

The EC - ASEAN Business Facilitator

National Energy Policy Review

Indonesia



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COGEN 3

Proven, Clean & Efficient Biomass, Coal, Gas Cogeneration

The objective of COGEN 3 is to promote the use of proven, clean and efficient cogeneration using biomass, coal or gas as fuel. This is achieved through partnership between ASEAN industries and European equipment suppliers.

The programme is co-ordinated in ASEAN by the Asian Institute of Technology (AIT), Bangkok, Thailand and in Europe by Carl Bro International, Sweden. COGEN 3 started its operation in January 2002 and will continue until December 2004.

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List of Abbreviations

ADB	Asian Development Bank
AMDAL	Directorate of Analysis for Environment Impact (Analisis Mengenai Dampak Lingkungan)
AUSAID	Australian Aid
BBM	Fossil Fuel Oil (Bahan Bakar Minyak)
BPS	Central Statistical Bureau (Biro Pusat Statistics)
CCGT	Combined Cycle Gas Turbine
CHP	Combined Heat and Power
CP	Captive Power
DGEEU	Directorate General of Electricity and Energy Utilisation
DO	Distillate Oil
GDP	Gross Domestic Product
GBHN	National guidelines (Garis-garis Besar Haluan Negara)
HFO	Heavy Distillate Oil
ICN	Indonesian Commercial News
IDR	Indonesian Rupiah
IFC	International Finance Corporation
IMF	International Monetary Fund
IPP	Independent Power Producer
KLUI	Classification of business fields in Indonesia (Klasifikasi Lapangan Usaha di Indonesia)
KUBE	policy for energy sector (Kebijakan Umum Bidang Energi)
LDO	Light Distillate Oil
LPG	Liquefied Petroleum Gas
MIME	Ministry of Industry, Mines and Energy
NGL	Natural Gas Liquids
NEDO	New Energy and Industrial Technology Development Organisation
NGO	Non-Government Organisations
PP	power plant
PLN	State electricity company (<i>PT (Persero) Perusahaan Listrik Negara</i>)
PGN	PT Perusahan Pertambangan Minyak dan Gas Bumi Negara, State-Owned Gas Company
PSD	Private Sector Development
PSKSKSM	Small Scale, Private, Cooperatives and Community Self-Supported Electricity

	Generation (Pembangkit Skala Kecil Swasta Koperasi dan Swadaya Masyarakat)
REE	Rural Energy Enterprise
RIKEN	The Energy Conservation Master Plan (Rencana Induk Konservasi Energi Nasional)
EERDC	Research and Development Centre of Energy and Electricity Technology
SIDA	Swedish International Development Cooperation Agency
SME	Small and Medium Enterprise
SPP	Small Power Producer

List of energy units

BOE	Barrel of Oil Equivalent
kcal/kg	kilo Calorie per kilogram
kV	Kilovolt
kWh	Kilowatt-hour
MT	Mega tonnes
MWh	Mega Watt hour
MW	Mega Watt
TSCF	trillion standard cubic feet

Executive Summary

The energy sector in Indonesia has been restructured to ensure a sustainable development of natural resources. The government implemented five main policies consisting of energy diversification, intensification in energy exploration, energy conservation, energy price based on market mechanism and environmental concept.

Indonesia is the world's largest exporter of LNG with an export of 28.55 million MT or 38% of the total world export. There was a decline of 3.2% in natural gas production in 2001. Indonesia currently holds proven oil reserves of 5 billion barrels, which represents a 14% decline in proven reserves since 1994¹. In spite of the fact that oil has been the main domestic revenue, it has gradually been diminishing (unless there is any new discovery). The government has initiated restructuring in energy price by gradually eliminating subsidies and by promoting energy conservation programs. Thereby, it is expected that the utilisation of other energy sources which include renewable energy will be accelerated. This is expected to promote cogeneration projects.

The cogeneration policy in Indonesia is supported by the Presidential Decree No. 43 of 1991 on Energy Conservation, and the Decree of the Minister of Mines and Energy No. 996K/43/ MPE/1999 on the Electricity Selling Price Determination from the Small-Scale, Private, Cooperatives and Community Self-Supported Electricity Generation (PSKSKSM). No clear policies defined to promote cogeneration though the support has always been indirect through energy efficiency and biomass utilisation measures. Biomass for process heat in small industries in the rural area and for cogeneration facilities in oil palm and sugar plantation are present utilised.

The captive power industry in Indonesia in 2003 was about 13,856 MW. The numerous islands in Indonesia make it an arduous task to provide power from a centralised location. IPPs and captive power producers should be targeted as potential customers for cogeneration especially for projects using biomass as fuel. Starting in the 1980's, cogeneration technology was introduced in Indonesia in the palm oil and new sugar mills. The recapture of biomass energy and waste products for on-site use became standard practice in the sugar, palm oil and pulp and paper industries.

There exists 25 cogeneration plants currently with the total capacity of approx. 1200 MW (excluding combined cycle plant by IPP), and about 834 MW of capacity has been operational before 2001. Paper mills which consumed 516 MW of electricity formed the largest user of cogeneration, followed by chemical industries (fertiliser, petrochemical and cement) which consumed a total capacity of 278 MW.

