



**MINISTRY OF ENERGY AND MINERAL RESOURCES
DIRECTORATE GENERAL OF NEW, RENEWABLE ENERGY AND ENERGY CONSERVATION**

Barriers and Opportunities for Geothermal Development in Indonesia

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OUTLINE

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- V. INVESTMENT OPPORTUNITIES

I. BACKGROUND



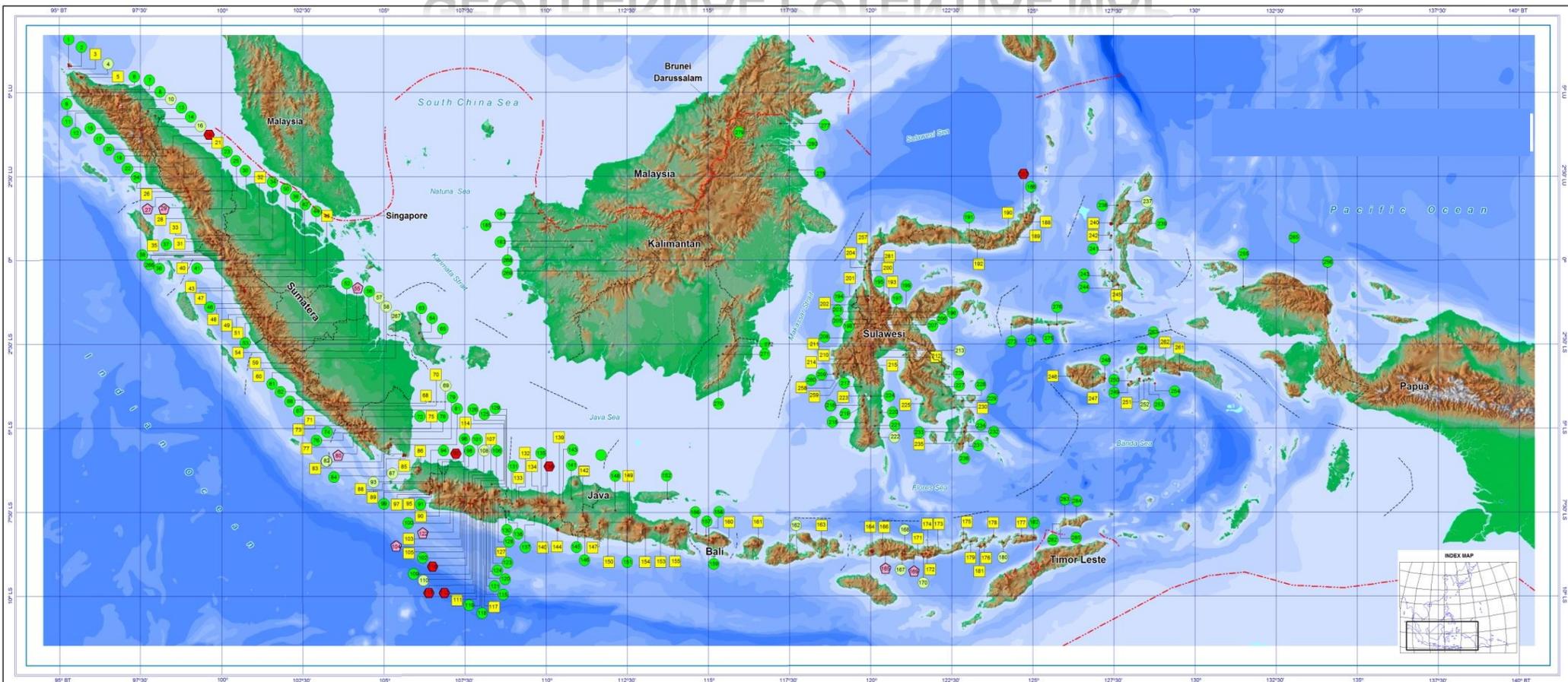
BACKGROUND

- ❖ Indonesia's geothermal potential is approximately 28.6 GW which distributed in 299 locations along the country, yet its utilization has only reached 1,3 GW or equal as 4,5%;
- ❖ National Energy Policy encourage development of renewable energy by 23 % in year 2025. Geothermal is expected to contribute 7,12% or equal to 7,210 MW as mentioned in the national electricity system;
- ❖ To support utilization of geothermal energy, the Government of Indonesia (Gol) has issued Crash Program Phase II to accelerate 10.000 MW electricity development that derived from geothermal power plant (4,965 MW) as mandated in the Ministry of Energy and Mineral Resources Regulation No. 21/2013;
- ❖ Achieving the proposed 4,965 MW new geothermal capacity would automatically lead Indonesia to the single largest CO₂ mitigation program in the world. The proposed program will reduce in the period of 2010 – 2025 over 400 million tCO₂.

