1	9.4	19.2	616	38.3	38.6	-	38.6	4.9	18.2	1 244	46.8	29.5	2.9	32.4	3.1	17.7	2 444
Venezuela	17.4	18.0	49.5	4.3	10.8	1 153	23.7	17.3	34.9	52.2	12.1	12.0	4 570	21.2	37.1	11.8	48.9	16.0 <sup>b/</sup>	13.9	21 179
<b>Total</b>	<b>20.9</b>	<b>23.3</b>	<b>23.6</b>	<b>17.6</b>	<b>14.6</b>	<b>26 127</b>	<b>25.1</b>	<b>26.0</b>	<b>24.0</b>	<b>50.0</b>	<b>11.5</b>	<b>13.4</b>	<b>64 577</b>	<b>27.6</b>	<b>38.8</b>	<b>11.3</b>	<b>50.1</b>	<b>10.5</b>	<b>11.8</b>	<b>223 420</b>

Source: CEPAL, on the basis of official data.

Notes: R and C = Residential and commercial.

I and M = Industrial and mining.

O = Other (agriculture, street lighting, official, etc.).

L = Losses, (including 170M reported consumption).

PS = Public service.

SS = Self-suppliers.

<sup>a/</sup> 202 GWH exported.

<sup>b/</sup> Includes considerable consumption in sanitary works (pumping).

Exhibit 33

LATIN AMERICA: SELECTED DATA ON RURAL ELECTRIFICATION, SELECTED YEARS AND COUNTRIES.

Country	Census year	Number of dwellings		Number of dwellings with electricity	
		Total	Rural	Total	Rural
Barbados	1970	59 391	33 046	35 104	16 693
Brazil	1970	17 628 699	7 352 359	8 383 994	615 273
Colombia	1970	3 260 000	1 528 700	1 216 623	264 465
Chile	1970	1 715 248	393 756	1 289 198	110 351
El Salvador	1971	655 120	384 540	223 400	25 800
Mexico	1970	8 286 369	3 422 209	4 876 745	949 792
Nicaragua	1971	302 544	154 116	124 905	10 697
Panama	1970	273 875	140 191	148 118	22 731
Paraguay	1972	428 111	255 984	74 772	3 065
Peru	1972	2 686 471	1 156 136	862 007	31 347
Venezuela	1971	1 827 140	266 639	1 402 819	46 291

Source: CEPAL, on the basis of national censuses and other official data.

Exhibit 24

LATIN AMERICA: ELECTRICITY GENERATION BY SECTOR AND COUNTRY, 1950, 1960 AND 1975

(GWH)

	1950						1960						1975					
	Public service			Total for the country			Public service			Total for the country			Public service			Total for the country		
	Hydro-electric	Thermal	Total	Hydro-electric	Thermal	Total	Hydro-electric	Thermal	Total	Hydro-electric	Thermal	Total	Hydro-electric	Thermal	Total	Hydro-electric	Thermal	Total
Argentina	153	4 370	4 523	183	5 120	5 303	870	6 993	7 863	927	9 531	10 458	5 120	19 434	24 554	5 197	24 272	29 469
Bahamas	-	16	16	-	16	16	-	76	76	-	76	76	-	660	660	-	660	660
Barbados	-	10	10	-	10	10	-	39	39	-	39	39	-	207	207	-	207	207
Bolivia	163	5	168	261	37	298	292	18	310	350	97	447	642	128	770	800	257	1 057
Brazil	6 700	800	1 500	7 198	1 010	8 208	14 031	3 683	16 514	16 334	4 481	22 865	71 866	3 980	75 846	73 856	6 457	80 293
Chile	959	200	1 159	1 649	1 294	2 943	2 172	170	2 342	2 977	1 615	4 592	5 321	882	6 203	6 135	2 597	8 732
Colombia	810	240	1 050	860	410	1 270	2 244	551	2 795	2 389	1 131	3 520	9 469	3 234	12 693	9 849	4 750	14 599
Costa Rica	158	-	158	175	7	182	380	33	413	392	46	438	1 254	174	1 428	1 269	224	1 493
Cuba	14	815	829	14	1 280	1 294	20	2 085	2 105	20	2 961	2 981	63	5 350	5 413	62	6 521	6 583
Ecuador	58	52	110	12	80	152	145	164	309	175	214	389	617	1 038	1 655	647	1 201	1 848
El Salvador	38	28	66	40	48	88	236	12	248	240	16	256	401	575	976	401	625	1 026
Grenada	-	1	1	-	1	1	-	4	4	-	4	4	-	27	27	-	27	27
Guatemala	71	20	91	83	33	116	126	120	246	143	167	310	282	660	942	282	835	1 117
Guyana	-	16	16	-	38	38	-	64	64	-	90	90	90	190	190	-	384	384
Haiti	-	18	18	-	38	38	-	60	60	-	90	90	90	10	155	145	39	184
Honduras	4	11	15	6	44	50	16	50	66	19	78	97	420	90	510	420	120	540
Jamaica	50	26	76	50	70	120	126	132	258	126	384	510	131	1 235	1 366	131	2 140	2 271
Mexico	1 850	1 700	3 550	1 950	2 474	4 424	4 955	3 624	8 589	5 149	5 579	10 728	14 970	24 430	39 400	15 076	28 430	43 506
Nicaragua	3	21	24	35	45	80	1	101	102	45	131	176	354	439	793	404	514	918
Panama	5	88	93	5	99	104	18	185	203	18	216	234	97	1 058	1 155	97	1 123	1 220
Paraguay	-	30	30	-	40	40	-	65	65	-	96	96	96	11	574	523	69	592
Peru	405	35	440	730	110	820	1 060	118	1 178	1 794	854	2 648	4 211	354	4 565	5 522	2 174	7 696
Dominican Republic	-	64	64	-	79	79	-	245	245	-	349	349	194	1 438	1 632	194	1 438	1 632
Surinam	-	8	8	-	35	35	-	39	39	-	79	79	-	70	70	1 020	580	1 600
Trinidad and Tobago	-	48	48	-	160	160	-	261	261	-	470	470	-	1 130	1 130	-	1 220	1 220
Uruguay	527	89	616	527	89	616	676	568	1 244	676	568	1 244	1 132	1 241	2 373	1 132	1 312	2 444
Venezuela	174	319	553	174	479	1 153	95	2 796	2 891	95	4 475	4 570	8 912	9 767	18 679	8 912	12 267	21 179
Latin America	12 142	9 082	21 224	13 992	13 611	27 603	28 273	22 217	50 490	33 919	33 758	67 677	125 930	76 294	202 224	130 840	98 425	229 265

Source: CEPAL, on the basis of official data.

## Exhibit 35

WORLD AND SELECTED REGIONS: GROWTH IN FUELS<sup>a/</sup> AND ELECTRICITY CONSUMPTION, 1950-1975

	1950		1975		Average annual growth rates	
	Fuel (millions of tons of petroleum equivalent)	Electricity (thousands of GWh)	Fuel (millions of tons of petroleum equivalent)	Electricity (thousands of GWh)	Fuel	Electricity
Developed countries	1 266	825	3 084	5 741	3.6	8.1
Developing countries	98	50	775	698	8.6	10.8
Latin America	32	28	151	229	6.4	8.8
Others	66	22	624	469	9.4	13.0
<u>World</u>	<u>1 364</u>	<u>875</u>	<u>3 859</u>	<u>6 439</u>	<u>4.3</u>	<u>8.3</u>

Source: United Nations, World Energy Supplies, 1950-1974 and World Energy Supplies, 1971-1975.

<sup>a/</sup> Excluding fuels consumed in thermoelectric generation.

## Exhibit 36

## LATIN AMERICA: SELECTED ECONOMIC ASPECTS OF ELECTRIC POWER PRODUCTION BY COUNTRY, 1950, 1960, 1975

	Per capita electric energy generation (KWH/inhabitant)			Generation of electric energy per unit of gross domestic product (KWH/US\$ 1 000)		
	1950	1960	1975	1950	1960	1975
Argentina	310	507	1 161	375	557	853
Bahamas	203	673	3 529	...	...	...
Barbados	47	167	845	...	...	...
Bolivia	99	118	195	427	616	639
Brazil	157	320	732	670	966	1 214
Chile	486	605	852	884	892	1 166
Colombia	109	221	564	293	520	949
Costa Rica	214	350	749	611	739	961
Cuba	234	425	694	...	...	...
Ecuador	47	90	261	182	304	572
El Salvador	46	101	250	172	317	576
Grenada	14	...	...	...	...	...
Guatemala	38	78	184	131	241	387
Guyana	90	161	485	...	...	...
Haiti	11	22	31	95	186	291
Honduras	36	52	178	155	207	643
Jamaica	87	313	1 119	...	...	...
Mexico	166	295	735	342	470	735
Nicaragua	71	120	396	315	442	904
Panama	136	216	728	280	393	773
Paraguay	29	54	224	98	184	542
Peru	103	261	491	310	628	829
Dominican Republic	34	110	319	151	376	681
Surinam	163	272	3 478	...	...	...
Trinidad and Tobago	253	558	1 209	...	...	...
Uruguay	280	474	786	330	542	898
Venezuela	216	599	1 734	343	752	1 341
<u>Latin America</u>	<u>177</u>	<u>319</u>	<u>714</u>	<u>458</u>	<u>643</u>	<u>951</u>

Source: CEPAL, on the basis of official data.

Exhibit 37

LATIN AMERICA: INSTALLED GENERATING CAPACITY BY SECTOR AND COUNTRY, 1950, 1960 AND 1975

(MW)

	1950						1960						1975					
	Public service			Total for the country			Public service			Total for the country			Public service			Total for the country		
	Hydro- electric	Thermal	Total	Hydro- electric	Thermal	Total	Hydro- electric	Thermal	Total	Hydro- electric	Thermal	Total	Hydro- electric	Thermal	Total	Hydro- electric	Thermal	Total
Argentina	43	1 303	1 346	49	1 701	1 750	317	1 970	2 287	340	3 134	3 474	1 507	5 779	7 286	1 531	7 728	9 259
Bahamas	-	6	6	-	6	6	-	22	22	-	22	22	-	250	250	-	250	250
Barbados	-	3	3	-	3	3	-	15	15	-	15	15	-	70	70	-	70	70
Bolivia	36	4	40	53	27	80	71	12	83	90	57	147	214	70	284	242	134	376
Brazil	1 455	265	1 720	1 536	347	1 883	2 920	863	3 783	3 642	1 158	4 800	15 780	508	18 370	16 193	3 385	19 578
Chile	262	127	389	371	403	774	483	116	599	594	548	1 142	2 252	982	3 234	2 322	1 262	3 584
Colombia	170	68	238	186	125	311	460	210	670	505	406	411	229	135	364	239	165	404
Costa Rica	37	-	37	46	2	48	74	26	100	80	30	110	6	1 143	1 149	47	1 630	1 677
Cuba	3	191	194	3	501	504	2	545	547	40	78	118	127	306	433	139	386	525
Ecuador	15	13	28	19	21	40	56	58	92	56	18	74	108	167	275	108	205	313
El Salvador	9	10	19	9	18	27	27	2	2	-	2	2	-	8	8	-	8	8
Grenada	-	1	1	-	1	1	-	32	32	27	46	73	96	130	226	96	156	252
Guatemala	18	9	27	18	15	33	27	17	52	-	52	52	-	95	95	-	95	95
Guyana	-	7	7	-	16	16	-	13	28	-	28	33	69	77	146	69	90	159
Haiti	-	6	6	-	13	13	3	21	24	3	30	33	21	428	449	21	678	699
Honduras	1	5	6	1	17	18	22	50	72	22	123	145	4	5 807	9 902	4 175	7 210	11 385
Jamaica	12	18	30	12	33	45	1 250	1 058	2 308	1 328	1 693	3 021	4 095	105	205	107	145	252
Mexico	530	386	916	607	628	1 235	1 250	49	50	9	66	78	100	264	280	16	294	310
Nicaragua	1	7	8	8	8	16	7	55	62	7	66	73	16	80	170	90	101	191
Panama	2	26	28	2	31	33	-	29	29	-	45	45	90	291	1 440	1 392	991	2 383
Paraguay	-	9	9	-	13	13	222	127	349	416	112	120	149	351	500	180	121	301
Peru	71	44	115	177	141	318	8	70	78	8	29	29	-	21	21	21	414	414
Dominican Republic	-	39	39	-	20	20	-	11	11	-	129	129	-	364	670	-	453	705
Surinam	-	4	4	-	47	47	-	81	81	-	205	205	252	418	670	252	2 910	4 705
Trinidad and Tobago	-	14	14	-	14	14	236	205	763	236	1 234	1 256	1 795	2 886	4 081	1 795	2 910	4 705
Uruguay	128	90	218	128	90	218	22	743	763	22	1 234	1 256	29 456	2 886	52 178	30 492	30 380	60 872
Venezuela	36	144	180	36	320	356	6 215	6 398	12 613	7 427	10 614	18 041	29 456	22 722	52 178	30 492	30 380	60 872
<b>Latin America</b>	<b>2 829</b>	<b>2 795</b>	<b>5 624</b>	<b>3 261</b>	<b>4 588</b>	<b>7 849</b>	<b>6 215</b>	<b>6 398</b>	<b>12 613</b>	<b>7 427</b>	<b>10 614</b>	<b>18 041</b>	<b>29 456</b>	<b>22 722</b>	<b>52 178</b>	<b>30 492</b>	<b>30 380</b>	<b>60 872</b>

Source: CEPAL, on the basis of official data.