In August 1998 the Indonesian government launched the Power Sector Restructuring Policy. This proposed substantial changes in the business environment and considerable institutional restructuring. The restructuring plan aims to create a power sector that is able to grow, provide high quality and efficient electricity supply for the benefit of the consumers, and be financially independent.

¹ Source: Energy Information Administration, Department of Energy, USA.

1. Introduction

Indonesia is an archipelago country covering approximately 1.9 million m² area in Southeast Asia with a population of more than 210 million in 2003. Indonesia's real GDP grew at rate of 3.5 % in 2003. Indonesia is a net exporter of energy. Oil and gas share more than 30% of domestic revenues. Following the economic collapse and political instability in 1998, currently the country is in a transition phase. The government redrew its development strategies with one of them to implement a new policy in regional autonomy which would promote better delivery of government services to local government.

Table 1.1: Economic Figures – compared to other ASEAN countries

Countries	Purchasing power parity (PPP) \$	Real GDP Growth %		Per Capita PPP \$	GDP per Sector		
		2003	2004		Agriculture %	Industry %	Services %
Cambodia	18 billion	5.0	5.5	1500	50	15	35
Indonesia	663 billion	3.5	4.0	3100	17	41	42
Malaysia	210 billion	4.2	5.1	9300	12	40	48
Philippines	356 billion	4.0	4.5	4200	15	31	54
Singapore	105 billion	2.2	4.2	24000	Negl	33	67
Thailand	429 billion	5.2	5.5	6900	11	40	49
Vietnam	168 billion	6.9	7.1	2100	25	35	40

Source: Asian Development Bank and World Bank Yearly Report for Year 2002

In the energy sector, to ensure a sustainable development of natural resources, the government implemented five main policies consisting of energy diversification, intensification in energy exploration, energy conservation, energy price based on market mechanism and environmental concept. The programs included restructuring of energy price, which was initiated by gradually eliminating subsidies, and also ratification of a new electricity law known as Act No. 20, 2002.

The energy sector policies comprise of numerous laws which outline regulatory framework for specific tasks, number of Presidential decrees which are usually the amendments to existing policies and regulations and policy documents. Recently many of the policies related to the energy sector have been formulated to accommodate and promote the Independent Power Producers backed by PLN.

2. General Overview of the Energy Sector

The growth of primary energy consumption was about 8% before 1998 and decreased to about 7% after the Asian economic crisis of 1997.

Currently, Indonesia holds of approximately of 9 billion barrel oil reserves, and approximately 170 TSCF and 40 billion MT of natural gas and coal reserves, respectively.

2.1. Energy Statistics and Data

In 2002, the total primary energy consumption was 751,434 thousand BOE, where the oil share decreased from 54.2% in 2001 to 52.2 %. The contribution of primary energy consumption by sources is presented in Figure 2.1.

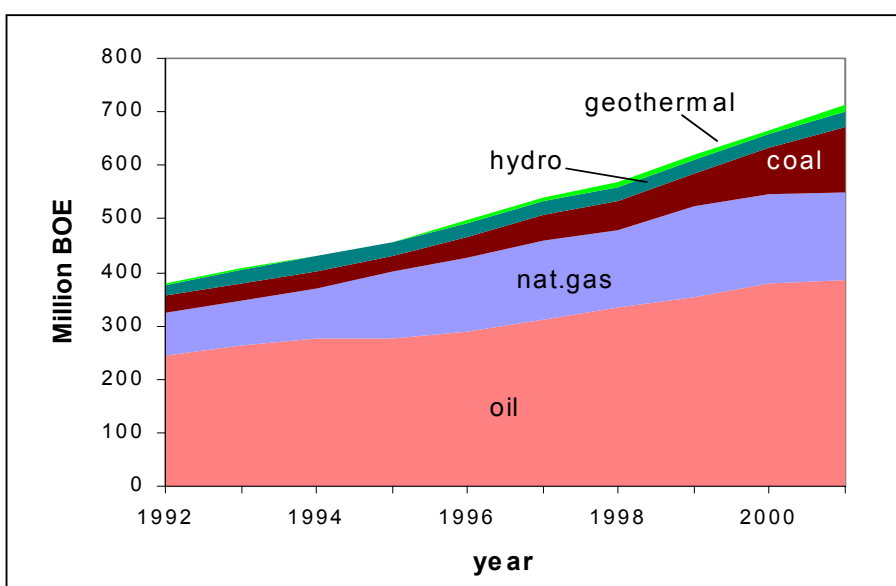


Figure 2.1: Primary Energy Consumption by Sources

Table 2.1 shows the reserves of fossil resources in 2001 and the growth of those reserves presented in Table 2.2.

Table 2.1: Indonesia Reserves of Oil, Gas and Coal in 2001

Oil (Million Barrel)		Gas (TSCF)		Coal (Million MT)	
Proven ²	Potential ³	Proven	Potential	Proven	Potential
5,123	4,490	91.9	75.5	11,484	27,284

Sources: Ministry of Energy & Mineral Resources

² Those reserves that are considered to be able to extract in the future from the known physical resources, with the known techniques and in the present economic conditions.

³ Those reserves which at present cannot be regarded as 'probable' but are estimated to have a significant but less than 50% chance of being technically and economically producible.

