

인도네시아 에너지 統計

編輯者註: 本 統計資料는 第13次 WEC 칸느 總會 및 IEC 會議 期間中 收集한 資料임.

GENERAL ENERGY SITUATION

With a population of about 161 million in 1984, the land area of the Republic of Indonesia is composed of 13 667 islands. The archipelago stretches 5 110 km from West to East and 1 888 km from North to South. The islands are stretched out along the equator between 94° 45' and 141° 05' east longitude and extend from 6° 08' north latitude to 11° 15' south latitude and total land area of the Republic of Indonesia is 1 919 443 square km.

Commercial energy consumption in Indonesia has been expanding at a relatively high rate, the growth was observed 14% a year during the period 1970-1980. The rapid growth of energy consumption was partly due to a population growth demand from the industry and transport sectors and demand for a better standard of living.

The problem with commercial energy is that, requirement have been increasing at a high rate, but the largest portion of these requirements have been satisfied by one source of energy namely oil.

Since oil has been the most important source as state revenue and foreign exchange to finance the country's development, its high percentage of energy use is considered as serious problem.

Beside the role of oil, natural gas in the form of liquefied natural gas (LNG) exports has lately emerged as a substantial foreign exchange earner.

Another problem with commercial energy is that of its overdependence on oil, and the underutilization of other source of energy. The Government has started a programme to develop the country's coal resources as a substitute for oil in all future steam power plants and wherever feasible in cement plants as well.

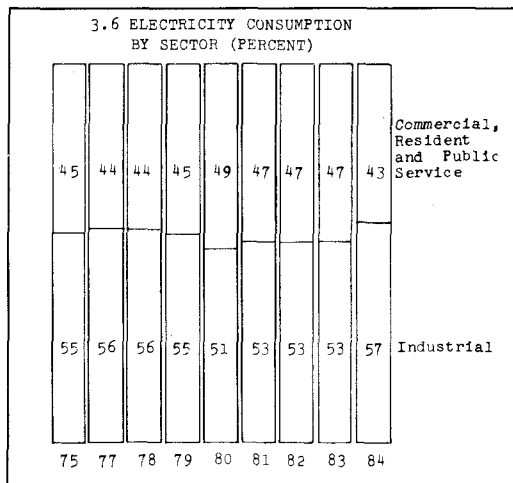
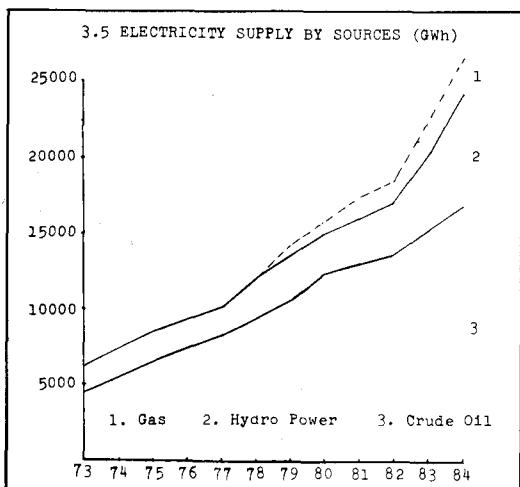
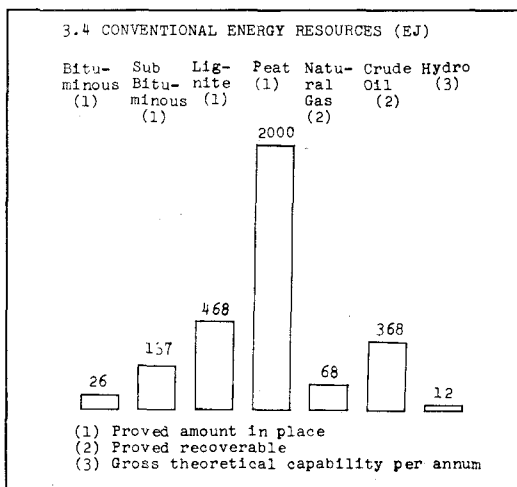
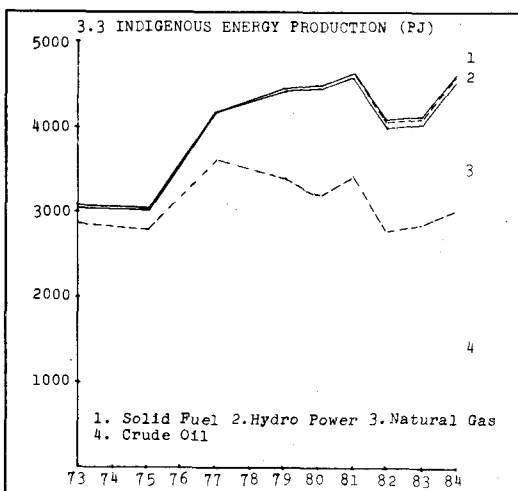
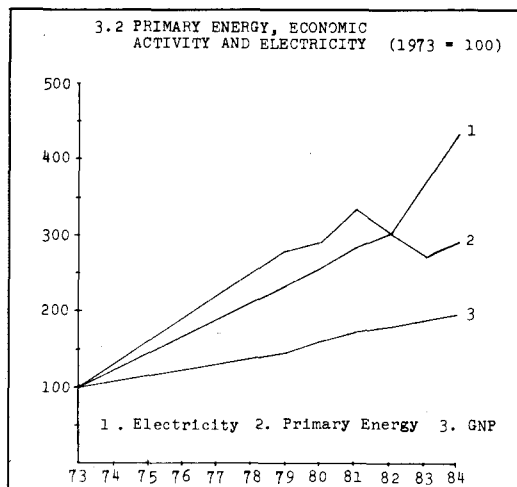
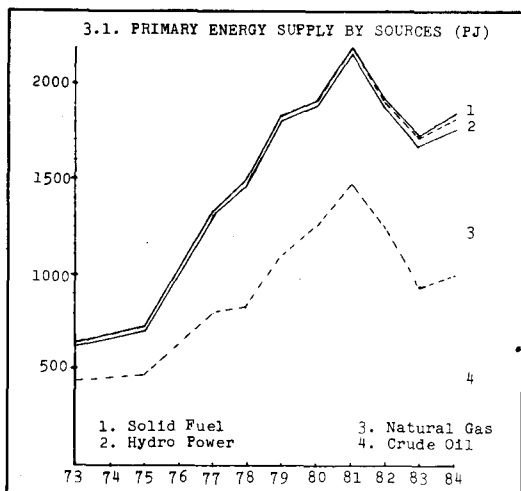
A major coal mining project is underway at Bukit Asam in South Sumatra to increase production from the current rate of 501 000 tonnes per annum to about 3 million tonnes in 1986.