Exhibit 38

LATIN AMERICA: CUMULATIVE EXTENSIONS OF LOANS BY INTERNATIONAL FINANCIAL INSTITUTIONS  
TO ELECTRIC POWER INDUSTRIES, BY COUNTRY AND INSTITUTIONS, 1946-1975 AND 1970-1975

(Millions of US dollars)

	1946-1975			1970-1975			Total
	World Bank and AID a/	IDB b/	EXIMBANK c/	World Bank	IDB	EXIMBANK	
Argentina	292.0	203.4	48.5	-	262.7	18.0	280.7
Barbados	-	-	0.4	-	-	-	0.4
Bolivia	28.4	15.1	-	6.0	-	-	6.0
Brazil	978.1	627.8	340.9	435.0	435.0	269.8	1 140.8
Chile	132.1	83.8	60.9	6.7	75.3	21.0	103.0
Colombia	350.1	238.1	40.0	108.3	135.6	10.0	253.9
Costa Rica	81.3	57.0	-	47.5	54.8	2.0	104.3
Cuba	-	-	20.0	-	-	-	-
Ecuador	16.8	75.8	12.1	6.8	79.2	0.9	86.9
El Salvador	58.3	38.3	-	32.9	38.1	-	71.0
Guatemala	22.0	108.2	-	65.0	105.0	-	170.0
Guyana	6.0	-	-	6.0	-	-	6.0
Haiti	-	-	-	-	-	-	-
Honduras	80.1	-	-	58.3	-	-	58.3
Jamaica	22.0	9.2	34.1	-	9.2	19.1	28.3
Mexico	714.8	-	121.4	250.0	-	81.1	331.0
Nicaragua	66.3	-	16.5	29.0	16.5	16.5	62.0
Panama	76.0	-	12.0	72.0	-	4.6	76.6
Paraguay	-	91.1	-	-	62.6	-	62.6
Peru	66.5	13.9	4.4	-	9.2	-	9.2
Dominican Republic	-	67.1	-	-	7.4	-	7.4
Trinidad and Tobago	25.0	-	4.5	-	-	4.5	4.5
Uruguay	73.6	-	-	18.0	36.1	-	54.1
Venezuela	145.0	19.6	27.1	-	-	3.0	3.0
Regional projects	-	174.4	-	-	61.3	-	61.3
Total for the electricity sector	3 234.4	1 822.8	742.8	1 142.5	1 388.0	450.5	2 980.9
Total loans to Latin America	7 018.4	8 791.0	d/	5 197.8	5 473.0	d/	

Source: World Bank: annual reports; Inter-American Development Bank: annual reports; EXIMBANK: Foreign Credit by the United States Government, 30 June 1973 (1945-1973), and International Review Service (only incomplete data available for 1974 and 1975).

a/ World Bank: 1946-1975.

b/ Inter-American Development Bank: 1961-1975.

c/ EXIMBANK, 1945-1975 (only long-term loans).

d/ No data available.

Exhibit 39

LATIN AMERICA: TOTAL FUELS' CONSUMPTION AND FUELS' CONSUMPTION  
IN THE ELECTRIC POWER GENERATION, 1950, 1960, AND 1974

(Millions of tons of petroleum equivalent)

Fuel	1950			1960			1974		
	Total	Electri- city	Percent age	Total	Electri- city	Percent age	Total	Electri- city	Percent age
Derivates	29	4.2	14	58	10.2	18	126	19.0	15
Natural gas	3	0.6	20	9	2.2	24	34	6.0	18
Coal	6	0.3	5	6	0.6	10	11	1.6	15
Vegetable fuels	29	0.9	3	35	1.0	3	41	1.1	3
<u>Total</u>	<u>67</u>	<u>6.0</u>	<u>9</u>	<u>108</u>	<u>14.0</u>	<u>13</u>	<u>212</u>	<u>27.7</u>	<u>13</u>

Source: CEPAL, on the basis of official data.

## Exhibit 40

LATIN AMERICA: GENERATION AND HEAT EFFICIENCY IN CENTRAL POWER PLANTS,  
SELECTED COUNTRIES, 1960-1974 (SELECTED YEARS).

	1960		1965		1970		1974	
	Genera- tion GWH	Effi- ciency kcal/KWH	Genera- tion GWH	Effi- ciency kcal/KWH	Genera- tion GWH	Effi- ciency kcal/KWH	Genera- tion GWH	Effi- ciency kcal/KWH
Argentina (Public service)	6 993	3 870	9 994	3 152	15 315	2 952	17 070	3 100
Bolivia (Total)							229	3 565
Brazil (Total)					5 248	3 686	6 904	3 244
Chile (Total)	1 615	3 329	2 177	3 432	3 244	3 031	3 249	3 118
Colombia (Total)	600 <sup>a/</sup>	2 567 <sup>a/</sup>	1 573 <sup>a/</sup>	3 810 <sup>a/</sup>	1 916 <sup>a/</sup>	4 395 <sup>a/</sup>	4 380	4 120
Costa Rica (Public service)	34	5 015	80	4 704	47	4 106	167	3 237
Ecuador (Total)					544	3 699	905	3 304
El Salvador (Public service)	13	4 154	32	4 415	179	2 872	402	3 280
Guatemala (Public service)	127	3 951	323	3 506	332	3 259	540	3 498
Honduras (Public service)	52	4 493	36	5 911			59	2 828
Jamaica								
Mexico (Public service)			6 079	3 293	11 225	3 280	21 851	2 930
Nicaragua (Public service)	108	5 162	77	6 082	241	3 736	388	3 364
Panama (Public service)	197	4 934	420	4 102	761	3 612	999	3 482
Paraguay (Total)							65	6 096
Peru (Total)					1 708	6 248	2 055	3 923
Dominican Republic (Public service)					831	3 215	1 321	3 020
Trinidad and Tobago (Public service)	261	3 862	542	3 456	908	3 126	...	...
Uruguay (Public service)	568	3 680	1 039	3 488	890	3 293	911	3 211
Venezuela (CADAPE)					1 932	3 902	2 333	4 324
(Electricidad de Caracas)	1 247	3 172						
<b>Total</b>	<b>11 815</b>	<b>3 683</b>	<b>22 372</b>	<b>3 332</b>	<b>45 321</b>	<b>3 377</b>	<b>63 828</b>	<b>3 219</b>
Thermoelectricity generation in the public service category in Latin America	22 217		31 883		49 984		68 282	
Total thermoelectricity generation in Latin America	33 758		48 670		69 821		90 401	

Source: CEPAL, on the basis of official data.

<sup>a/</sup> Public service only.

## Exhibit 41

## LATIN AMERICA, GENERATING FREQUENCY, SELECTED COUNTRIES, 1950 AND 1975

Country	1950		1975		Remarks
	50 cycles	60 cycles	50 cycles	60 cycles	
Argentina	100.0	-	100.0	-	
Bolivia	100.0	-	100.0	-	
Brazil	42.0	58.0	-	100.0	
Chile	100.0	-	100.0	-	
Colombia	-	100.0	-	100.0	
Costa Rica	-	100.0	-	100.0	
Cuba	-	100.0	-	100.0	
Ecuador	-	100.0	-	100.0	
El Salvador	-	100.0	-	100.0	
Guatemala	-	100.0	-	100.0	
Guyana	100.0	-	...	...	Conversion to 60 cycles planned
Haiti	-	100.0	-	100.0	
Honduras	-	100.0	-	100.0	
Jamaica	100.0	-	100.0	-	
Mexico	53.0	47.0	...	...	Conversion to 60 cycles planned
Nicaragua	-	100.0	-	100.0	
Panama	-	100.0	-	100.0	
Paraguay	100.0	-	100.0	-	
Peru	-	100.0	-	100.0	
Dominican Republic	-	100.0	-	100.0	
Trinidad and Tobago	100.0	-	100.0	-	
Uruguay	100.0	-	100.0	-	
Venezuela	60.0	40.0	-	100.0	

Source: CEPAL, on the basis of official information.

Exhibit 42

LATIN AMERICA: ELECTRIC POWER GENERATION BY SECTOR, SELECTED COUNTRIES, 1950, 1960 AND 1975

(Millions of KWH and percentages)

	1950			1960			1975								
	Public service		Own-account	Public service		Own-account	Public service		Own-account						
	Private capital	Total		Private capital	Total		Private capital	Total							
Argentina	3 920	603	4 523	780	5 303	4 242	3 621	7 863	2 595	10 458	2 293	22 261	24 554	4 915	29 469
Brazil	7 500	-	7 500	708	8 208	14 898	3 616	18 514	4 351	22 865	9 142	66 804	75 846	4 447	80 293
Mexico	3 050	500	3 550	874	4 424	200	8 389	8 589	2 139	10 728	-	39 400	39 400	4 106	43 506
Chile	780	379	1 159	1 784	2 943	751	1 591	2 342	2 250	4 592	-	6 203	6 203	2 529	8 732
Colombia	800	250	1 050	220	1 270	455	2 340	2 795	525	3 320	-	12 693	12 693	1 906	14 599
Peru	380	60	440	380	820	800	378	1 178	1 470	2 648	-	4 565	4 565	3 131	7 696
Venezuela	430	123	553	600	1 153	1 851	1 040	2 891	1 679	4 570	7 121	11 558	18 679	2 500	21 179
Rest	1 610	839	2 449	1 033	3 482	1 538	4 780	6 318	2 180	8 496	4 053	16 231	20 284	3 507	23 791
<b>Total</b>	<b>18 470</b>	<b>2 754</b>	<b>21 224</b>	<b>6 372</b>	<b>27 603</b>	<b>24 735</b>	<b>25 755</b>	<b>50 490</b>	<b>17 189</b>	<b>67 677</b>	<b>22 609</b>	<b>179 615</b>	<b>202 224</b>	<b>27 041</b>	<b>229 265</b>
<b>Percentage of total:</b>															
Argentina	73.9	11.4	85.3	14.7	100.0	40.6	34.6	75.2	24.8	100.0	7.8	75.5	83.3	16.7	100.0
Brazil	91.4	-	91.4	8.6	100.0	65.2	15.8	81.0	19.0	100.0	11.4	83.2	94.6	5.4	100.0
Mexico	68.9	11.3	80.2	19.8	100.0	1.9	78.2	80.1	19.9	100.0	-	90.5	90.5	9.5	100.0
Chile	26.5	12.9	39.4	60.6	100.0	16.4	34.6	51.0	49.0	100.0	-	71.0	71.0	29.0	100.0
Colombia	63.0	19.7	82.7	17.3	100.0	13.7	70.5	84.2	15.8	100.0	-	86.9	86.9	13.1	100.0
Peru	46.3	7.3	53.6	46.4	100.0	30.2	14.3	44.5	55.5	100.0	-	59.3	59.3	40.7	100.0
Venezuela	37.3	10.7	48.0	52.0	100.0	40.5	22.8	63.3	36.7	100.0	33.6	54.6	88.2	11.8	100.0
Rest	46.2	24.1	70.3	29.7	100.0	18.1	56.3	74.4	25.6	100.0	17.0	68.2	85.2	14.8	100.0
<b>Total</b>	<b>66.9</b>	<b>10.0</b>	<b>76.9</b>	<b>23.1</b>	<b>100.0</b>	<b>36.5</b>	<b>38.1</b>	<b>74.6</b>	<b>25.4</b>	<b>100.0</b>	<b>9.9</b>	<b>78.3</b>	<b>88.2</b>	<b>11.8</b>	<b>100.0</b>

Source: CEPAL, on the basis of official information.