Table 2.2: Growth of Oil and Gas Reserves

	1997	1998	1999	2000	2001
Oil (Mill.barrel)	9,091.9	9,691.7	9,826.3	9,612.9	9,753.4
Nat.gas (TSCF)	137.6	136.5	158.3	170.3	167.4

Sources: Directorate General Oil and Gas, Indonesia

2.2. Electricity Supply Industry

Electricity is supplied by the vertically integrated monopoly, Perusahaan Listrik Negara (PLN), the state owned electricity corporation. PLN is responsible for the majority of Indonesia's generation and total monopoly on transmission, distribution and supply of electricity. PLN is the sole buyer of the electricity in the power market and also, purchases 80% of the power produced by the IPPs.

The National Electricity System

National electricity system consists of Jawa-Bali electricity system (KJB system) and Outside Jawa-Bali electricity system (KLJB system). The system comprises power generations, as well as the transmission and distribution network (National Grid).

PLN total production (including purchasing from outhouse sourcing⁴) in 2002 reached 106,983 GWh. Electric power purchased from outhouse is 18,913 GWh (18%). From the total purchased electric power, 6,832 GWh (36%) comes from PT. Jawa Power in East Jawa, and 6,783 GWh (35%) from PT. Paiton Energy Company. Peak load totalled 16,314 MW, while interconnection system peak load Jawa-Bali reached 12,581 MW.

Total installed capacity comprised of Steam power plants 6,900 MW (33%), Combined cycle power plants 6,863 MW (33%), Diesel power plants 2,588 MW (12%), Hydropower plants 3,156 MW (15%), Gas turbine power plants 1,225 MW (6%), and Geothermal power plants 380 MW (2%).

In 2002, the total installed capacity was:

State Utility (PLN): 21,112 MW

IPPs: : 3,150 MW

Furthermore, the captive power had capacity of 13,856 MW at the end of year 2001.

Table 2.3: Oil Fired Power Plant (MW)

	Steam Oil PP	Diesel PP	Gas Turbine Oil PP	Combined Cycle PP	Sub Total
PLN	1,125.00	2,588.02	881.06	3,246.56	7,837.64
IPP/SPP	135.00	431.03	-	40.00	606.03

Source: Statistik, Ketenagalistrikan dan Energi Th.2001, DGEEU, Ministry of Energy & Mineral Resources

Table 2.4: Non-Oil Fired Power Plant (MW)

	Hydro PP	Geotherma I PP	Steam Coal PP	Steam Natural Gas PP	Natural Gas Turbine PP	Combined Cycle PP	Dendro Thermal	Sub Total
PLN	3,156	380.00	4,920.00	855.00	343.66	3,616.66	-	13,221.18
IPP/SPP	6.75	-	511.61	387.12	702.05	6.00	147.38	1,760.91

Source: Statistik, Ketenagalistrikan dan Energi Th.2001, DGEEU, Ministry of Energy & Mineral Resources

⁴ Here it indicates power purchases made from IPPs.

Table 2.5: Oil Fired Power Plant (MWh)

	Steam Oil PP	Diesel PP	Gas Turbine Oil PP	Combined Cycle PP	Sub Total
PLN	6,557,153	6,519,692	1,270,898	5,597,137	19,944,880

Source: Statistik, Ketenagalistrikan dan Energi Th.2001, DGEEU, Ministry of Energy & Mineral Resources

Table 2.6: Non-Oil Fired Power Plant (MWh)

	Hydro PP	Geothermal PP	Steam Coal PP	Steam Natural Gas PP	Natural Gas Turbine PP	Combined Cycle PP	Sub Total
PLN	10,651,024	2,982,118	29,329,710	3,489,444	188,490	21,769,039	68,409,825

Source: Statistik, Ketenagalistrikan dan Energi Th.2001, DGEEU, Ministry of Energy & Mineral Resources

In spite of the fact that oil has been the main domestic revenue, it has gradually been diminishing (unless there is any new discovery). The government has initiated restructuring in energy price by gradually eliminating subsidies and by promoting energy conservation programs. Thereby, it is expected that the utilisation of other energy sources which include renewable energy will be accelerated. Indonesia has significant renewable energy sources, some of their potential and installed capacity is listed in Table 2.7.

Table 2.7: Potential and Installed Capacity of Renewable Energy Resources:

Energy Resources	Potential (MW)	Installed Capacity (MW)	Share of Installed Capacity (%)	Share of RE being Utilised
Geothermal	20,000	812	69.2	4.06
Micro hydro	459	54	4.6	11.76
Biomass	50,000	302	25.73	0.6
Solar (kWh/m ² /day)	4.5	5	0.42	NA
Wind	448	0.5	0.05	NA

Source: Sumiarso, L. Government Policy on New and Renewable Energy in Indonesia, August 2001.

