



MINISTRY OF ENERGY AND MINERAL RESOURCES



# ***COUNTRY PLANS AND POLICIES FOR DEVELOPING AND IMPLEMENTING RENEWABLE ENERGY PROGRAMS IN INDONESIA***

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## Renewable Energy Potential 2004

TYPE OF ENERGY	POTENTIAL	INSTALLED CAPACITY
Hydro	75,67 GW	4.200 MW
Geothermal	27 GW	807 MW
Mini/Micro hydro	500 MW	84 MW
Biomass	49,81 GW	445 MW
Solar	4,80 kWh/m <sup>2</sup> /day	8 MW
Wind	3-6 m/sec	0,6 MW

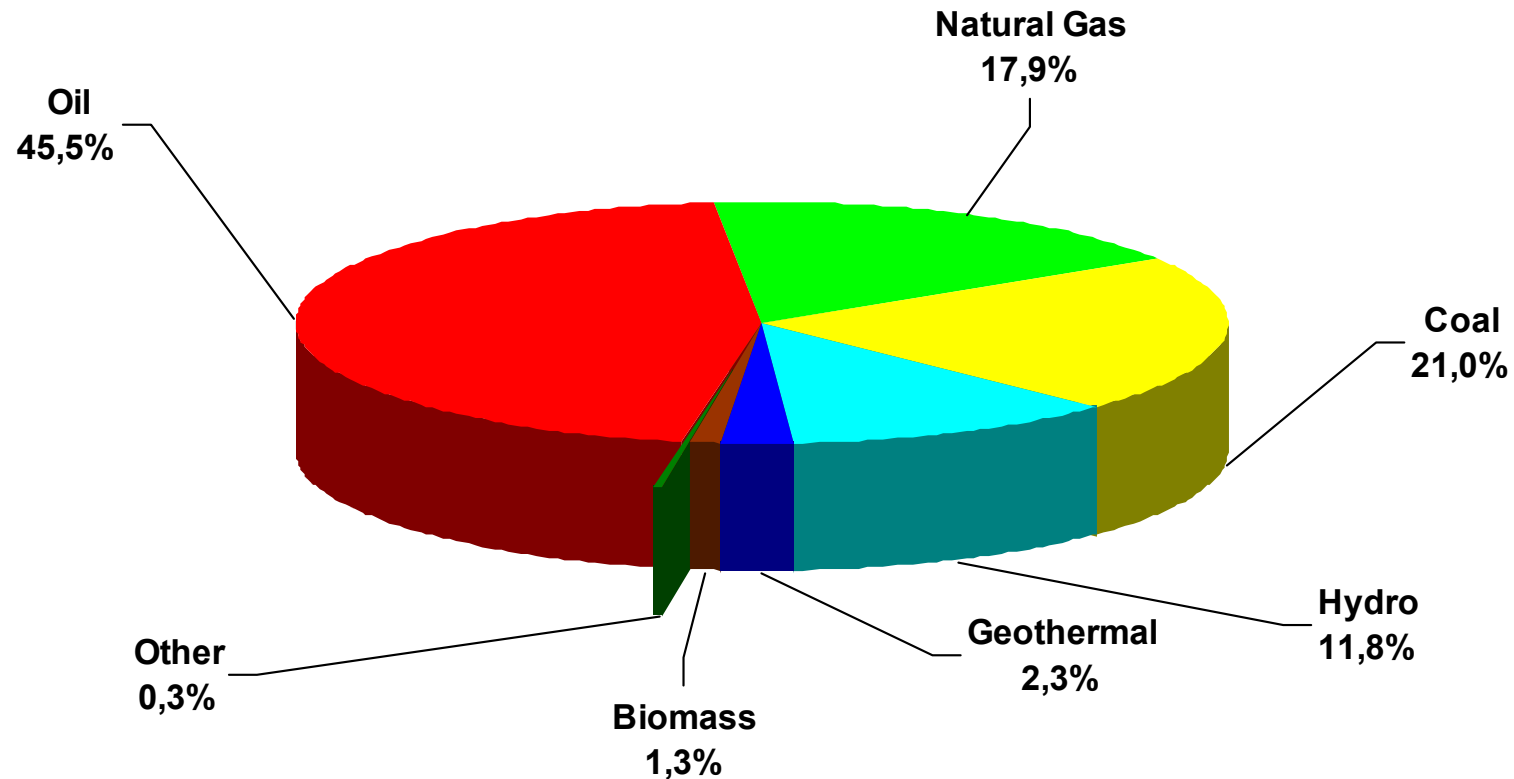


# ***Renewable Energy Utilizations***

- **Electrification**
- **Water Pumping**
- **Battery Charging**
- **Rural Health Center Refrigerator**
- **Telecommunication**
- **Solar Cooker**
- **Water Heater**
- **Agriculture/Fishery Product Drying**
- **Water Distillation**
- **Fuel for Transportation**