Development of hydropower and non-oil power generation will be given high priority.

Total installed hydropower capacity in 1984 is 1428 MW, and another 1582 MW is still under construction.

With regard to non commercial energy, firewood has been the prime source of supply throughout rural Indonesia and played an important role in meeting the total energy demand.

This Energy Data Profile is published by World Energy Conference Indonesian National Committee.
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Source of Data : Directorate General of Electricity and New Energy Ministry of Mines and Energy, Jakarta.



統計資料

4.1. GENERAL ENERGY DATA	1970	1973	1979	1980	1981	1982	1983	1984
Population 10 ⁶	117	125	143	147	150	155	158	161
GNP 10 ⁹ US \$ (1980)	na	26	38	42	45	47	49	51
GNP 10 ⁹ Rp (1980)	na	16380	23900	26460	28350	29610	30870	32130
GNP/Capita US \$ (1980)	na	210	268	284	301	305	308	318
GNP/Capita Rp. 1000 (1980)	na	132	169	179	190	192	194	200
Primary Energy Supply								
Total FJ	na	640	1796	1866	2142	1933	1749	1843
Total Mtoe	na	15	43	44	51	46	42	44
Per Capita GJ	na	5	12	13	14	13	11	10
Per GNP MJ/US \$	na	25	47	44	48	41	36	32
Per GNP MJ/Rp.	na	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Electricity Supply								
Total GWh	4668	6135	14305	15814	17384	18595	22765	26565
Per Capita kWh	39	49	98	106	114	119	138	159
Per GNP Wh/US \$	na	234	371	371	382	391	446	503
Per GNP Wh/Rp.	na	0.6	0.9	0.9	0.9	0.9	1.1	1.2