2.3. Electricity and Fuel Tariff / Prices

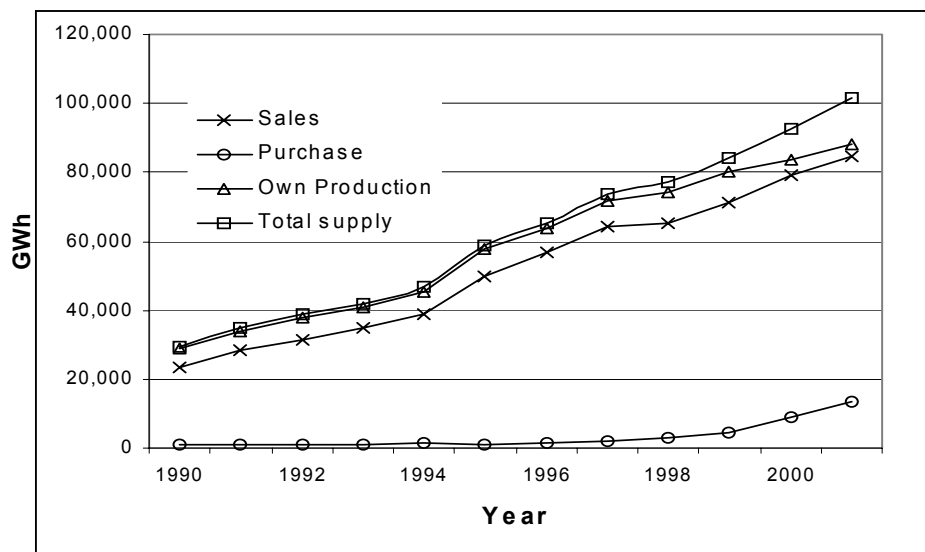
Table 2.8: Electricity Tariff of PLN

Type of User/Seller	Unit Price In Rupiah	Unit Price in USD	Tariff
Residential	Rp.207.34/kWh	\$ 0.02/kWh	Fix + Variable
Industry	Rp.302.52/kWh	\$ 0.04/kWh	Fix + Variable
Business	Rp.380.51/kWh	\$ 0.05/kWh	Fix + Variable
Social	Rp.231.51/kWh	\$ 0.03/kWh	Fix + Variable
Government Bldg	Rp.491.93/kWh	\$ 0.06/kWh	Fix + Variable
Public Facilities	Rp.439.08/kWh	\$ 0.05/kWh	Fix + Variable

Source: PLN, 2002

2.4. Market Growth Forecast

Figure 2.2: Growth of PLN's Electricity



Source: PLN, 2002

2.5. Key Players on the Cogeneration Market

There exists 25 cogeneration plants currently with the total capacity of approx. 1200 MW (excluding combined cycle plant by IPP), and about 834 MW of capacity has been operational before 2001. Paper mills which consumed 516 MW of electricity formed the largest user of cogeneration, followed by chemical industries (fertiliser, petrochemical and cement) which consumed a total capacity of 278 MW. To assess the existing capacity, based on an assumption that each plant has 5000 working hours per year and no electricity is sold to PLN, it is ascertained that cogeneration formed a 10% share in the total electricity produced by PLN, though the share should have been lesser attributing to the steam generation and consumption occurring at cogeneration site⁵.

Table 2.9: Existing Cogeneration Plants by Type of industry/Sector

No.	Industry/sector	No. Plant/Company	Capacity (MW)
1	Chemicals		
	Fertiliser	6	213
	Petrochemical	1	53
	Cement	1	12
2	Pulp & Paper	7	516.4
3	Textile	2	21
4	Food	2	39
5	Petroleum	1	300
6	Agriculture	4	40.7
7	Commercial	1	8
	Total	25	1184

Source: Data compiled by EERDC

⁵ Assessment carried out by EERDC.

3. Energy Sector Legislation Framework

Table 3.1: Policy Making Institutions Responsible For Energy Related Activities In Indonesia.

THE ENERGY SECTOR	
Policy making for the energy sector resides with the following institutions:	
Institutions	Area of Jurisdiction
Directorate General of Electricity and Energy Utilisation	Preparing and formulating policies in energy and electricity sector. Disseminating the policies in energy and electricity sector based on the actual regulation. Technical and evaluation assistances.
Directorate General of Oil and Gas	Policy formulation in Oil and Gas sector. Implement the policy in Oil and Gas sector based on the actual regulation. Guidelines for standardisation, norm, guidance, criteria and procedures in Oil and Gas sector.
Directorate General of Geology and Mineral Resources	Policy framework in Geology and Mineral resources sector. Implementing the policy in Geology and Mineral resources sector based on the actual regulation. Guidelines for standardisation, norm, guidance, criteria and procedures in Geology and Mineral resources sector.
Directorate of Process and Trade of Oil and Gas	Policy and guidelines for trade related activities which include domestic as well as international trade in Gas and Oil sector.
The economic and technical regulatory functions reside with the following institutions:	
Institutions	Area of Jurisdiction
Directorate General of Electricity and Energy Utilisation	<ol style="list-style-type: none"> 1. Responsible for Regulations like: <ol style="list-style-type: none"> a. Industry structure regulation b. Tariff regulation c. Permission regulation d. Commercial relation regulation e. Service quality regulation 2. Responsible for regulations concerning safety: <ol style="list-style-type: none"> a. Standard application. b. Requirement of Installation, tools and electricity beneficial. c. Technical power regulation. d. Electricity inspection. 3. Also Responsible for legislative program in Electricity sector.
THE INDUSTRY SECTOR	
Policy making for the industry sector with the following institutions:	
Institutions	Area of Jurisdiction
Directorate General of Metal, Machinery, Electronics And Multi-various Industries	Responsible for administrative and policy implementation activities including economic, technical and trading in metal, machinery, Electronic, non-ferrous metal, ferrous metal, machinery, transport equipment and textile industries.
Directorate General of Chemical, Agriculture And Forestry Based Industries	Responsible for administrative and policy implementation activities in chemical, agriculture and forestry based industries such as Organic and Agro Chemical, Inorganic Chemical, Downstream Chemical, agro, forestry and pulp & paper industries.
Directorate General of Small And Medium Scale Industry And Trade	Responsible for administrative and policy implementation activities in small-scale Industry and trade such as Food Small-Scale industry; Chemical Non Food Agriculture and Forestry Product Small-Scale industry; Machinery and Electronic Small-Scale