II. GEOTHERMAL POTENTIAL AND DEVELOPMENT IN INDONESIA



GEOHERMAL POTENTIAL MAP



No	Island	Number of Location	Total	Installed
1	Sumatera	90	12.760	122
2	Java	71	9.717	1.134
3	Bali-Nusa Tenggara	28	1.805	5
4	Kalimantan	12	145	
5	Sulawesi	65	3.044	80
6	Maluku	30	1.071	
7	Papua	3	75	
	Total	299	28.617	1.341

Source: Geological Agency, MEMR (2011)

Note:

- Preliminary Survey
- Detail Survey
- Ready to be developed
- Installed



DISTRIBUTION OF GEOTHERMAL POTENTIAL

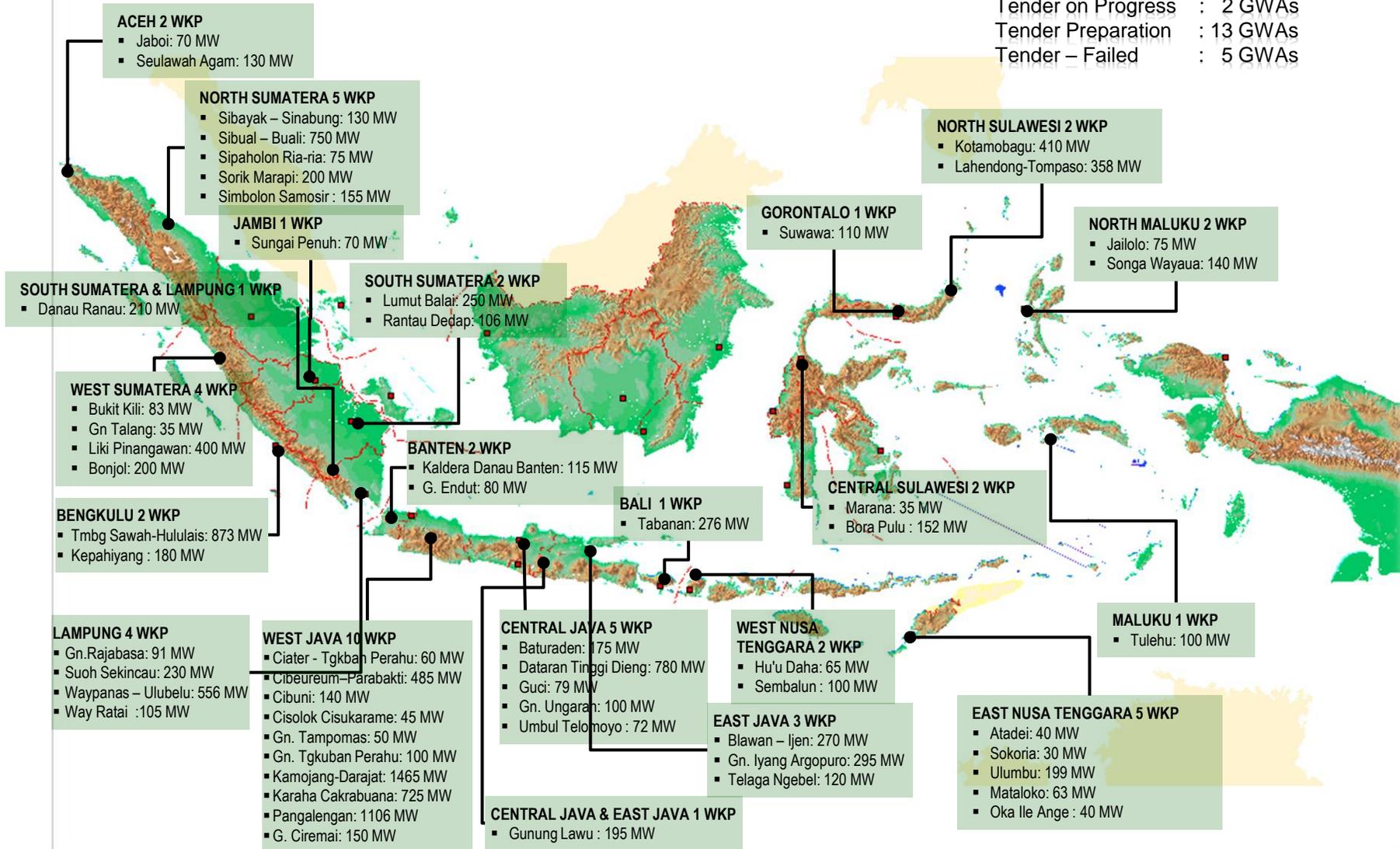
No	Island	Number of Location	Potential Energy (Mwe)					Total	Installed
			Resources		Reserve				
			Speculative	Hypothetical	Possible	Probable	Proven		
1	Sumatera	90	3089	2427	6849	15	380	12760	122
2	Java	71	1710	1826	3708	658	1815	9717	1134
3	Bali-Nusa Tenggara	28	360	417	1013	0	15	1805	5
4	Kalimantan	12	145	0	0	0	0	145	
5	Sulawesi	65	1323	119	1374	150	78	3044	80
6	Maluku	30	545	97	429	0	0	1071	
7	Papua	3	75	0	0	0	0	75	
Total		299	7247	4886	13373	823	2288	28617	1.341
			12.133		16.484				
			28.617						