Exhibit 43

LATIN AMERICA: DISTRIBUTION OF ELECTRIC POWER BY PRIVATE SECTOR  
COMPANIES, SELECTED COUNTRIES AND YEARS

Country	Beginning of period		End of period	
	Year	Percentage	Year	Percentage
Argentina	1957	87.8	1975	8.2
Brazil	1957	91.2	1975	45.3
Mexico	1950	82.0	1975	0.0
Chile	1950	96.4	1975	5.1
Colombia	1950	76.2	1975	0.0
Peru	1952	94.3	1975	2.0
Venezuela	1959	66.2	1975	32.4

Source: CEPAL, on the basis of official information.

Exhibit 44

LATIN AMERICA: ENERGY CONSUMPTION IN THE YEAR 2000 BY TYPE OF FUEL, TOTAL AND SELECTED COUNTRIES

(Millions of tons of petroleum equivalent)

	Consumption of primary energy for electric power generation							Consumption of hydrocarbons for purposes other than electricity generation	Total			
	Water	Coal	Natural Gas	Derivates	Geothermal	Nuclear	Total					
Argentina	18.7	2.9	-	-	-	14.0	35.6	10.4	27.3	88.9	116.2	162.2
Brazil	102.8	1.2	-	7.6	-	77.1	188.7	34.5	1.0	87.5	88.5	311.7
Mexico	23.4	5.3	-	-	1.0	64.5	94.2	18.4	55.7	116.8	172.5	285.1
Chile	6.5	1.7	0.1	0.2	0.1	0.7	9.3	1.9	6.2	29.0	35.2	46.4
Colombia	23.5	0.4	0.2	0.5	-	-	24.6	4.2	18.0	76.0	94.0	122.8
Peru	10.9	0.3	0.2	0.7	-	-	12.1	2.0	2.0	24.5	26.5	40.6
Venezuela	11.2	-	9.3	-	-	-	20.5	7.8	47.1	38.2	85.3	113.6
Others <sup>a/</sup>	11.2	-	0.7	5.1	0.3	2.1	19.4	-	4.2	52.9	57.1	76.5
<u>Total</u>	<u>208.2</u>	<u>11.8</u>	<u>10.5</u>	<u>14.1</u>	<u>1.4</u>	<u>158.4</u>	<u>404.4</u>	<u>79.2</u>	<u>161.5</u>	<u>513.8</u>	<u>675.3</u>	<u>1 158.9</u>

Source: CEPAL.

<sup>a/</sup> See list of component countries in Exhibit 1.

Exhibit 45

LATIN AMERICA: INSTALLED GENERATING CAPACITY IN THE YEAR 2000, TOTAL AND SELECTED COUNTRIES

(Millions of KW)

	Hydro-electric	Coal	Geothermal	Nuclear	Natural Gas	Petroleum derivates	Total
Latin America	222.8	20.2	1.0	113.0	17.9	24.3	399.2
Argentina	20.0	5.0	-	10.0	-	-	35.0
Brazil	110.0	2.0	-	55.0	-	13.0	180.0
Mexico	25.0	9.0	0.7	46.0	-	-	80.7
Chile	7.0	3.0	0.1	0.5	0.1	0.4	11.1
Colombia	25.1	0.7	-	-	0.3	0.9	27.0
Peru	11.7	0.5	-	-	0.3	1.2	13.7
Venezuela	12.0	-	-	-	16.0	-	28.0
Others <sup>a/</sup>	12.0	-	0.2	1.5	1.2	0.8	23.7

Source: CEPAL, on the basis of official data in the case of the seven countries rated, and CEPAL estimates based partially on official data in the case of the "others" grouping of countries.

<sup>a/</sup> See Exhibit 1 for country composition.

Exhibit 46

WORLD AND SELECTED REGIONS, ASPECTS OF CONTROL OF THE WORLD OIL INDUSTRY  
BY THE SEVEN MAJOR INTERNATIONAL OIL COMPANIES, 1949 AND 1950

(In percent)

Concept and year	United States	Other Western Hemisphere	Eastern Hemisphere	World <sup>a/</sup>
Reserves				
1949	34	82		65
Production of crude oil				
1949	32	81	96	55
Refining <sup>b/</sup>				
1950	44	76	79	57
Major pipelines				
1950	44	100	100	57
Private tankers				
1950 <sup>c/</sup>	...	...	...	67 *

Source: C. Issawi and M. Yeganeh, The Economics of Middle Eastern Oil, (F.A. Praeger: New York: 1962), p.61.

<sup>a/</sup> Excluding Soviet bloc.

<sup>b/</sup> Data refer to refining capacity.

<sup>c/</sup> Ownership or chartering.

Exhibit 47

ANNUAL AVERAGE POSTED PRICES OF CRUDE PETROLEUM, FOB MIDDLE EASTERN, UNITED STATES, AND VENEZUELAN PORTS, 1945-1958  
(Dollars per barrel)

Country	Iran		Iraq		Kuwait		Neutral Zone		Qatar		Saudi Arabia		United States		Venezuela	
	Persian Gulf	Persian Gulf	Persian Gulf	Mediterranean	Persian Gulf	Persian Gulf	Persian Gulf	Mina Saud	Persian Gulf	Umm Said	Persian Gulf	Ras Tanura	Gulf Coast	Gulf Coast	Caribbean Sea	Caribbean Sea
Ports:	Bandar Mashur	FAO	Tripoli and Basra		Ahmedi										Puerto La Cruz	Puerto La Cruz
API gravity of crude petroleum:	34 degrees	36 degrees	36 degrees	36 degrees	32 degrees	32 degrees	24 degrees	24 degrees	39 degrees	34 degrees	34 degrees	34 degrees	34 degrees	34 degrees	36 degrees	36 degrees
1945	-	-	-	-	-	-	-	-	-	-	-	-	1.31	1.31	-	-
1948	(2.04)	-	(2.76)	(2.76)	(1.85)	(1.85)	-	-	-	-	-	2.06	2.68	2.68	2.65	2.65
1949	(1.79)	-	(2.51)	(2.51)	(1.60)	(1.60)	-	-	(1.91)	(1.91)	1.81	1.81	2.68	2.68	2.65	2.65
1950	(1.69)	-	2.41	2.41	(1.50)	(1.50)	-	-	1.81	1.81	1.71	1.71	2.68	2.68	2.65	2.65
1951	(1.69)	1.73	2.41	2.41	(1.50)	(1.50)	-	-	1.81	1.81	1.71	1.71	2.68	2.68	2.65	2.65
1952	-	1.73	2.41	2.41	(1.50)	(1.50)	-	-	1.81	1.81	1.71	1.71	2.68	2.68	2.65	2.65
1953	-	1.80	2.41	2.41	1.67	1.67	-	-	1.95	1.95	1.81	1.81	2.98	2.98	2.90	2.90
1954	1.91	1.90	2.41	2.41	1.72	1.72	1.50	1.50	2.08	2.08	1.93	1.93	2.98	2.98	2.90	2.90
1955	1.91	1.90	2.41	2.41	1.72	1.72	1.50	1.50	2.08	2.08	1.93	1.93	2.98	2.98	2.90	2.90
1956	1.91	1.85	2.41	2.41	1.72	1.72	1.50	1.50	2.08	2.08	1.93	1.93	2.98	2.98	2.84	2.84
1957	1.97	1.93	2.67	2.67	1.80	1.80	1.58	1.58	2.14	2.14	1.99	1.99	3.38	3.38	3.05	3.05
1958	2.04	1.98	2.51	2.51	1.85	1.85	1.63	1.63	2.21	2.21	2.06	2.06	3.28	3.28	3.05	3.05

Source: C. Issavi and M. Yeganeh, *The Economics of the Middle Eastern Oil*, (F.A. Praeger: New York, 1962), p. 68; figures in brackets are estimates. Prices are averages, after weighting. For details, refer to source. The price for 1945 at the Gulf Coast was taken from: J. Grunwald and P. Musgrove, *Natural Resources in Latin American Development*, published for Resources for the Future by the J. Hopkins Press (Baltimore, Md., 1970), p. 275. This price is an average wellhead price and is not strictly comparable with the other prices shown in this exhibit as taken from Issaur's and Yeganeh's book.

Note: The figures in parenthesis are estimates made by the authors on the basis of published prices for Saudi Arabia. The authors also weighted individual prices to arrive at average prices.

Exhibit 48

EVOLUTION OF PRICES, COSTS, AND MARGINS ON SAUDI ARABIAN LIGHT CRUDE OIL (34° API), 1955-January, 1974

(In current dollars per barrel, FOB, Ras Tanura)

Date	Posted price	Estimated market price	Estimated tax-paid costs <sup>a/</sup>	Estimated margin on tax-paid costs	Discount off posted prices
<b>January 1</b>					
1955	1.93	1.93	1.07	0.86	-
1956	1.93	1.93	1.07	0.86	-
1957	1.93	1.93	1.06	0.87	-
1958	2.08	1.83	1.15	0.68	0.25
1959	2.08	1.70	1.15	0.55	0.38
1960	1.90	1.53	1.03	0.50	0.37
<b>OPEC</b>					
1961	1.80	1.45	0.98	0.47	0.35
1962	1.80	1.42	0.98	0.44	0.38
1963	1.80	1.40	0.98	0.42	0.40
1964	1.80	1.33	1.009	0.32	0.47
1965	1.80	1.33	1.013	0.32	0.47
1966	1.80	1.33	1.017	0.31	0.47
1967	1.80	1.33	1.017	0.31	0.47
1968	1.80	1.30	1.014	0.29	0.50
1969	1.80	1.28	1.021	0.26	0.52
1970	1.80	1.26	1.028	0.23	0.54
1971	1.80	1.33	1.108	0.22	0.47
<b>Teheran</b>					
1972	2.285	1.75	1.444	0.31	0.54
1973	2.591	2.20	1.625	0.57	0.39
April 1	2.742	2.30	1.716	0.58	0.44
June 1	2.898	2.70	1.811	0.89	0.20
August 1	3.066	2.85	1.913	0.94	0.22
October 1	3.011	3.00	1.879	1.12	0.01
<b>Kuwait</b>					
October 16	5.11	3.65	3.15	0.50	1.46
January 1, 1974	11.65	7.65	7.15	0.50	4.00

Source: Reproduced in entirety from: The International Bank for Reconstruction and Development, The Public Utilities Department, "The Changing Energy Scene," Note No. 7, (Draft version), December 19, 1973, Table 1.

<sup>a/</sup> Approximately equal to "Government-Take" (Taxes plus Royalties) minus production cost at about \$ 0.15 per barrel.