	industry; Clothing, Leather and Multifarious Small-Scale industry; Small-Scale Company Infrastructure Development; Supporting Small-Scale Company; etc.
Directorate General of Domestic Trade	Responsible for domestic trade activities, such as registration of companies, metrology, business and market development.
Directorate General of International Trade	Responsible for activities in the international trade sector, such as multilateral and regional trade, bilateral trade, exports and imports.
Directorate General of Cooperation For International Industry And Trade	Responsible for activities related to Cooperation for Board of International Industry and Trade such as Multilateral Cooperation, Regional Cooperation and Bilateral Cooperation.
Agency For Research And Development Of Industrial And Trade	Responsible for conducting research and development to conceptualise and foster policies for the enhancement of industry and trade.
Commodity Futures Trading Supervisory Agency	Coordinates, supports, and implements trade through the commodity Exchange.
National Agency For Export Development	Coordinates, encourages, and implements the development of national export through market information services and implementation of export promotion.
Sub Directorate of Industry Structure of Electricity Power	Prepare the formulation policy, standardisation, norm, criteria, procedure, orientation, technical assistant, application industry structure cooperation, and decision the criteria of supplying electrical power area.
THE ENVIRONMENT SECTOR	
Policy making for the Industry sector with the following institutions:	
Institutions	Area of Jurisdiction
Directorate of Analysis for Environment Impact (AMDAL)	Coordinates technical policy formulation development of AMDAL and conducts strategic environment impact analysis.
Sub directorate Development of AMDAL and analysing strategic environment impact	Prepares technical policy and coordinates technical analysis, and development of methodology, rules, evaluation, education and training, institutional system of AMDAL and helps to conduct environment impact analysis.
Sub directorate Evaluation and Application of AMDAL	Administrative support to Directorate of Analysis for Environment Impact (AMDAL).
Directorate of Geology Environment Structure and Mining Area	Formulate the policy, standardisation, technical assistant, and evaluate in sector land water, technical geology, environment geology, and environment of mining area.
Sub Directorate Environment Protection	Make the standardisation, orientation, norm, criteria, procedure, technical assistant, cooperation, monitoring environment protection for oil and gas activity.

3.1. Liberalisation of the Electricity and Gas Market

Law 15, passed in 1985, was the foundation for primary legislation in electricity (revoked and substituted by Act Number 20 of 2002). Its provisions included:

- Article 4 declares that Indonesia's energy resources shall be utilised as far as possible.
- Article 5 makes it the responsibility of the government to perform general planning.
- Article 7 foresees government performing its duties in electricity supply through PLN.
- Article 16 states that sales tariffs will be regulated by the government.
- Article 20 regulates electricity suppliers through licensing, with penalties under Article 22.

In 1989, the government issued Regulation No. 10, which clarified the relationship between the annual electricity plan and PLN's business plan:

- Article 12 requires the holder of a public interest licence to be an Indonesian corporation.
- Article 13 requires holders of own-use licences to sell surplus electricity to PLN.
- Article 32 confirms the President's rights over sale prices, and introduces recommendations on this from the Minister of Mines and Energy to include the interest of the people, their ability to pay, and production costs.

Presidential Decree 37 of 1992 reflected the government's thinking on the availability of public financing for the electricity sector. It opened the way for private investment in power plant, expressing a preference for build-own-operate schemes. It also states that power prices are to be in rupiah and must be approved by the minister. Section 5, under the same decree, prohibits government guarantees for invested capital or borrowings, but it has become the practice to provide a letter ensuring that PLN will discharge its payment obligations under the power purchase agreement. These agreements require the fuel supply risk to be taken by the generator, except in limited circumstances. The decree limits the licence for a foreign investment to 30 years. In 1993 tax exemptions were provided for the importation of capital goods for projects.

Also in 1994, the government passed the Investment Deregulation Law to allow private investment into infrastructure projects and to allow foreign ownership of Indonesian companies, although there remains a limit of 95% foreign ownership in the generation, transmission and distribution of electricity. The government also converted PLN from an agency with a social purpose to a limited liability company with a profit motive. This enabled PLN to create subsidiaries, enter into joint ventures and raise private sector capital. Further, the rapid industrialisation during the period 1989 – 1991 led to severe power shortage which pressurised the government to re-think its policy in the electricity sector and as a result Independent Power Producers came into picture to provide a solution to this shortage.