Source : Geological Agency, MEMR
 Status : December 2012

Distribution of Geothermal Working Area (GWA)

Total : 58 GWAs

Lisence – Issued : 39 GWAs
 Tender on Progress : 2 GWAs
 Tender Preparation : 13 GWAs
 Tender – Failed : 5 GWAs



INSTALLED GEOTHERMAL POWER PLANT CAPACITY BY JANUARY 2014

Kamojang: 200 MW



Lahendong: 80 MW



Sibayak: 12 MW



Ulubelu: 110 MW



Darajat: 270 MW



Salak: 377 MW



Wayang Windu: 227 MW



Dieng: 60 MW



Ulumbu: 5 MW



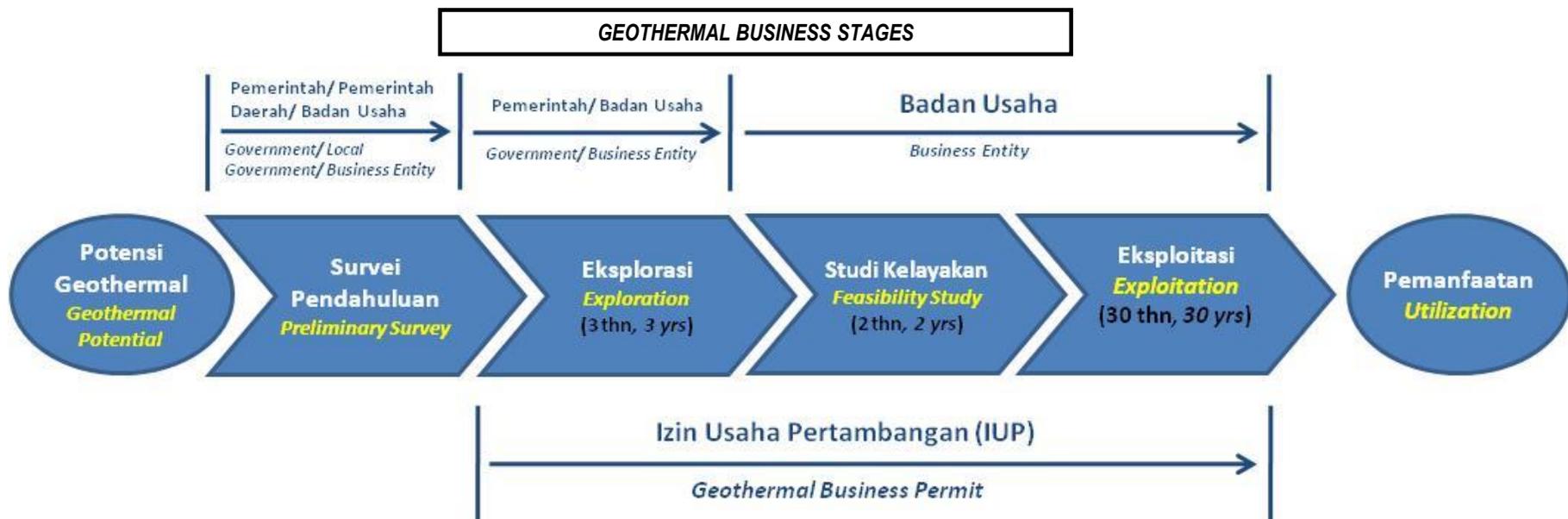
**TOTAL
1.341 MW**

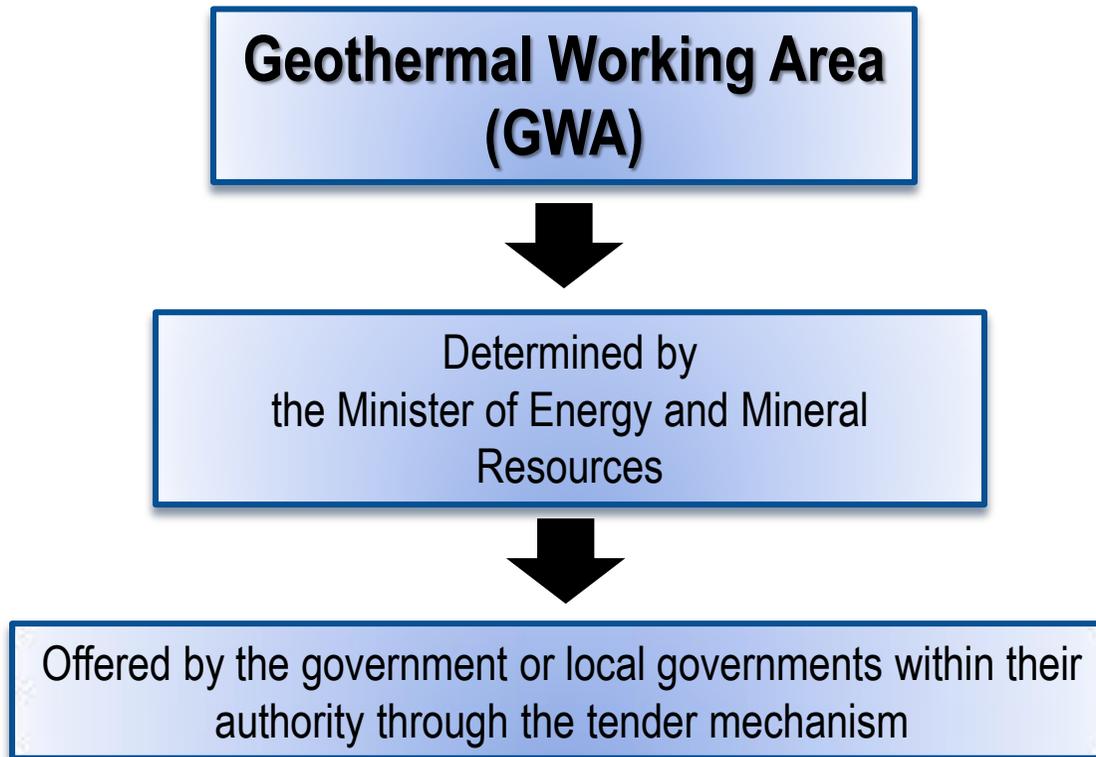
III. GEOTHERMAL POLICIES



A. GENERAL

- ❖ Relating to geothermal utilization, there are three cores of regulation:
 - 1) Law 27 Year 2003 on Geothermal: The Law is the basic guidance for geothermal development in Indonesia
 - 2) Government Regulation No. 59/2007 on Geothermal Business Activity: This regulation consists of particular provisions in the area of geothermal business activity
 - 3) Ministerial Regulation No. 11/2009 on Guidance for the Implementation of Geothermal Business Activity: Regulates the geothermal tender and supervision, as well as stages in geothermal business activity
- ❖ According to the Law 27 Year 2003 on Geothermal, there are 5 (five) stages in utilizing geothermal energy:
Preliminary Survey → Exploration → Feasibility Study → Exploitation → Utilization





The tender winner could initiate geothermal activities after obtaining Geothermal Business Permit (IUP). The authority issuing the Permit depends on the location where the GWA is located.