Exhibit 49

WORLD: SELECTED COUNTRIES AND COUNTRY GROUPINGS, PERCENTAGE SHARES OF COAL AND LIQUID FUELS  
IN TOTAL COMMERCIAL ENERGY CONSUMPTION, 1950-1974 (SELECTED YEARS)

	1950	1955	1960	1965	1970	1974
World	61 (28)	54 (33)	48 (36)	42 (39)	35 (43)	32 (45)
United States	42 (38)	31 (43)	25 (44)	24 (43)	21 (42)	21 (44)
Western Europe:	84 (14)	76 (21)	62 (32)	47 (47)	33 (56)	24 (57)
Belgium-Luxembourg	90 (10)	80 (19)	73 (27)	56 (43)	39 (50)	29 (48)
France	77 (18)	68 (29)	59 (34)	43 (49)	28 (61)	20 (66)
West Germany	95 (4)	90 (9)	76 (23)	57 (41)	41 (51)	32 (33)
Italy	49 (32)	30 (46)	19 (56)	11 (73)	9 (75)	7 (75)
Netherlands	77 (23)	67 (32)	49 (49)	30 (65)	11 (47)	5 (31)
Austria	78 (10)	61 (26)	52 (28)	39 (41)	26 (50)	22 (50)
Denmark	71 (29)	64 (36)	45 (55)	24 (75)	13 (89)	13 (87)
Norway	35 (30)	19 (46)	13 (49)	9 (47)	8 (55)	7 (48)
Portugal	58 (39)	33 (59)	27 (62)	22 (67)	18 (71)	7 (83)
Sweden	48 (37)	29 (58)	15 (71)	9 (75)	5 (84)	5 (79)
Switzerland	49 (28)	36 (39)	25 (54)	10 (73)	4 (81)	2 (79)
United Kingdom	90 (10)	85 (15)	74 (26)	64 (36)	52 (41)	38 (45)
Spain	77 (20)	71 (23)	60 (32)	48 (46)	30 (63)	21 (70)
Australia	74 (25)	67 (33)	62 (37)	55 (43)	48 (47)	46 (44)
Latin America	13 (73)	10 (76)	7 (74)	6 (71)	6 (63)	5 (62)
Colombia	48 (48)	35 (61)	35 (53)	31 (53)	21 (57)	21 (58)
Argentina	11 (84)	7 (88)	7 (85)	3 (79)	3 (76)	3 (70)
Brazil	28 (63)	17 (75)	12 (77)	13 (74)	10 (78)	6 (80)
Chile	50 (42)	37 (52)	25 (52)	18 (52)	15 (56)	11 (50)
India	83 (16)	80 (18)	77 (21)	73 (23)	74 (22)	72 (24)
Pakistan	50 (50)	41 (57)	33 (52)	22 (53)	12 (48)	12 (36)
Japan	83 (6)	68 (22)	54 (38)	36 (58)	26 (70)	20 (74)
South Korea	86 (13)	79 (19)	83 (16)	81 (19)	48 (52)	50 (49)
Taiwan	78 (14)	67 (26)	68 (27)	61 (30)	... ..	... ..
Africa	68 (32)	65 (35)	61 (37)	57 (39)	54 (41)	51 (43)
Developed countries	57 (29)	48 (35)	39 (40)	33 (45)	26 (49)	23 (51)
Developing countries	34 (58)	27 (64)	24 (63)	22 (62)	20 (62)	18 (63)
OECD countries	56 (30)	46 (36)	38 (40)	32 (46)	25 (50)	21 (52)
World excluding OECD and Communist countries	48 (46)	40 (52)	36 (53)	33 (54)	29 (56)	27 (56)

Source: Data for 1960 through 1965 were taken from: J. Darmstadter et. al., Energy in the World Economy, published for Resources for the Future by the J. Hopking Press, (Baltimore, Md.: 1971), pp. 652-691.  
Data for 1970 and 1974 were taken from: World Energy Supplies 1950-1974, United Nations, Series 1, Vol. 19, pp. 10-122.

Note: Liquid fuels' share in parenthesis.

## Exhibit 50

WORLD AND SELECTED GROUPS OF COUNTRIES; EXPORTS, PRODUCTION, AND  
PROVEN RESERVES OF CRUDE OIL, 1955, 1960, 1970

(In units as indicated)

	1955	1960	1970
<b>Exports (10<sup>3</sup> metric tons):</b>			
Persian Gulf <sup>a/</sup>	131 980	205 759	532 320
OPEC Member Countries <sup>b/</sup>	-	318 493	1 003 970
World <sup>c/</sup>	253 240	373 810	1 142 110
World <sup>d/</sup>	254 100	380 811	1 170 500
% Persian Gulf of World <sup>e/</sup>	52.1	55.0	46.6
% Persian Gulf of World <sup>d/</sup>	51.9	54.0	45.5
% OPEC of World <sup>e/</sup>	-	85.2	87.9
% OPEC of World <sup>d/</sup>	-	83.6	85.8
<b>Production (10<sup>3</sup> metric tons):</b>			
Persian Gulf <sup>a/</sup>	152 442	250 302	582 436
OPEC Member Countries <sup>b/</sup>	-	407 886	1 138 669
World <sup>c/</sup>	685 590	884 696	1 919 120
World <sup>d/</sup>	770 170	1 052 074	2 310 504
% Persian Gulf of World <sup>e/</sup>	22.2	28.3	30.3
% Persian Gulf of World <sup>d/</sup>	19.8	23.8	25.2
% OPEC of World <sup>e/</sup>	-	46.1	59.3
% OPEC of World <sup>d/</sup>	-	38.8	49.3
<b>Proven Reserves (10<sup>3</sup> metric tons):</b>			
Persian Gulf <sup>a/</sup>	20 074 000	26 277 950	44 943 550
OPEC Member Countries <sup>b/</sup>	-	29 449 050	61 493 500
World <sup>c/</sup>	28 239 700	40 395 900	77 232 150
World <sup>d/</sup>	29 750 200	45 455 600	92 334 300
% Persian Gulf of World <sup>e/</sup>	71.1	71.1	58.2
% Persian Gulf of World <sup>d/</sup>	67.5	67.5	48.7
% OPEC of World <sup>e/</sup>	-	72.9	79.6
% OPEC of World <sup>d/</sup>	-	64.8	66.6

**Sources:**

- Exports** 1955: United Nations, World Energy Supplies 1955-1958, Series J, No 3, p. 94.  
1960: United Nations, World Energy Supplies 1957-1960, Series J, No 5, p. 90 y 1950-1974, Series J, No 19, p. 193.  
1970: United Nations, World Energy Supplies 1961-1970, Series J, No 15, p. 114.
- Production** 1955: United Nations, World Energy Supplies 1950-1974, Series J, No 19, p. 193.  
1960: United Nations, World Energy Supplies 1950-1974, Series J, No 19, p. 193.  
1970: United Nations, World Energy Supplies 1961-1970, Series J, No 15, p. 96
- Reserves** 1955: CEPAL, "La Industria del Petróleo en América Latina: Notas sobre su Evolución Reciente y Perspectivas", p. 69.  
1960: Oil and Gas Journal, December 26, 1960, p. 98.  
1970: Oil and Gas Journal, December 28, 1970, p. 92.
- Source data on proven reserves of crude oil in cubic meters were converted to metric tons using an average specific gravity factor of 0.95.

<sup>a/</sup> Iran, Iraq, Kuwait, and Saudi Arabia.<sup>b/</sup> In 1960, includes: Iran, Iraq, Kuwait, Saudi Arabia, Qatar, and Venezuela.

In 1970, includes these same countries plus Algeria, United Arab Emirates, Indonesia, Libya and Nigeria.

<sup>c/</sup> Excluding countries with centrally planned economies.<sup>d/</sup> Including countries with centrally planned economies but excludes oil trade within this group of countries.<sup>e/</sup> Including countries with centrally planned economies.

Exhibit 51

SELECTED FINANCIAL DATA ON SAUDI ARABIAN LIGHT CRUDE OIL: JANUARY 1974-JULY 1977

(In US dollars per barrel)

Concept	Jan- uary 1974a/	Octo- ber 1974b/	Novem- ber 1974c/	Jan- uary 1975d/	Septem- ber 1975e/	Jan- uary 1977f/	July 1977g/
<b>Equity Crude Oil: Tax Paid Cost to Company:</b>							
Posted Price (FOB Ras Tanura)	11.65	11.65	11.25	11.25	12.38	13.00	13.66
Less: Production Cost (Est.)		0.17	0.17	0.17	0.29	0.40	0.40
Less: Royalty		1.94	2.25	2.25	2.48	2.60	2.73
Equals: Taxable Base	7.00	9.54	8.83	8.83	9.61	10.00	10.53
Income Tax		6.27	7.51	7.51	8.17	8.50	8.95
Add: Royalty		1.94	2.25	2.25	2.48	2.60	2.73
Add: Production Cost	0.15	0.17	0.17	0.17	0.29	0.40	0.40
<u>Total Tax Paid Cost to Company</u>	<u>7.15</u>	<u>8.38</u>	<u>9.93</u>	<u>9.93</u>	<u>10.94</u>	<u>11.50</u>	<u>12.08</u>
<b>Participation Crude Oil: Cost to Company:</b>							
State Official Price (FOB Ras Tanura)	10.83	10.83	10.67	10.46	11.51	12.09	12.70
	7.65	10.83	10.67	10.46	11.51	12.09	12.70
<b>Company Weighted Average Costs, Margin and Sales Price:</b>							
Equity Oil Cost per barrel	-	8.38	9.93	9.93	10.94	11.50	12.08
Participation Oil Cost per barrel	-	10.83	10.67	10.46	11.51	12.09	12.70
Weighted Average Cost to Company	7.15	9.79	10.35	10.23	11.27	11.84	12.44
<b>Company Weighted Average Margin:</b>							
Official Sales Price	7.65	10.83	10.67	10.46	11.51	12.09	12.70
Weighted Average Company Cost	7.15	9.79	10.35	10.23	11.27	11.84	12.44
Weighted Average Company Margin	0.50	1.04	0.32	0.23	0.24	0.25	0.26
<b>Government's Weighted Average Take:</b>							
<b>Equity Oil Take:</b>							
Tax		6.27	7.51	7.51	8.17	8.50	8.95
Royalty	7.00	1.94	2.25	2.25	2.48	2.60	2.73
<u>Total</u>		<u>8.21</u>	<u>9.76</u>	<u>9.76</u>	<u>10.65</u>	<u>11.10</u>	<u>11.68</u>
<b>Participation Oil Take:</b>							
Official Price (FOB Ras Tanura)	-	10.83	10.67	10.46	11.51	12.09	12.70
Less: Production Cost (Est.)	-	.17	.17	.17	0.29	0.40	0.40
<u>Total</u>	-	<u>10.66</u>	<u>10.50</u>	<u>10.29</u>	<u>11.22</u>	<u>11.69</u>	<u>12.30</u>
Equity Oil Take	-	8.21	9.76	9.76	10.65	11.10	11.68
Participation Oil Take	-	10.66	10.50	10.29	11.22	11.69	12.30
Weighted Average Government Take	7.00	9.62	10.19	10.07	10.98	11.44	12.04

Source: The assumptions and figures specified above are based on data taken from various issues of Petroleum Intelligence Weekly and from Exhibit 48 of this study (in the case of figures for January, 1974). Therefore, they are not official data, but rather estimates.

- a/ In January, 1974, the posted price of Saudi Arabian light crude oil was fixed at \$11.65 and the government-take was set at \$7.00 per barrel. Production costs estimated at .15 dollars per barrel (Exhibit 48).
- b/ Basic assumptions: official state price equals .93 of posted price; production costs at 17 cents per barrel; royalty at 16.67 of posted price; income tax at 65.75 per cent of posted price less the sum of production cost and royalty; equity/participation oil split at .40/.5375, the remaining 6.25% reserved for the government's direct sale.
- c/ Basic assumptions: income tax rate at 85 per cent; royalty rate at 20 per cent; official state price equals 94.85 per cent of posted price at \$11.25 per barrel. All other parameters as given in b/.
- d/ Basic assumptions: official price equals 93 per cent of posted price. All other parameters as given in c/.
- e/ Basic assumptions: official state selling price at \$11.51; production cost at .29 dollars per barrel. All other parameters as given in d/.
- f/ Basic assumptions: official selling price at \$12.09 per barrel. All other parameters as given in e/.
- g/ Basic assumptions: official state selling price at \$12.70 per barrel. All other assumptions as given in f/.