Act Number 20 of 2002 is particularly related to energy production by private companies (see annex 4)

The IPPs in the Indonesian Power sector:

Coinciding with the rapid power expansion plans of Indonesian Government, 39 IPP projects, most of them with foreign investment and ownership were underway. The 1997 Asian economic crisis brought about a reverse trend in the IPPs. Struck by the regional financial contagion in mid 1997, Indonesia experienced an economic and monetary crisis which led the government to respond by promulgating Presidential Decrees No. 39/1997 and No. 5/1998 regarding the status of some 27 IPP projects and they either got shelved or were delayed for implementation. It is believed that the over capacity in the electricity sector may never revive any of these projects at all.

To accommodate these IPPs in the national grid, an amendment to the regulations of the Minister of Mines and Energy in 1995 transferred responsibility for power purchase negotiations with IPPs to PLN. PLN created two subsidiary generating companies on Java-Bali, with the objective of future partial privatisation once they have demonstrated at least two years of sound finances. These will then be allowed to compete with IPPs to generate power.

In August 1998 the Indonesian government launched the Power Sector Restructuring Policy. This proposed substantial changes in the business environment and considerable institutional restructuring. The restructuring plan aims to create a power sector that is able to grow, provide high quality and efficient electricity supply for the benefit of the consumers, and be financially independent.

Highlights of the restructuring plans of PLN:

- Unbundling PLN and establishing a competitive electricity market in Java and Bali, gradually increasing the retail electricity tariff to allow full cost recovery
- Enlarging private sector participation in a competitive environment
- Clarifying the government's policy making role, and strengthening regulation.
- Establish a multi-buyer multi-seller (MB/MS) market. According to the policy schedule, the MB/MS market will be implemented in 2003.

Policy in the Oil Sector:

In 1994 the government predicted that Indonesia's oil fields would decline in output by 5% per annum, while requirements were growing at over 7%. A new energy policy was introduced to conserve oil reserves for the transport sector and to increase the use of the sufficient reserves of coal and gas for electricity production, while also increasing hydro and geothermal output.

3.2. Legislation and Programs Promoting Cogeneration

The cogeneration policy in Indonesia is supported by the Presidential Decree No. 43 of 1991 on Energy Conservation, and the Decree of the Minister of Mines and Energy No. 996K/43/ MPE/1999 on the Electricity Selling Price Determination from the Small-Scale, Private, Cooperatives and Community Self-Supported Electricity Generation (PSKSKSM).

3.3. Legislation and Programs Promoting Energy Efficiency

The Presidential decree No.43/1991 was issued to ensure a policy basis for the energy conservation promotion. This effort towards energy conservation and efficiency was further extended by the formulation of the Energy Conservation Master Plan (RIKEN) by the National Energy Co-ordinating Agency (BAKOREN) in 1995. In 2002, RIKEN was reviewed again to reflect the restructuring of the sector and regional autonomy.

3.4. Legislation and Programs Promoting Biomass

One of main policies in General Policy for Energy Sector (known as KUBE) is energy diversification. This policy is directed to diversify energy utilisation, both renewable and non-renewable energy, to gain maximum net benefit and ensuring a sustainable development.

Moreover, in Act Number 20 of 2002, Article 4, Clause 3, stated that in order to guarantee primary energy supply for power generation, the priority is given to local energy resources utilisation and the highest priority is renewable energy resources utilisation. To promote the utilisation of renewable energy in Indonesia, the DGEEU, had issued a draft of new energy policy in order to promote further the development of renewable energy sources, improve energy efficiency and GHG abatement last June 2002 and is called the green energy insight. In addition, Ministerial Decree No.1122 K/30/MEM/2002 on Distributed Small Power Generation (PSK Tersebar), has come into effect starting June 12 2002. This decree will provide opportunity for small power producers such as the cooperative to generate electricity up to 1 MW from renewable energy and interconnected to the medium and low tension grid and will be purchased by PLN at 80% and 60%, respectively at the medium and low tension interconnection.

To promote energy conversion activities and increase the utilisation of new and renewable energy sources in the provision of electricity and non-electricity energy, the ministry has issued Ministerial Decree no. 0002 of 2004 on the development policy of renewable energy and energy conservation, which covers among others investment and funding policy, incentives, energy pricing, human resource development, information, standardisation and certification, R&D, and institutionalisation.

The issuance of those regulations is expected to give assurance and guidance in the management of energy and mineral resources in Indonesia (see ref. /10/ for further details).

3.5. Legislation and Programs Promoting Natural Gas

The Indonesian natural gas total reserve (proven and potential) is around 91.45 TSCF. The utilisable natural gas production is to be increased in year to year. In the past, discovery of natural gas during oil exploration activities was economically considered beneficial to the national energy situation. With increasing energy prices and technological advances, natural gas reserves is now very important. Natural gas could be distributed through pipes to consumers as energy source or as raw material of chemical industries. Natural gas could also be processed into LNG and distributed to distance consumers, domestic and abroad.

During the 90's efforts in the use of natural gas as motor vehicle fuel is to be continued and pursued. In addition, in the effort to decline the growth of domestic BBM consumption, the use of natural gas in the various sector of economy, delivered through pipelines as well as in the form of LNG, is to be enhanced. Associated-gas is generally processed into liquefied petroleum gas (LPG) or natural gas liquids (NGL), or distributed for supply to household, fertiliser plants, etc. The remaining unutilised gas is usually flared-off in corresponding fields. Since the past 15 years the amount of flared-gas has been decreasing.