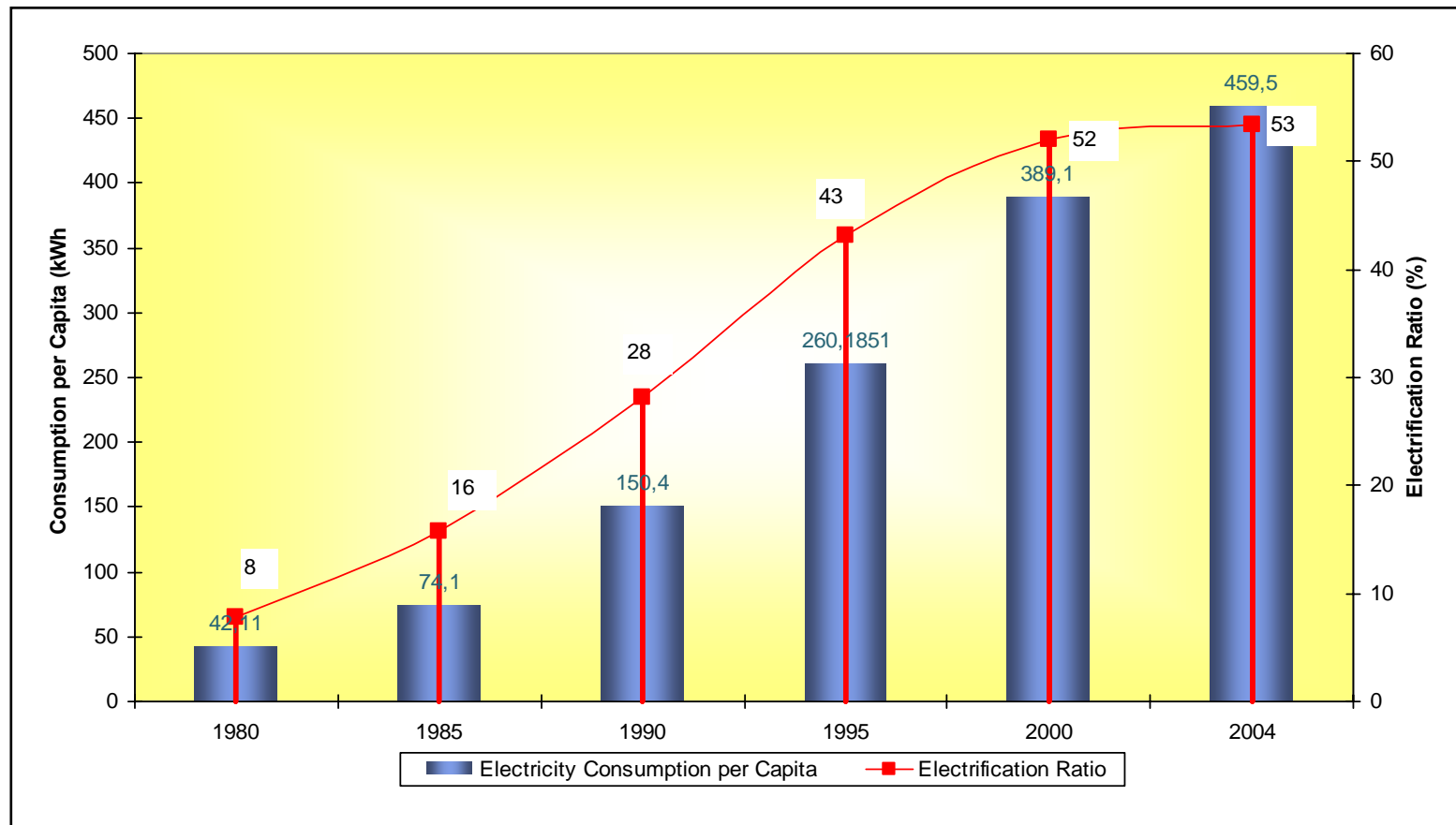
# TOTAL INSTALLED CAPACITIES BY TYPE OF ENERGY IN 2004