Exhibit 52

OPEC: CRUDE OIL, PRODUCTION, 1970-1976, AND EXPORTS, 1975  
(Thousands barrels per day)

Country	1970		1971		1972		1973		1974		1975		1976		Exports 1975
	Volume	Percent age	Volume	Percent age	Volume	Percent age	Volume	Percent age	Volume	Percent age	Volume	Percent age	Volume	Percent age	
Saudi Arabia	3 548.6	15.5	4 497.5	18.1	5 749.1	21.6	7 596.2	24.6	8 479.7	27.6	7 075.4	26.0	8 579.5	28.2	6 591
Iran	3 828.6	16.7	4 553.2	18.4	5 051.6	19.0	5 860.9	18.9	6 021.6	19.6	5 350.1	19.7	5 882.9	19.3	4 694
Venezuela	3 708.0	16.2	3 549.1	14.3	3 228.7	12.1	3 366.0	10.9	2 976.3	9.7	2 346.2	8.6	2 294.3	7.5	1 541
Nigeria	1 084.5	4.7	1 529.8	6.2	1 822.7	6.9	2 054.3	6.6	2 255.0	7.3	1 783.2	6.6	2 067.7	6.8	1 705
Iraq	1 560.9	6.8	1 710.4	6.9	1 450.5	5.5	2 018.1	6.5	1 970.6	6.4	2 261.7	8.3	2 184.0	7.2	2 073
Indonesia	853.8	3.7	892.3	3.6	1 083.8	4.1	1 338.5	4.3	1 374.5	4.5	1 306.5	4.8	1 504.2	4.9	981
Libia	3 313.2	14.5	2 760.8	11.1	2 245.6	8.4	2 174.9	7.0	1 521.3	5.0	1 479.8	5.4	1 913.8	6.3	1 389
Kuwait	2 734.5	12.0	2 925.4	11.8	3 007.4	11.3	3 020.4	9.7	2 546.1	8.3	2 084.2	7.7	2 150.1	7.1	1 826
United Arab Emirates	776.7	3.4	1 059.3	4.3	1 205.8	4.5	1 532.6	4.9	1 678.6	5.5	1 663.3	6.1	1 942.0	6.4	1 614
Algeria	1 018.5	4.4	766.1	3.1	1 054.4	4.0	1 097.3	3.5	1 008.6	3.3	1 020.3	3.8	1 050.0	3.4	823
Qatar	362.9	1.6	429.8	1.7	483.7	1.8	570.3	1.8	518.4	1.7	437.6	1.6	487.1	1.6	416
Gabon	107.6	0.5	114.8	0.5	125.1	0.5	150.2	0.5	201.5	0.6	223.0	0.8	220.0	0.7	210
Ecuador	4.0	-	3.7	-	78.3	0.3	208.8	0.7	177.0	0.6	160.9	0.6	186.4	0.6	147
<b>Total OPEC</b>	<b>22 901.8</b>	<b>100.0</b>	<b>24 792.2</b>	<b>100.0</b>	<b>26 586.7</b>	<b>100.0</b>	<b>30 988.5</b>	<b>100.0</b>	<b>30 729.2</b>	<b>100.0</b>	<b>27 192.2</b>	<b>100.0</b>	<b>30 462.0</b>	<b>100.0</b>	<b>24 010</b>
World (excluding countries with centrally planned economies)	37 928.4		39 901.4		42 054.4		45 930.8		45 322.1		42 100.6		45 550.5		26 235
Persian Gulf a/	12 812.2		15 175.6		16 948.1		20 598.5		21 215.0		18 872.3		21 225.6		17 214
World	45 804.6		48 391.2		50 960.9		55 802.7		56 267.7		53 850.6		57 910.5		28 305

Sources: 1) Production data from: International Petroleum Annual 1974, United States Department of the Interior, page 24-25, table 7, (March, 1976). Petroleum Intelligence Weekly, (Supplement), Vol. XVI, No. 5, January 31, 1977.

2) Exports 1975 from: United Nations, World Energy Supplies 1971-1975, Series J., No. 20, pp. 72-73.

Note: Source data in metric tons were converted to barrels using the relation: 1 metric ton of crude oil equals 7.33 barrels.

a/ Defined here to include: Saudi Arabian, Iran, Iraq, Kuwait, United Arab Emirates, and Qatar.

## Exhibit 53

## OPEC, PROVEN RESERVES, PRODUCTION CAPACITY, AND PRODUCTION OF CRUDE OIL, 1976

(In units as indicated)

Country	Proven reserves (10 <sup>6</sup> bbl) (A)	Production capacity (10 <sup>3</sup> bbl/day) (B)	Production (10 <sup>3</sup> bbl/day) (C)	Production as a percent of capacity (C/B x 100) (D)	Proven reserves/production (A/C x 365) (E)
Saudi Arabia	110 000	11 840	8 579.5	72.5	35.1
Iran	63 000	6 700	5 882.9	87.8	29.3
Kuwait	67 400	3 340	2 150.1	64.4	85.9
Iraq	34 000	3 100	2 184.0	70.4	42.7
United Arab Emirates	30 790	2 420	1 942.0	80.2	43.4
Qatar	5 700	650	487.1	74.9	32.0
<u>Total OPEC Middle East</u>	<u>310 890</u>	<u>28 050</u>	<u>21 225.6</u>	<u>75.7</u>	<u>40.1</u>
Venezuela	15 270	2 600	2 294.3	88.2	18.2
Nigeria	19 500	2 700	2 067.7	76.6	25.8
Libia	25 500	2 500	1 913.8	76.6	36.5
Indonesia	10 500	1 800	1 504.2	83.6	19.1
Algeria	6 800	1 100	1 050.0	95.4	17.8
Gabon	2 125	250	220.0	88.0	26.6
Ecuador	1 700	225	186.4	82.8	25.0
<u>Total OPEC Non-Middle East</u>	<u>81 395</u>	<u>11 175</u>	<u>9 236.4</u>	<u>82.7</u>	<u>24.1</u>
<u>Total OPEC member countries</u>	<u>392 285</u>	<u>39 225</u>	<u>30 462.0</u>	<u>77.7</u>	<u>35.3</u>

Sources: Proven reserves from: The Oil and Gas Journal, December 27, 1976, pp. 104-105.Capacity and production from: Petroleum Intelligence Weekly, January 31, 1977, (Supplement), p. 11.

## Exhibit 54

## SELECTED COUNTRIES: DEVELOPMENT-OPERATING COSTS AND LONG-RUN SUPPLY PRICE OF CRUDE OIL, SELECTED PERIODS

(Dollars)

Area and years	Development investment per daily barrel	Development	Operating (including pipelines)	Cost per barrel			Long-run supply price (1970-1985)
				Total	Operating plus development (mid-1980's)	Freight advantage over Persian Gulf (1980)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
United States							
1960-1963	2 280	1.048	.168	1.22	...	...	...
Venezuela							
1966-1968	417	.351	.101	.462	...	.42	.64
Africa							
Libya 1966-1968	129	.074	.085	.159	...	.34	.54
Algeria 1966-1968	293	.180	.100	.280	...	.37	.57
Nigeria 1965-1966	165	.094	.070	.164	...	.26	.46
Persian Gulf							
Iran consortium							
1963-1969	90	.047	.050	.097	0.14	...	.20
Iraq 1966-1968	47	.025	.045	.070	0.12	...	.20
Kuwait 1966-1968	114	.060	.045	.105	0.20	...	.20
Saudi Arabia							
1966-1968	78	.041	.045	.086	0.18	...	.20

Source: Reproduced in entirety from the following: M.A. Adelman, *The World Petroleum Market*, published for Resources for the Future, Inc. by the John Hopkins University Press, Baltimore and London, 1972, table II-8, p. 76.



Exhibit 55 (concluded)

	C. C. 0.30 with OPC at:			G.C. (1.02*1975) with OPC at:			S.C. 0.30 with OPC at:			S.C. (1.02*1975) with OPC at:			
	15%	20%	25%	12%	15%	18%	12%	15%	20%	25%	12%	15%	
Private Plant													
Oil from coal	19.45	24.48	32.97	46.82	32.46	37.55	17.43	21.13	28.45	37.28	26.45	30.08	
Oil from shale													
E. Estimated Minimum Supply cost per barrel in 1990 in \$1975													
State Plant													
Oil from coal	8.30	10.26	14.05	18.70	17.84	19.81	8.99	10.39	13.15	16.51	15.60	16.94	
Oil from shale													
Private Plant													
Oil from coal	16.73	21.06	30.08	40.27	27.92	32.29	14.99	18.17	24.47	32.06	22.75	25.87	
Oil from shale													
F. Estimated Minimum Supply cost per barrel in 2000 in \$1975													
State Plant													
Oil from coal	7.51	9.28	12.71	16.91	16.14	17.91	8.13	9.40	11.89	14.93	14.11	15.32	
Oil from shale													
Private Plant													
Oil from coal	15.13	19.04	27.20	36.42	25.23	29.20	13.55	16.44	22.13	29.00	20.58	23.40	
Oil from shale													

Source: Computations based on the assumptions specified in Appendix A. Refer also to discussion of this subject in Chapter 2, Section IV (111).

Note: 1) CC (.30) means coal cost at 0.30 dollars of 1973 per million Btu.

2) OPC means opportunity cost of capital.

3) The data in (A) for oil from coal were converted from dollars of 1973 per million Btu to dollars of 1973 per barrel using a conversion factor of 5.95 million Btu per barrel (i.e., the weighted average Btu content of naphtha and fuel oil output); the conversion factor used for synthetic crude produced from shale is: one barrel of synthetic crude equals 5.568 million Btu.

4) The data in (B) were converted from dollars of 1973 to dollars of 1975 in (C) by applying the world consumer price index (1970=100), the 1973 value of which was 122.9 and the 1975 value of which was 160.2. See: International Monetary Fund, International Statistics, May, 1976, p. 551.

5) The figures in (C) for 1973 (in 1975 dollars) were decreased by one per cent per annum compounded from 1973 forward to derive the figures in (D), (E), and (F) (in 1975 dollars) for 1977, 1990, and 2000, respectively.

Exhibit 56

ESTIMATES OF FINANCIAL AND ECONOMIC MINIMUM LONG-RUN SUPPLY COSTS OF SYNTHETIC OIL  
AND MAXIMUM LONG-RUN SUPPLY COSTS OF NATURAL CRUDE OIL

(In 1975 US dollars per barrel as indicated)

Year	Financial			Economic		
	Minimum long-run supply costs of synthetic oil (1) (FOB Pennsylvania Coal Mine Oil Conversion Plant)		Maximum long-run supply costs of natural crude oil (2) (FOB Ras Tanura)	Minimum long-run supply costs of synthetic oil (1) (FOB Pennsylvania Coal Mine Oil Conversion Plant)		Maximum long-run supply costs of natural crude oil (3) (FOB Ras Tanura)
	(A)	(B)	(C)	(D)	(E)	(F)
	1977	34.97	24.48	10.50	16.34	11.93
1990	30.08	21.06	10.65	14.05	10.26	0.40
2000	27.20	19.04	12.25	12.71	9.28	2.00

Source: See text (section IV: 1-111) for a discussion of the derivation and, most importantly, the meaning of the figures presented above.

(1) The figures in the columns A and D were calculated using a 20 per cent opportunity cost of capital and the figures shown in columns B and E are for a 15 per cent opportunity cost of capital. For further details, refer to Exhibit 54 of this study and to the discussion in Chapter 2 (section IV, 111).

(2) With the government-take per barrel in July, 1977 held constant and converted to 1975 dollars.

(3) For the derivation of the figures in column F, refer to Chapter 2 (section IV, 11).

Note: On July 1, 1977, the official state selling price of Saudi Arabian light crude oil was about 10.81 dollars of 1975 per barrel, FOB, Ras Tanura; and its long-run incremental supply cost was about 0.40 dollars of 1975 per barrel, FOB, Ras Tanura.

<sup>a/</sup> This is a geometrically interpolated figure for 1977 between the development and operating cost data for 1968 and 1985 for Saudi Arabia (Exhibit 53), converted to 0.22 dollars of 1975 and rounded to 0.25 dollars of 1975 per barrel.