4.2. PRIMARY ENERGY SUPPLY (PJ)	1970	1973	1979	1980	1981	1982	1983	1984
Indigenous Production								
Solid Fuels	4	4	7	8	9	16	17	35
Crude Oil & NGL	1829	2868	3407	3387	3433	2865	2879	3035
Natural Gas	112	192	1027	1076	1156	1144	1221	1966
Nuclear Power	-	-	-	-	-	-	-	-
Hydro Power	13	14	26	25	27	32	47	69
Geothermal	-	-	-	-	-	-	-	2
Non Commercial	na	na	na	na	na	na	na	na
Total Production (Mtoe)	1958	3078	4467	4496	4625	4057	4166	4707
Imports (+)								
Solid Fuels	-	-	-	-	-	-	-	-
Crude Oil	na	na	179	193	217	266	151	200
Refined Petroleum Products	na	74	88	124	251	234	139	29
Natural Gas	-	-	-	-	-	-	-	-
Electricity	na	74	267	317	468	500	290	229
Total Imports (Mtoe)	na	2	6	7	11	12	7	5
Exports (-)								
Solid Fuels	na	na	2	3	4	6	12	25
Crude Oil	1340	2169	2315	2123	2126	1884	1974	1882
Refined Petroleum Products	213	332	290	314	293	229	254	387
Natural Gas	-	-	349	475	486	514	486	812
Nuclear Power	-	-	-	-	-	-	-	-
Electricity	-	-	-	-	-	-	-	-
Total Exports (Mtoe)	1553	2501	2956	2915	2909	2633	2726	3106
Marine-Bunkers (-)	7	17	12	43	31	11	11	13
Change in Stocks (+)	-13	+6	+30	+11	-11	+20	+30	+26
Total Primary Energy Supply (Mtoe)	na	640	1796	1866	2142	1933	1749	1843
		15	43	44	51	46	42	44

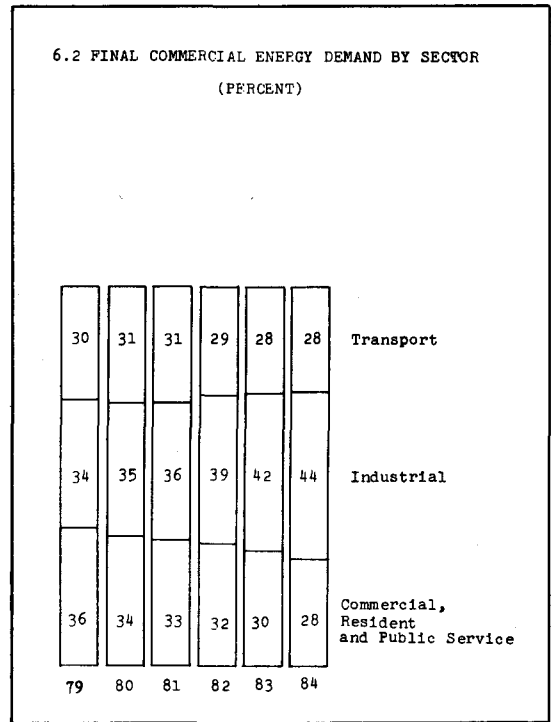
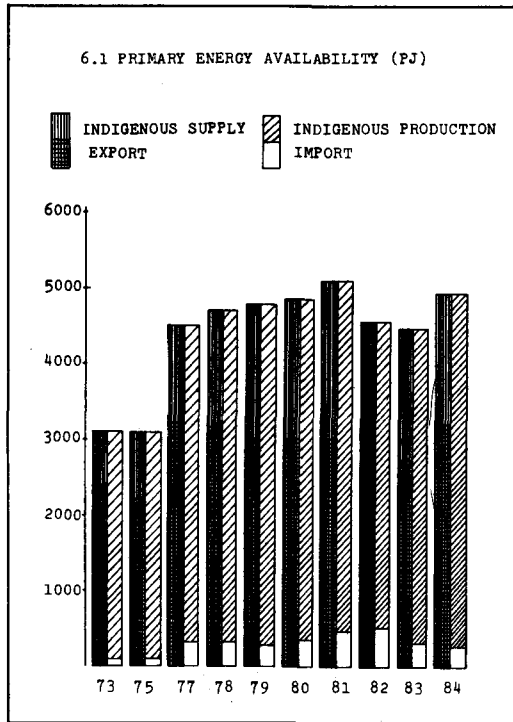
4.3. TRANSFORMATION SECTOR (PJ)	1970	1973	1979	1980	1981	1982	1983	1984
Conversion	35	41	94	103	108	97	88	88
Energy Sector Own Use	132	227	555	506	567	333	302	284
Statistical Differences (+)	na	+59	+237	+257	+384	+369	+217	+292
Total Use in Transformation (Mtoe)	na	327	886	866	1059	779	607	664
		8	21	21	25	19	15	16