Power Plant Capacity by Energy Type	Oil	Gas	Coal	Hydro	Geo-thermal	Biomass	Other (Renewable)	Total
MW	16,201	6,361	7,460	4,200	807	445	98	35,572



# ELECTRIFICATION RATIO 1980 -2004



● Electrification ratio In 2004 is **53,38%**



- In Year 2025 : Electrification Ratio targeted to be 95%
- Additional Capacity :

	2005 - 2015	2015 - 2025
<b>JAWA – BALI (MW)</b>		
Hydro power plant	1000	
Geothermal	60	
Coal fired plant	6320	15840
Combine Cycle	6800	4000
Gas Turbine	1200	1600
Nuclear Power Plant		12000
<b>OUTER ISLAND (MW)</b>		
Hydro power plant	863	21
Geothermal	295	425
Coal fired plant	2805	8585
Combine Cycle	860	1730
Gas Turbine	1230	1870
Diesel fired plant	282	110



## MINI HYDRO PROJECT FINANCED BY ADB



Project	Capacity (MW)	Location		Operation Plant
		Province	Load Center	
PLTM Merasap	2 x 0.75	West Kalimantan	Bengkayang	2006
PLTM Lobong	2 x 0.8	North Sulawesi	Kotamobagu	2006
PLTA Poigar 2	2 x 16	North Sulawesi	Minahasa System	2007
PLTM Mongango	1.2	Gorontalo	Gorontalo	2006
PLTM Prafi	1.6	Papua	Manokwari	2006
PLTM Tatui	1.2	Papua	Serui	2006
PLTM Amai	1.1	Papua	Depabre	2006
PLTA Genyem	2 x 9.6	Papua	Jayapura System	2007
PLTM Santong	0.85	NTB	Lombok System	2006
PLTM Ndungga	2 x 0.95	NTT	Ende	2006



## PENGEMBANGAN PROYEK ENERGI TERBARUKAN ( Mini Hidro)



NO	NAMA PROYEK		LOKASI	RENCANA OPERASI	JUMLAH UNIT	KAPASITAS/ UNIT (MW)	TOTAL KAPASITAS (MW)	PENDANAAN
1	Rongi	MHEPP	South East Sulawesi	2006	2	0.75	1.5	PLN / Private
2	Mikuasi	MHEPP	South East Sulawesi	2006	2	1.5	3	PLN / Private
3	Muara Kadingin	MHEPP	South Kalimantan	2010	1	0.6	0.6	PLN / Private
4	Batu Sitanduk	MHEPP	South Sulawesi	2010	2	1.1	2.2	PLN / Private
5	Rante Bala	MHEPP	South Sulawesi	2010	1	0.75	0.75	PLN / Private
6	Usumallili	MHEPP	South Sulawesi	2010	2	2.5	5	PLN / Private
7	Palangka	MHEPP	South Sulawesi	2010	2	1.9	3.8	PLN / Private
8	Kadundung	MHEPP	South Sulawesi	2010	2	0.8	1.6	PLN / Private
9	Manipi	MHEPP	South Sulawesi	2010	2	3	6	PLN / Private
10	Sambilambo	MHEPP	South East Sulawesi	2010	2	2.25	4.5	PLN / Private
11	Rante Limbong	MHEPP	South East Sulawesi	2010	2	1.1	2.2	PLN / Private
12	Sawidago	MHEPP	Central Sulawesi	2010	2	0.4	0.8	PLN / Private
13	Parigi	MHEPP	Central Sulawesi	2010	2	0.3	0.6	PLN / Private
14	Tindaki	MHEPP	Central Sulawesi	2010	2	0.3	0.6	PLN / Private
15	Sansarino	MHEPP	Central Sulawesi	2010	2	1.1	2.2	PLN / Private
16	Kinali	MHEPP	North Sulawesi	2010	2	0.5	1	PLN / Private
17	Mokobang 2	MHEPP	North Sulawesi	2010	2	0.75	1.5	PLN / Private
18	Rowoketang	MHEPP	North Sulawesi	2010	2	0.58	1.16	PLN / Private
19	Tangengah	MHEPP	North Sulawesi	2010	2	0.57	1.14	PLN / Private
20	Tincep	MHEPP	North Sulawesi	2010	2	1.8	3.6	PLN / Private
21	Puruk Cahu	MHEPP	Central Kalimantan	2010	1	0.38	0.38	PLN / Private
22	Gendang Timburu	MHEPP	South Kalimantan	2010	1	0.65	0.65	PLN / Private
23	Pekatan	MHEPP	N T B	2010	1	0.6	0.6	PLN / Private
24	Ngowai	MHEPP	Maluku	2010	2	0.8	1.6	PLN & Private
<b>Total Capacity</b>							<b>47</b>	