B. GEOTHERMAL POLICIES

❖ Fiscal Incentives policies:

1) Income Tax Article 21

Tax Holiday	Tax Allowance
<ol style="list-style-type: none"> 1. An exemption from corporate income tax for 5 to 10 years 2. A two-year, 50% reduction in corporate income tax 	<ol style="list-style-type: none"> 1. Reducing net taxable income to 30% of the total investment value, carried over six years 2. Accelerated depreciation and amortization 3. Impose income tax of 10% for dividends 4. Loss carry forward of at least 5 years and up to 10 years

2) Taxes and duties on imported goods

- Duty exemption (for exploration and exploitation activities)
- Free of Value Added Tax (VAT), Luxury Goods Sales Tax (LGST) and Income Tax – *based on Minister of Finance Regulations No. 27/2012 and No. 70/2013*

❖ Other policies including: accelerating the tender process of new GWAs, building the "public awareness" on the utilization of geothermal as green and environmentally friendly energy

C. PRICING POLICY

- ❖ Pricing policies previously set by the government does not provide a significant impact on geothermal development. It is considered that they are not taking into account some crucial aspects such as location, generation capacity, transmission, escalation, assignment mechanisms and reservoir quality .
- ❖ Therefore, the government is currently developing a comprehensive pricing structure which includes upstream and downstream sides.

PROPOSED CEILING PRICES FOR GEOTHERMAL POWER

No.	Generation Capacity	Ceiling Price for Geothermal Power (cent US\$/kWh)
1.	> 55 MW	10,5
2.	> 20 MW - 55 MW	12,5
3.	> 10 MW - 20 MW	15,5
4.	≤ 10 MW	19,0

IV. BARRIERS AND SOLUTIONS IN GEOHERMAL DEVELOPMENT



BARRIERS AND SOLUTIONS IN GEOTHERMAL DEVELOPMENT (1/2)

- 1. Overlapping Areas with Forestry:** most of geothermal potentials are located within the forestry area (15% in conservation forest, 18% in protected forest)
Solution: Ministry of Energy and Mineral Resources (MEMR) and Ministry of Forestry (MF) have signed the MoU No. 7662/05/MEM.S/2011 to accelerate the geothermal utilization permit within the area of protected, production and conservation forest.
- 2. Legal Uncertainty:** disharmony in geothermal business regulations
Solution: improvement and harmonization of regulations in Geothermal Business are as follows:
 - Draft on Geothermal Law is currently being discussed by the Special Committee of the House of Representatives
 - Second amendment of the Government Regulation No. 59/2007 soon will be issued
 - Revision of Minister of Energy and Mineral Resources Regulation No. 11/2009 on Guidance for the Implementation of Geothermal Business Activity
 - Improvement of Minister of Energy and Mineral Resources Regulation No. 22/2012 relating to electricity price from geothermal energy, through the ceiling price mechanism

BARRIERS AND SOLUTIONS IN GEOTHERMAL DEVELOPMENT (2/2)

3. **Geothermal Price:** competitiveness of geothermal energy price

Solution: develop a new pricing structure that meets economic value

4. **Funding:** high investment cost and unbankable project

Solution: - Provides financial support and Government guarantee
- Government guarantees on the feasibility of PT. PLN (buyer)
- Provides "Geothermal Fund" for geothermal exploration

5. **Bidding Process**

Solution: the policies regulate bidding process are being revised in order to make the tender process simpler, more transparent and bankable

6. **Shortage of Competent Human Resources**

Solution: create training, short courses and advanced level education in collaboration with local and international educational institutions

7. **Others**

- **Absence of Technology and Research & Development Supports**
- **Low Environmental Awareness**
- **Continuing Subsidy of Fossil Fuel Price**

V. INVESTMENT OPPORTUNITIES



INVESTMENT OPPORTUNITIES

1. Development of 4,965 MW electricity from Geothermal in 10,000 MW Crash Program Phase II requires more than US\$ 15 billions for the investment.
2. To achieve the targets, international supports are needed in terms of finance, technology, human resources and Technical Assistance.
3. Foreign ownership in Geothermal Business is allowed up to 95 %.
4. Access to Potential Geothermal Resources for Investors:
 - a) Preliminary Survey Assignment
 - b) Participate in the geothermal business through GWAs tendering mechanis
5. Other business opportunities in geothermal sector:
 - a) Geothermal direct use
 - b) Low temperature geothermal potential
 - c) Small scale power plant
 - d) Services company to support the core business of geothermal

THANK YOU



Go Green Indonesia !

Geothermal, Energy Solution for Better Future



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