Exhibit 57

WORLD AND SELECTED COUNTRIES AND REGIONS, POTENTIAL PETROLEUM-BEARING LAND AREA AND  
HISTORICAL EXPLORATORY DRILLING ACTIVITY IN THOSE AREAS

(In Units as Indicated)

Countries and regions	Prospective petroleum-bearing land area <sup>a/</sup>		Estimated number of exploratory wells drilled, cumulative as of end-1975	
	000 Sq. Miles	Percentage of total	Number	No/000 mt <sup>2</sup>
USSR	3 480	14.2	100 000	.03
United States	2 470	10.1	482 000	.20
Canada	1 087	7.7	20 000	.01
Australia and New Zealand	1 545	6.3	500	<.01
Western Europe	1 323	5.4	12 500	.01
Japan	256	1.0	1 000	<.01
<u>Subtotal</u>	<u>10 961</u>	<u>44.7</u>	<u>616 000</u>	<u>.06</u>
Africa and Madagascar	5 005	20.4	6 500	<.01
Latin America	4 005	19.6	14 000	<.01
South and South East Asia	1 637	6.7	5 000	<.01
China, P.R.	900	3.7	2 000	<.01
<u>Subtotal</u>	<u>12 346</u>	<u>50.4</u>	<u>27 500</u>	<u>&lt;.01</u>
Middle East	1 200	4.9	2 000	<.01
<u>World</u>	<u>24 507</u>	<u>100.0</u>	<u>645 500</u>	<u>.03</u>

Source: B.F. Grossling, "The Petroleum Exploration Challenge With Respect to the Developing Nations", published in the following book: R.F. Meyer (Ed.), The Future of Nature-made Petroleum and Gas, Technical Reports of an International Conference Sponsored by the United Nations Institute for Training and Research (UNITAR) and the International Institute for Applied Systems Analysis (IIASA), (Pergamon Press: New York, 1977), p. 62 and p.64, Tables 2.1 and 2.3.

<sup>a/</sup> The coverage extends to sedimentary areas with a minimum thickness of 1 500 feet applied in the delimitation of edges. See Ibid, p. 61.

Exhibit 58

HISTORICAL AND FORECAST PRICES OF SAUDI ARABIAN LIGHT CRUDE OIL, FOB, RAS TANURA, 1948-July, 1977

(In US\$ as indicated)

Year	Estimated market price	Deflator series		Price in
	in current dollars (1)	1970 = 100 (2)	1975 = 100 (2)	dollars of 1975 (3)
<u>Historical price</u>				
1948	2.06			
1949	1.81			
1950	1.71			
1951	1.71	48.6	30.3	5.64
1952	1.71	50.9	31.8	5.37
1953	1.81	51.9	32.4	5.58
1954	1.93	52.7	32.9	5.86
1955	1.93	53.3	33.3	5.79
1956	1.93	55.4	34.6	5.58
1957	1.93	57.4	36.6	5.27
1958	1.83	60.0	37.4	4.89
1959	1.70	61.9	38.0	4.47
1960	1.53	63.6	39.7	3.85
1961	1.45	65.5	40.1	3.61
1962	1.42	67.9	42.4	3.35
1963	1.40	70.8	44.2	3.16
1964	1.33	74.0	46.2	2.88
1965	1.33	77.7	48.5	2.74
1966	1.33	81.6	51.0	2.61
1967	1.33	85.5	53.4	2.49
1968	1.30	89.6	55.9	2.32
1969	1.28	94.2	59.0	2.17
1970	1.26	100.0	62.4	2.02
1971	1.33	105.9	66.1	2.01
1972	1.75	112.1	70.0	2.50
1973	2.20	122.9	76.7	2.87
1974	8.42	141.3	88.2	9.55
1975	10.81	160.2	100.0	10.81
1976	11.51	178.1	111.2	10.35
1977 Jan.	12.09	179.8 (est.)	112.2 (est.)	10.78
1977 July	12.70	188.2 (est.)	117.5 (est.)	10.81
<u>Forecast price</u>				
1978-1990				10.80
1991				10.58
1992				10.37
1993				10.16
1994				9.96
1995				9.76
1996				9.57
1997				9.37
1998				9.26
1999				9.00
2000				8.82

Source: Data in column (1) for 1948-1954 were taken from Exhibit 47; and the data for 1955-1973 were taken from Exhibit 48. Data in column (1) for January 1974 - July 1977 were taken from Exhibit 51. Annual data for 1974-1976 are average monthly weighted prices using information provided in Exhibit 51. Data in column (2) were taken from International Monetary Fund, International Financial Statistics, Vol. XXIX, N<sup>o</sup> 5, (Spanish edition), pp. S50-51 and Vol. XXX, N<sup>o</sup> 8, (English edition), pp. 28-29. Data for January and July, 1977 are estimates as are the data in columns (3) and (4) based on them. The derivation of the forecast prices (1978-2000) is described in Chapter 2, Section IV (v).

Exhibit 59

MOST LIKELY PRICES FOR WORLD CRUDE OIL IN 1990 AND 2000; AND DERIVED PROBABILITIES THAT VARIOUS PRICE RANGES WILL CONTAIN THE ACTUAL PRICE OF WORLD CRUDE OIL IN THE YEAR 2000, GIVEN PRICE IN 1990

(In dollars of 1975 per barrel of Saudi Arabian light crude oil FOB, Ras Tanura)

1990: Most Likely Price: 10.80 dollars		2000: Most Likely Price: 8.82 dollars		2000: Joint Probability Distribution	
Price Range	Assigned Probability	Price Range	Assigned Probability	Price Range <sup>a/</sup>	Derived Probability
≥14.05	-				
10.81-14.05	5	10.80-12.71	100	10.81-12.71	5
		8.58-10.80	20	9.78-10.80	7
		7.75- 9.77	60	8.71- 9.77	30
9.50-10.80	70	7.00- 8.82	20	7.76- 8.70	30
				7.01- 7.75	15
				6.80- 7.00	3
		6.79- 8.58	20	6.14- 6.79	8
		6.13- 7.75	60	5.53- 6.13	2
8.32- 9.49	25	5.52- 7.00	20	2.00- 5.52	-
				< 2.00	-
0.40- 8.31	-				
< 0.40	-				
				<u>Total</u>	<u>100</u>

Source: Appendix B.

a/ The emergent price range 8.59-8.82 was split at its mid-point, and each half of it was allocated to the adjacent price range.

## Exhibit 60

LATIN AMERICA: VALUE OF NET PETROLEUM IMPORTS AND THAT VALUE AS A PER CENT OF  
TOTAL EXPORTS, SELECTED COUNTRIES AND YEARS

Country	Net Petroleum Imports (millions of dollars)				Net Petroleum Imports as Percentage of Total Exports			
	1972	1973	1974	1975	1972	1973	1974	1975
Argentina	58.4	185.0	465.0	400.7	3.0	5.7	11.8	13.4
Barbados	7.2	10.7	14.5	22.1	19.5	22.7	21.5	23.3
Brazil	512.8	1 041.8	3 063.4	3 154.7	13.0	17.1	39.2	36.4
Colombia	-	-	-	-	-	-	-	-
Costa Rica	14.6	20.1	56.2	58.1	5.2	5.8	12.8	11.9
Chile	72.4	78.9	337.3	251.6	8.4	6.3	16.5	16.4
El Salvador	11.9	16.1	52.1	62.1	3.9	4.5	11.2	12.0
Guatemala	25.2	33.2	103.2	106.2	7.5	7.5	17.7	16.3
Guyana	-	-	46.2	56.0	...	...	17.1	13.1
Haiti	3.9	6.6	13.1	13.1	9.1	13.0	18.4	17.7
Honduras	11.3	17.4	61.6	67.3	5.4	6.7	20.7	22.7
Jamaica	46.2	62.5	165.4	200.6	12.2	15.9	21.9	12.5
Mexico	100.0	262.6	227.6	-	5.3	10.9	6.6	-
Nicaragua	11.7	17.9	57.0	68.0	4.8	6.5	15.1	18.3
Panama	48.0	73.9	205.7	227.2	32.9	45.6	83.2	69.2
Paraguay	6.0	6.8	41.9	38.4	7.0	5.3	24.2	21.8
Peru	42.3	46.3	175.3	202.2	4.5	4.2	11.6	14.7
Dominican Republic	48.3	48.1	154.7	178.6	13.9	10.9	24.3	20.0
Uruguay	43.1	54.7	149.9	169.4	20.1	16.7	39.3	44.0
<u>Total</u>	<u>1 063.3</u>	<u>1 982.6</u>	<u>5 357.1</u>	<u>5 276.2</u>	<u>8.0</u>	<u>10.6</u>	<u>21.6</u>	<u>21.0</u>

Source: Banco Interamericano de Desarrollo, Progreso Económico y Social de América Latina, Informe 1974, pag. 56.

Banco Interamericano de Desarrollo, Progreso Económico y Social de América Latina, Informe 1976, pag. 34.

Note: The source documents do not specify the basis of valuation, but selected calculations indicate that it is Imports (CIF) less Exports (FOB).

Exhibit 61

LATIN AMERICA: RETAIL PRICES OF SELECTED REFINED OIL PRODUCTS BY COUNTRY, AND ARUBA  
 EXPORT PRICE (FOB) OF THOSE PRODUCTS, JUNE, 1977.  
 (In US cents per liter)

	Bolivia	Brazil	Colombia	Chile	Ecuador	Peru	Venezuela	Exxon Aruba FOB
<b>Refined Oil Products</b>								
Gasoline 80/84	10	53	6	24	5	25	4	10
Gasoline 94/96	18	...	8	30	...	37	8	11
<b>Kerosene</b>								
Domestic	2	24	5	11	...	3	3	10 <sup>a/</sup>
Industrial	3	22	...	19	...	...	...	...
Diesel Gas Oil	7	24	5	19	4	6	2	10
Fuel Oil (No 5)	...	...	...	16	3	...	...	...
Fuel Oil (No 6)	...	5	...	13	...	...	1	0.07 <sup>b/</sup>
Liquid Gas (LPG)	38/kg.	15/kg.	...	15/kg.	23/kg.	9/kg.	9/kg.	...
Exchange Rate used: US\$ 1=	...	Cr/13.70	\$CL/35.50	Ch \$/18.41	S/25	S/78.84	Bs./4.30	

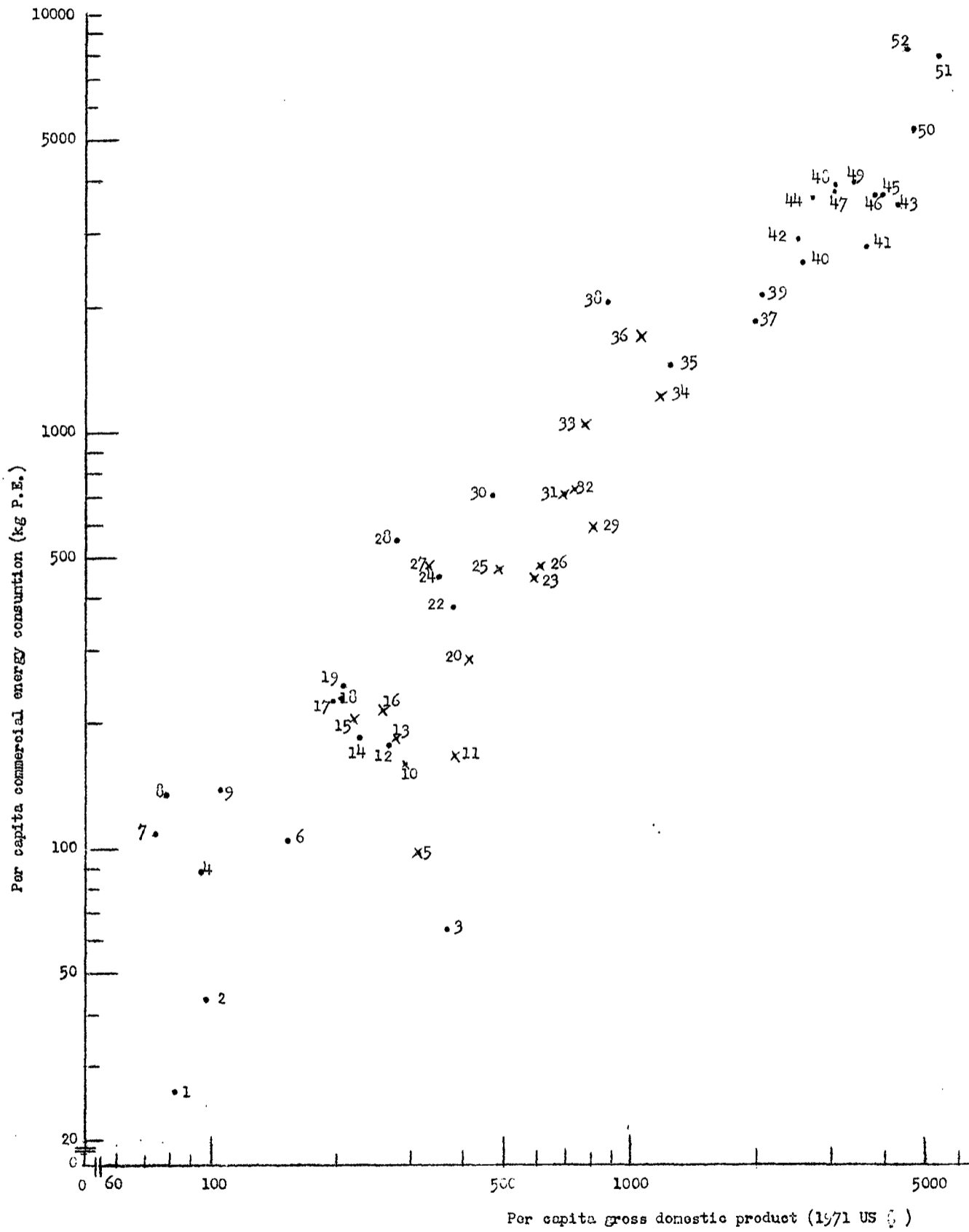
Source: Domestic retail prices for refined oil products were taken from CARPA MENSUAL, published by ARPEL (Asistencia Reciproca Petrolera Estatal Latinoamericana), June 1977, p. 7. Aruba prices were taken from PETROLEUM ECONOMIST, July 1977, page 291.

a/ Dual purpose.

b/ Bunker "C".