In line with national development activities, the production and utilisation of natural gas sharply increased in the last 20 years. With increasing energy demand it is expected that natural gas will have a better economic prospect in the future.

3.6. Legislation and Programs Promoting Coal

The coal mining industry in Indonesia follows guidelines as set in the 1967 Basic Provision of Mining Law No 11 which is currently under review and some of the implementation strategies in this policy will be subject to the issuing of an update of this law. Also the National policy as defined in the 1998 National Guidelines (GBHN) and the General Policy for the Energy Sector (KUBE), also are applicable to the revival of the coal industry in Indonesia. Some of the objectives under these policies have been highlighted as below:

- Help the Indonesian coal industry fulfil the vision of achieving world class status over the next few years, in terms of productivity, reputation as a supplier and achievement of environmental and safety performance standards.
- In general the coal policy aims to provide all the stakeholders in the coal industry regarding the industry's future development, and to provide a basis for decision-making. And
- Give investors guidelines for their participation in the industry including the environment and conditions under which they can operate.

3.7. Other Legislations

Taxation

Legislations that has direct impact on financing energy projects is Ministry Decree No. 190/KMK.04/1998, year1998, related to import tax on Investment Materials for Power Generation.

4. Conclusions

Indonesia will become a net oil importing country within the next 10-20 years if the energy demand will follow past trends even when conservation program is implemented and drastic improvement in energy efficiency could be achieved.

The fact that a high potential for renewable energy exists, only a small amount is being utilised effectively to ease the depleting oil resources. As an answer to this, Indonesia has to accelerate the use renewable energy sources, particularly biomass and geothermal energy which have a significant impact due to bigger power generation capacity per unit while gas and coal have been exported to earn important sources of foreign exchange beside oil.

No clear policies defined to promote cogeneration though the support has always been indirect through energy efficiency and biomass utilisation measures. New government policy and regulation on “green energy insight” and being implemented in the form of distributed power generation program may provide a greater opportunity for biomass energy. Utilisation of biomass for process heat in small industries in the rural area and fuel for cogen facilities in oil palm and sugar plantation are present to a smaller extent.

Making possibility of selling surplus electricity to the national grid, could interest private investors to participate in cogeneration. It is also suggested that Law no. 20 of 2002 on Operation License Holder can support in the competition/non-competition participants who could indirectly support and promote cogeneration in Indonesia.

5. Links and other sources of information

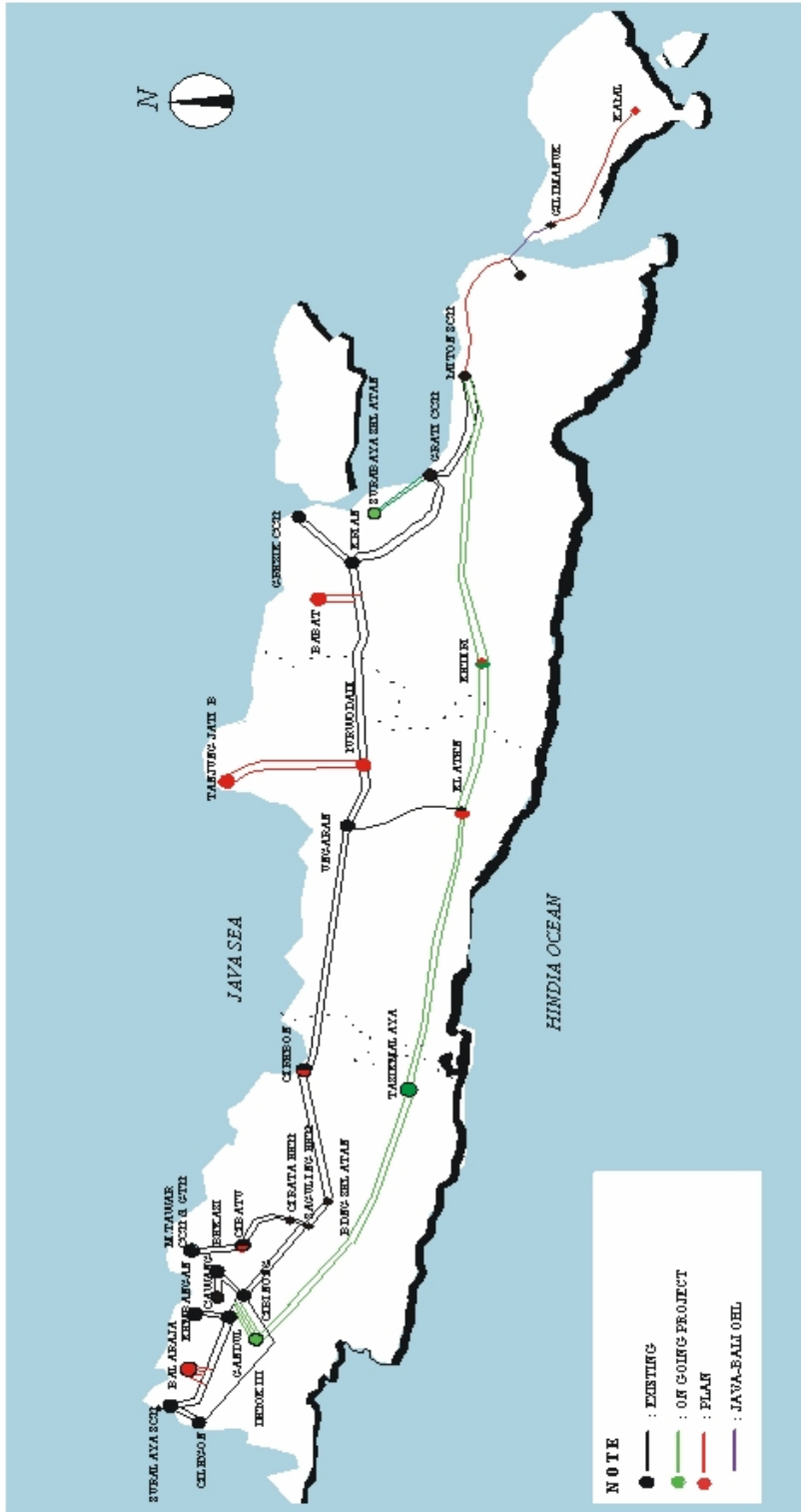
1. The World Energy Council
<http://www.worldenergy.org/wecgeis/publications/reports/emd/status/indonesia/liberal.asp>
2. The Ministry of Industry and Trade , Republic of Indonesia
3. The Ministry of energy and Mining resources
4. Publications, The embassy of USA in Indonesia
5. UK Trade partners
6. Statistics published by the Centre of Statistics agency,
7. Information on energy and mineral resources, Indonesia, MEMR
8. Yearly Reports, World Bank and Asian Development Bank.
9. ASEAN Energy Centre, Jakarta
10. http://www.esdm.go.id/newsgeneral.php?news_id=332