4.4. FINAL ENERGY DEMAND (PJ)	1970	1973	1979	1980	1981	1982	1983	1984
(Mtoe)	na	313	910	1000	1083	1134	1142	1179
		7	22	24	26	27	27	28

5.1. FINAL COMMERCIAL ENERGY DEMAND BY SOURCES AND SECTOR (PJ)	1970	1973	1979	1980	1981	1982	1983	1984
Solid Fuels								
Commercial ; Residential and Public Service	-	-	-	-	-	-	1	5
Industry	na	1	2	5	5	4	5	5
Transport	na	1	1	1	1	1	1	1
Total Solid Fuels (Mtoe)	na	2	3	6	6	5	7	11
Refined Petroleum Products								
Commercial ; Residential and Public Service	83	102	267	287	302	304	283	266
Industry	57	71	185	208	233	256	251	259
Transport	90	110	278	309	331	321	317	327
Total Refined Petroleum Products (Mtoe)	230	283	730	804	866	881	851	852
	5	7	17	19	21	21	20	20
Gas								
Commercial ; Residential and Public Service	na	na	40	25	25	30	30	30
Industry	na	na	93	116	126	154	186	207
Transport	-	-	-	-	-	-	-	-
Total Gas (Mtoe)	7	7	133	141	151	184	216	237
	-	-	3	3	3	4	5	6
Electricity								
Commercial ; Residential and Public Service	9	11	20	24	28	30	32	34
Industry	6	10	24	25	32	34	36	45
Transport	-	-	-	-	-	-	-	-
Total Electricity (Mtoe)	15	21	44	49	60	64	68	79
Other (Mtoe)								
Total Final Commercial Energy Demand (Mtoe)	na	313	910	1000	1083	1134	1142	1179
		7	22	24	26	27	27	28

5.2. ELECTRICITY SUPPLY BY SOURCES (GWh)	1970	1973	1979	1980	1981	1982	1983	1984
Solid Fuels								
Oil	3229	4532	10592	12211	12971	13652	14901	16391
Gas	-	-	871	872	1471	1471	2581	2580
Nuclear Power	-	-	-	-	-	-	-	-
Hydro Power	1439	1603	2842	2731	2942	3441	5091	7370
Geothermal	-	-	-	-	-	31	192	224
Net Imports	-	-	-	-	-	-	-	-
Total	4668	6135	14305	15814	17384	18595	22765	26565
- Of Which: Public Supply	2087	2213	5852	7282	8233	10101	11732	13204
Autogeneration	2581	3922	8453	8532	9151	8494	11033	13361

5.3. SECTOR OIL SUBSTITUTION INDICATORS (OAR, OUR)	1970	1973	1979	1980	1981	1982	1983	1984
Oil Application Ratio (OAR)								
Commercial ; Residential and Public Service	0.37	0.37	0.35	0.34	0.33	0.32	0.30	0.28
Industry	0.22	0.22	0.23	0.23	0.23	0.22	0.23	0.23
Transport	0.32	0.32	0.31	0.32	0.32	0.33	0.32	0.33
Electricity Generation	0.04	0.05	0.07	0.08	0.09	0.11	0.12	0.13
Oil Use Ratio (OUR)								
Commercial ; Residential and Public Service	-	-	0.81	0.85	0.85	0.87	0.85	0.83
Industry	-	-	0.61	0.59	0.59	0.54	0.51	0.49
Transport	-	-	0.99	0.99	0.99	0.99	0.99	0.99
Electricity Generation	0.69	0.73	0.75	0.78	0.76	0.74	0.70	0.66



6.3. EXPLANATIONS AND DEFINITIONS

SYMBOLS AND ABBREVIATIONS EMPLOYED

na = not available data; - = magnitude zero
 In rounding data, each figure has been rounded off to the nearest final digit.
 The sum of the parts may not therefore equal the total.