Figure 1

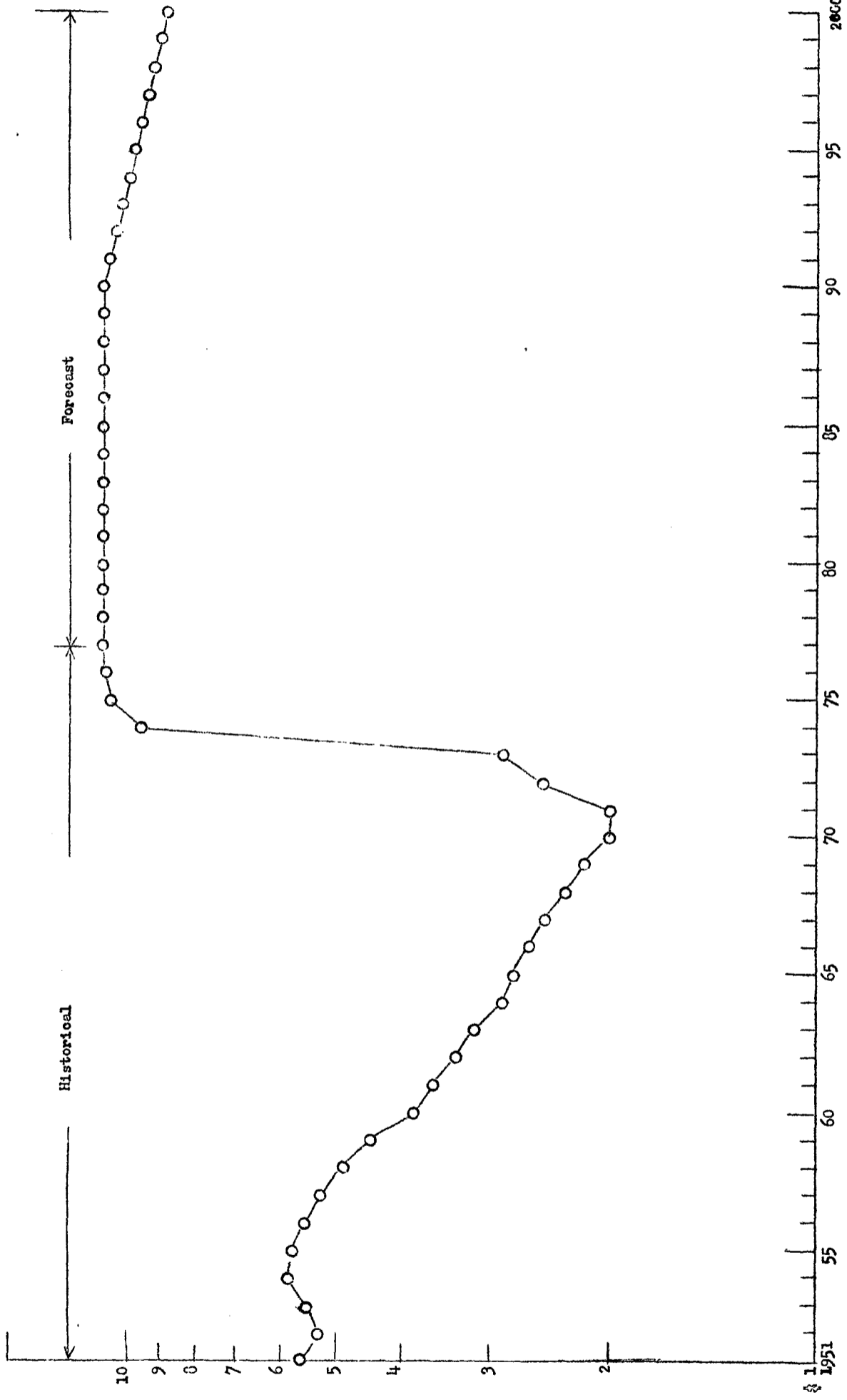
SELECTED COUNTRIES: PER CAPITA COMMERCIAL ENERGY CONSUMPTION AND GROSS DOMESTIC PRODUCT, 1950-1974



Source: See Exhibit 2.

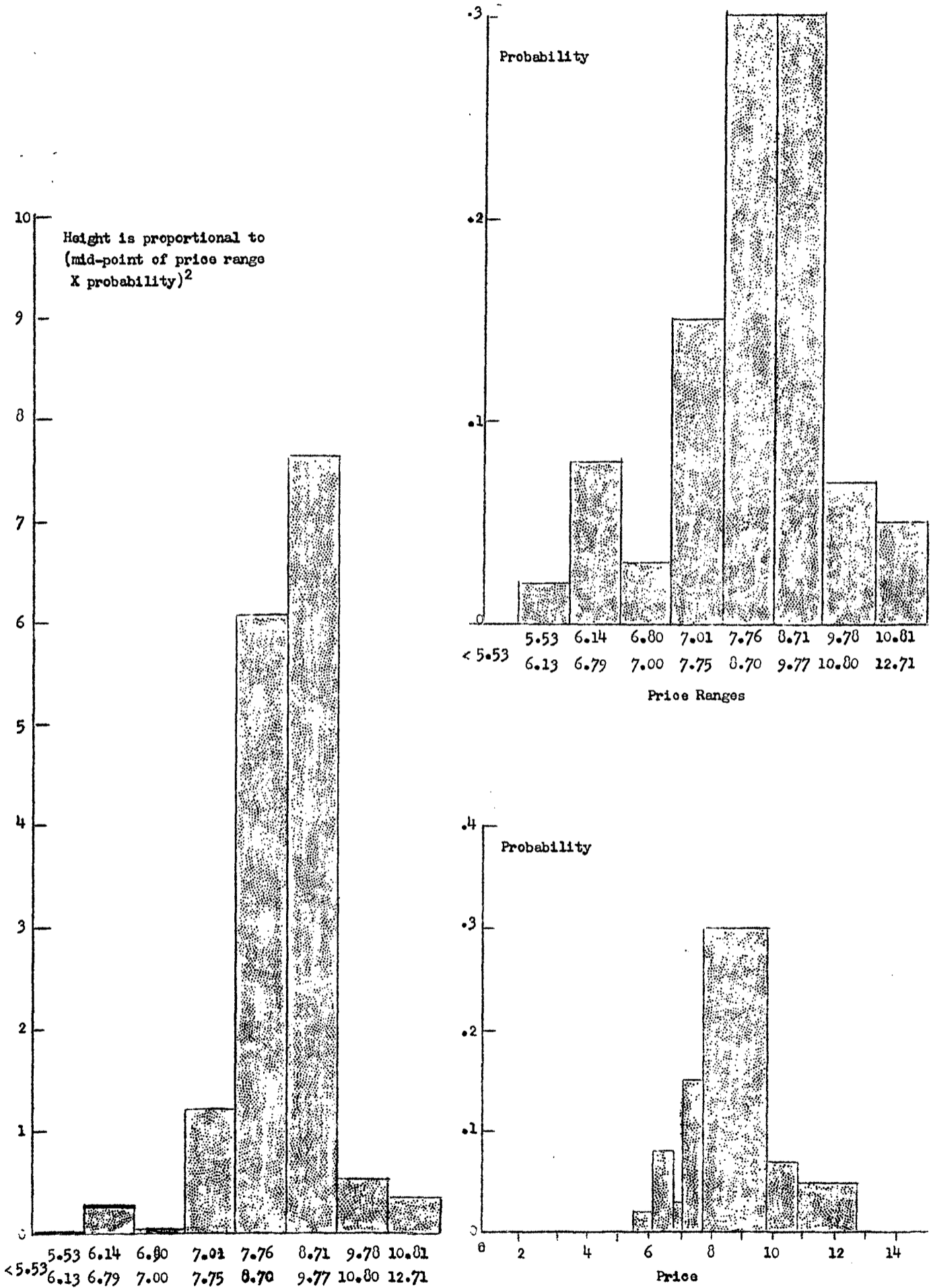
Diagram 1

PRICES OF SAUDI ARABIAN LIGHT CRUDE OIL, FOB, RAS TANURA, 1951-1977 AND 1978-2000 (FORECAST)  
(In \$ 1975 per barrel)



Source: Exhibit 58.

Diagram 2: HISTOGRAMS OF JOINT PROBABILITY DISTRIBUTION SHOWN IN EXHIBIT 59



Source: Exhibit 59.

Appendix A

BASIC ASSUMPTIONS USED IN CALCULATING MINIMUM LONG-RUN SUPPLY  
COSTS OF SYNTHETIC OIL AS PRESENTED IN EXHIBIT 55

Concept	Oil from Coal	Oil from Shale
Project life (years)	25	25
Total investment (\$ 1973 MN.)	507.4	421.1
Depreciable plant investment (\$ 1973 MN.)	376.3	312.8
* Plant construction (years)	5 <u>a/</u>	5 <u>a/</u>
Capacity: Crude oil (000 bbl/day) <u>b/</u>	-	54.5
Naptha (000 bbl/day) <u>c/</u>	13.2	-
Heavy fuel oil (000 bbl/day) <u>d/</u>	34.2	-
Plant factor (Production / Capacity: %)	90	90
Operating costs per year (\$ 1973 MN.)	109.4	82.0
Bi-product sales per year (\$ 1973 MN.)	76.8	7.0
Federal corporate income tax rate (%)	48	48
Depreciation formula: sum of digits for	16 yrs.	16 yrs.
Assumed salvage value at end of 25 <sup>th</sup> year	-0-	-0-
Technology for oil from coal	Consol Synthetic Fuel Process	
Technology for oil from shale	Gas Combustion Process (USEM)	
Coal input (000 tons/day)	29.2	-
Shale input (000 tons/day)	-	85.8
Coal feed input cost per year (000 \$ 1973)	62,358	-
Shale feed input cost per year (000 \$ 1973)	-	44,635
Unit cost of coal feed (\$ 1973/MMBtu): Case 1	0.30 <u>e/</u>	-
Unit cost of coal feed (\$ 1973/MMBtu): Case 2	1.02+15% <u>f/</u>	-
Unit cost of shale feed (\$ 1973/MMBtu): Case 1	-	.30 <u>e/</u>
Unit cost of shale feed (\$ 1973/MMBtu): Case 2	-	1.02+15% <u>f/</u>

Appendix 1

Concept	Oil from Coal	Oil from Shale
Actual FOB price of Pennsylvania coal:		
i) In dollars of 1973 per short ton:		
1973 (Aug.)	20.05 g/	-
1976 (June)	46.55 g/	-
ii) In dollars of 1973 per MMBtu:		
1973	1.02 h/	-
1976 (June)	2.37 h/	-
Debt: Equity ratio	100% Equity	100% Equity
* Initial year of sales	6th.	6th.
* Assumed ratio of economically relevant to financially relevant costs (%)	85	85
* Discounting assumptions:	Discount rate applied once per year at the end of each year; all flows brought forward to period zero.	