Annexes

Annex 1: Existing and future IPP's in Indonesia

No	Power Plant Name	Owner	Type of Power Plant	Type of Fuel	Installed Capacity (MW)	Status
IPP						
1	Paiton I	PT Paiton Energy Co.	Thermal steam	coal	2 x 615	Operated
2	Paiton II	PT Jawa Power	Thermal steam	coal	2 x 610	Operated
3	Tanjung Jati B	PT CEPA Indonesia	Thermal steam		2 x 660	Construction
4	Sengkang	PT Energi Sengkang	Comb. Cycle	Nat gas	135	Operated
5	Cikarang	PT Cikarang Listrindo	Gas turbine	Nat. gas	225.82	Operated
6	Gunung Salak	Unocal	Geothermal	-	3 x 55	Operated
7	Wayang Windu	PT Mandala Nusantara	Geothermal	-	4 x 55	Operated
8	Dieng	PT Himpuna California	Geothermal	-	60	Operated
9	Sibolga	PT Tenaga Listrik Sibolga	Thermal steam	coal	2 x 100	Operated
	Amurang	PT Tenaga Listrik Amurang	Thermal steam		2 x 55	Operated
10	Pare-pare	PT Makasar Power Corp	Diesel	Diesel	60	Operated
SPP						
1	Sampit	PT Ajiubaya	Thermal steam		4.38	Operated
2	Cikotok	PT Aneka Tambang	Small Hydro		1.12	Operated
3	Pesisir Selatan	PT Anggrek Mekar Sari	Small Hydro		0.84	Operated
4	Banjarmasin	PT Plywood Hendra	Thermal steam		4	Operated
5	Harjosari	PT Kaltimaex Jaya	Diesel	Diesel	26	Operated
6	Luwu	PT Samabotuna	Diesel	Diesel	4.186	Operated
7	Lombok Timur	PT Sinar Rinjani	Diesel	Diesel	3.012	Operated
8	Lampung Tengah	PT Sinar Siwomego	Diesel	Diesel	6.12	Operated
9	Cikampek	PT Tata Jabar Sejahtera	Thermal steam	coal	19	Operated

Annex 2. Development Program of Java 500 kV 2001 – 2005



ANNEX 4: Development Program of Sumatra System

Act Number 20 of 2002, revoking Act Number 15 of 1985

The content particularly related to energy production by private companies are:

- i. Article 1, definitions on
Clauses 11 and 12:
business type, Clause 11 refers to companies selling electricity at low voltage, and Clause 12 refers to companies selling electricity at medium to high voltages.
Clause 18 and 19 :
Business license for supplying electric power and operating license
- ii. Article 6 Clause 2 states that for a company that has a business license on certain area without competitor, then the company must provide a business plan based on State's General Electricity Plan
- iii. Article 8 Clause 2 states different type of company based on Power Production, Transmission Line, Distribution, Selling, Selling Agent, Market Regulatory Body, and System Regulator.
- iv. Article 9 concerns licenses for business as states on Article 8 Clause 2 in the area with competition mechanism, and the licenses granted by Market Regulatory Body.
- v. Article 10 states that when competition mechanism is not applicable yet and the power generator is not connected to the National Grid, then Business Licenses granted by City Mayor, Regent, Governor, or Minister, related with the scale of coverage area.
- vi. Article 11 states that Operating License is required when the electricity is mainly for own used. However, when there is extra electricity that need to be sold to public then Business License must be obtained as stated in Article 12.