## RENEWABLE ENERGY PROJECT

No	Energy Type	Capacity (KW)	Location	Operation Plan	Remarks
1	Wind Energy	3 x 250	Bali	2006 / 2007	PLN
2	Wind Energy	3 x 250	N T B	2006 / 2007	PLN
3	Wind Energy	6 x 250	N T T	2006 / 2007	PLN
4	Solar Cell & Diesel Hybrid	40	West Kalimantan	2004	PLN
5	Solar Cell & Diesel Hybrid	20	N T T	2005	PLN
	<b>BIOMASS :</b>				
6	Palm oil waste	12.500	North Sumatera	Under evaluation	Private
7	Palm oil waste	10.500	North Sumatera	Under evaluation	Private
8	Palm oil waste	10.500	Riau	Under evaluation	Private
9	Rice husk	10.000	Lampung	Under evaluation	Private
10	Palm oil waste	15.000	Riau	Under evaluation	Private
11	Bagasse	7.000	Lampung	Under evaluation	Private
12	Rice husk	20.000	Bali	Under evaluation	Private
13	City waste	60.000	Jakarta	Under evaluation	Private



# ***POLICIES ON RENEWABLE ENERGY FOR POWER GENERATION***

- **Green energy policy**  
*(Ministerial Decree: No. 0002/2004)*
- **Small Distributed Power Generation using Renewable Energy**  
*(Ministerial Decree: No. 1122 K/30/MEM/2002)*
- **Medium Scale Power Generation Using Renewable Energy**
- **Regulation on Electricity Supply and Utilization**  
*(Government Regulation No. 03/2005)*
- **Geothermal Law**  
*(Law No. 27/2003)*



# ***Green Energy Policy***

***(Ministerial Decree: No. 0002/2004)***

## **Renewable Energy and Conservation Energy Development Policy:**

### ***Green Energy Policy:***

- **Implementing the maximum utilization of renewable energy**
- **Efficient utilization of energy**
- **Public awareness in energy efficiency**



# ***Small Distributed Power Generation using Renewable Energy***

***(Ministerial Decree: No. 1122 K/30/MEM/2002)***

- Developer : Small Enterprises**
- Capacity :  $\leq$  1 MW**
- Electricity Price by Utility :**
  - **60% x Utility's Production Cost, if connected to the low voltage grid**
  - **80% x Utility's Production Cost, if connected to the medium voltage grid**



## ***Medium Scale Power Generation using Renewable Energy:***

- ❑ Developer : Business Entity**
- ❑ Capacity :  $1 < \text{Cap} \leq 10$  MW**
- ❑ Electricity Price by Utility :**
  - 60% x Utility's Production Cost, if connected to the low voltage grid**
  - 80% x Utility's Production Cost, if connected to the medium voltage grid**
- ❑ Purchase Contract : 10 years and could be extended**



# ***Regulation on Electricity Supply and Utilization***

***(Government Regulation No. 03/2005)***

- **Regulating the supply and utilization of electricity**
- **Prioritizing utilizing renewable energy for power generation**



# Geothermal Law

- **To regulate the management and development of geothermal energy sources for direct and indirect utilization**



# ***Barriers to Renewable Energy Development***

- **High Investment Cost  $\Rightarrow$  high production cost**
- **Lack of Incentive and Funding Mechanism**
- **Lack of Supporting Policies**
- **Lack of domestic industry's capability**



# *Efforts to Remove Renewable Energy Barriers*

**To increase the utilization of Renewable Energy, some actions will be enhanced:**

- **Formulating Directive Policy on Investment and Financing**
- **Formulating Incentives Policy (Tax and Fiscal, Depletion Premium)**
- **Increasing Research and Development Activities**



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# Thank You

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