Source: The entries without an asterisk were taken from the following source: K.C. Vyas and W.W. Bodla, "Coal and oil shale conversion looks better", Oil and Gas Journal, March 24, 1975, pp. 45-54. The entries with an asterisk refer to assumptions made independently of this journal article with the exception of the actual price of coal (f.o.b.), which was taken from the source noted in f/ below.

Notes:

- a/ Of equal expenditures per year.
- b/ 46.2°API (appr.), 5.568 MMBtu/bbl.
- c/ 55.2° API, 5.14 MMBtu/bbl.
- d/ 10.3° API, 6.27 MMBtu/bbl.
- e/ This equates to roughly \$ 6.49 per short ton, CIF conversion plant (or its equivalent in the case of shale)
- f/ This equates to roughly \$ 20.05 per short ton, CIF conversion plant (or its equivalent in the case of shale)
- g/ International Monetary Fund, International Financial Statistics, Vol. XXX, N° 8, (English edition), August, 1977, pp.34-35.
- h/ Assuming 1 short ton of Pennsylvania coal contains 19.6 MMBtu.

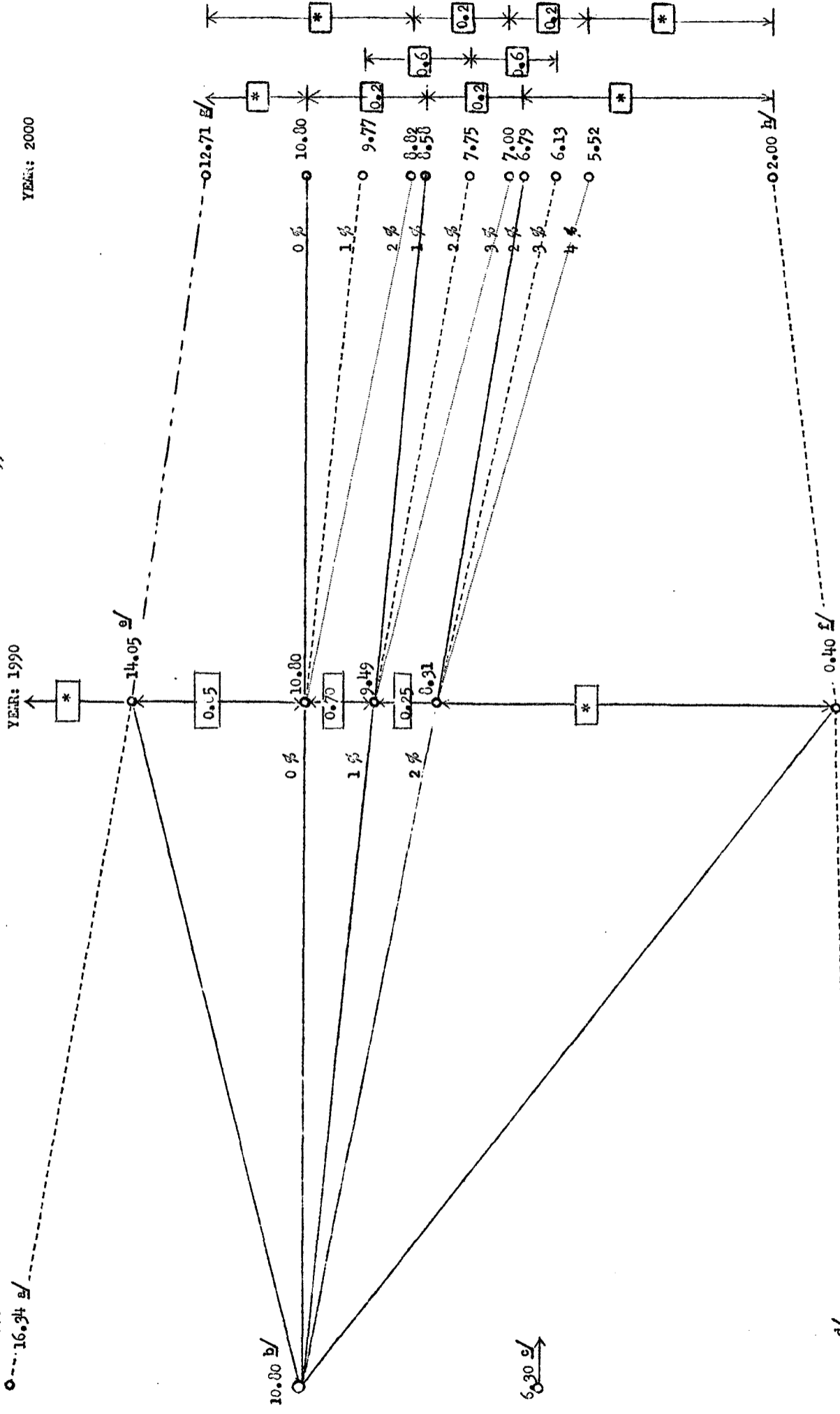
APPENDIX B: ASSUMPTION UNDERLYING THE MATERIALS PRESENTED IN EXHIBIT 59

YEAR: 1977

○ 16.34 \$/

YEAR: 1990

YEAR: 2000



Source: Exhibit 59.

Appendix B (concluded)

- a/ The estimated minimum economic supply cost of oil from coal in 1977 in 1975 dollars per barrel, FOB, conversion plant. [Refer to Chapter 2, Section IV (iii)].
- b/ The price of Saudi Arabian light crude oil during (avg.) January-July, 1977 in dollars of 1975 per barrel, FOB, Ras Tanura, [Refer to Chapter 2, Section IV (ii)].
- c/ The minimum safeguard price of 7.00 per barrel adapted by the IEA and the European Commission in 1976 and adjusted to dollars of 1975. [Refer to Chapter 2, Section IV (iv)].
- d/ The estimated maximum economic supply cost of Saudi Arabian light crude oil in 1975 dollars per barrel, FOB, Ras Tanura, (Refer to footnote a/, Exhibit 55).
- e/ The estimated minimum economic supply cost of oil from coal in 1990 in 1975 dollars per barrel, FOB., conversion plant. [Refer to Chapter 2, Section IV (III)].
- f/ The estimated maximum economic supply cost of Saudi Arabian light crude oil in 1990 in 1975 dollars per barrel, FOB., Ras Tanura. [Refer to Chapter 2, Section IV (ii)].
- g/ The estimated minimum economic supply cost of oil from coal in the year 2000 in 1975 dollars per barrel, FOB., conversion plant. [Refer to Chapter 2, Section IV (iii)].
- h/ The estimated maximum economic supply cost of Saudi Arabian light crude oil in 1975 dollars per barrel, FOB., Ras Tanura. [Refer to Chapter 2, Section IV (ii)].

Note: The figures enclosed within rectangles indicate the probability assigned to the event that the actual price will fall within the price range indicated in the year shown. An asterisk indicates the assignment of a zero or negligible probability to such an event. The per cent figures indicate the average annual compound rate of decline between the two limiting price nodes.

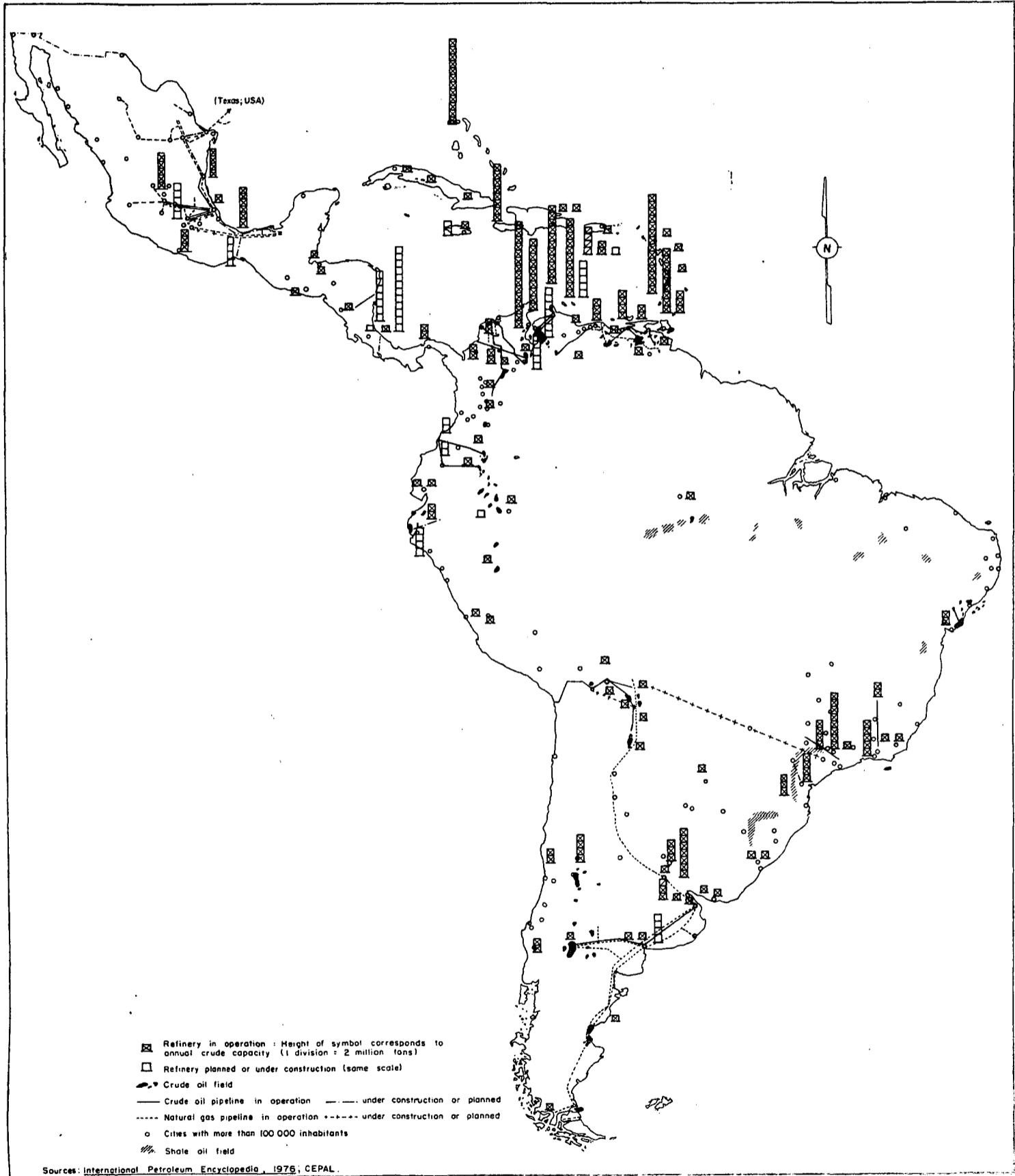
For purposes of clarity, in 1990, the chances that the actual price will fall within the price range 10.81-14.05 dollars of 1975 per barrel is given as 0.05; between 9.50-10.80:0.70; between 8.32-9.40:0.25; above 14.05 and below 8.31:zero. Departing from the price range 9.49-10.80 in 1990, and considering the year 2000, a 0.2 chance was assigned to the probability that the actual price in 2000 would fall in the range 8.58-10.80; a 0.60 chance to the range 7.75-9.77; and a 0.2 chance to the range 7.00-8.82. Departing from the range 8.32-9.49 and considering the year 2000, the comparable range and assigned probabilities are: 6.80-8.58:0.2; 6.14-7.75:0.6; and 5.53-7.00:0.2. The per cent figures indicate the average annual compound rate of decline in price that were used in generating each of the limits of the above price ranges.



Map I Latin America  
 ASPECTS OF THE LOCATION OF THE OIL  
 INDUSTRY IN LATIN AMERICA

- LEGEND
- Refinery
  - ▲ Tanker terminal ports
  - Rivers with seagoing shipping traffic
  - Rivers with inland-waterway traffic only
  - - International boundaries
  - ⊙ Capital of country

Note: The fact that this map shows specific boundaries does not mean that they are sanctioned or accepted by the United Nations



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