CONVERSION FACTORS

When hydro electricity is accounted for as primary energy in PJ or Mtoe a conversion of 1 TWh of electricity = 2.6 TWh of primary energy has been used.
 Thus 1 TWh electricity = 2.6 TWh = 9.36 PJ primary energy.
 Electricity final demand given in PJ (1 TWh = 3.6 PJ).

METRIC MULTIPLIERS AND EQUIVALENTS

(k) = kilo = 10^3 ; (M) = mega = 10^6 ; (G) = giga = 10^9 ; (T) = tera = 10^{12}
 P) = peta = 10^{15} ; (E) = exa = 10^{18} ; 1 Toe = 42 GJ; 1 Tce = 29.3 GJ

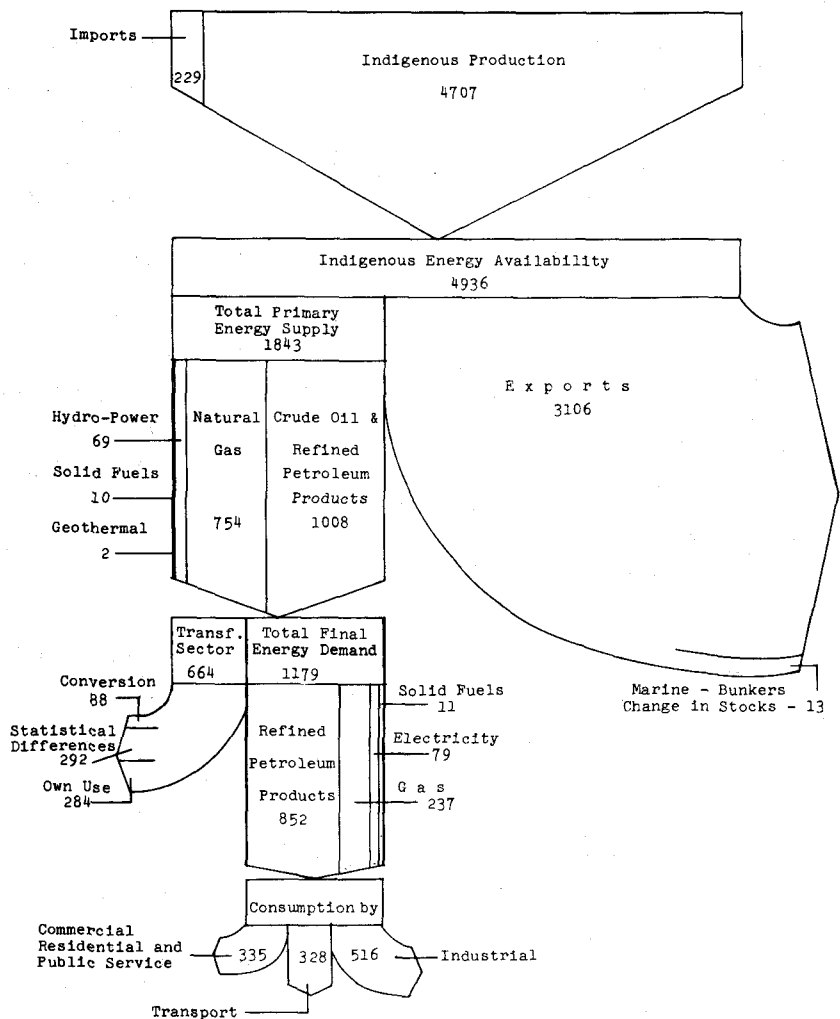
OIL SUBSTITUTION INDICATORS

$$OAR = \frac{\text{Oil Consumption in Sector}}{\text{Total Oil Consumption in Country}} \quad OUR = \frac{\text{Oil Consumption in Sector}}{\text{Total Energy Consumption in Sector}}$$

CURRENCY CONVERSION

Local currency is converted to 1980 US \$ by deflating local currency values to 1980 values and using the 1980 US Dollar exchange rate (1 US \$ = 630 Rupiah).

DIAGRAM OF COMMERCIAL ENERGY FLOW 1984(PJ)



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