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

GEOTHERMAL POWER PLANT DEVELOPMENT IN INDONESIA

by:

Jarman

Directorate General of New, Renewable Energy and Energy Conservation

Presented at:
"Forum for East Asia-Latin America Cooperation"

November 13th, 2012
Tokyo, Japan

OUTLINE

I. Background
II. Geothermal Policy
III. Geothermal Program
IV. Geothermal Development
V. Investment Opportunities

I. Background

BACKGROUND

- Geothermal is a thermal energy that naturally formed beneath the earth's surface;
- Geothermal energy is a green energy because it produces lower green house gasses (GHG) than fossil fuel. In addition, when managed properly, geothermal is also consider as a renewable energy;
- Geothermal energy is site specific, can not be stored, and also can not be transported;
- Implementation of geothermal activity in line with the mandate of the Law 1945;
- Geothermal utilization are in forms of direct and indirect use;
- Authority for geothermal management distributed to Minister, The Governor, and/or Regent/Mayor in accordance with their authority.

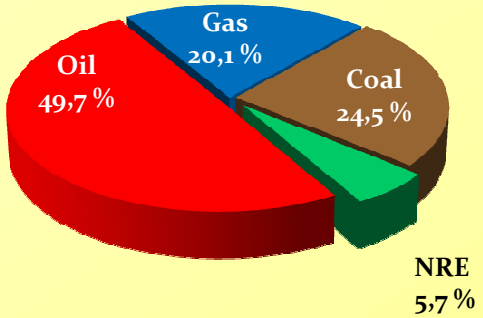
Constraints and Barriers:

- Pricing
  Electricity price from geothermal energy still considers has not reached its economical value;
- Land-use Issues
  Geological Agency has been identified that more than 70% of geothermal areas are partially or completely overlapping with forestry areas (conservation forest, protected forest and production forest)

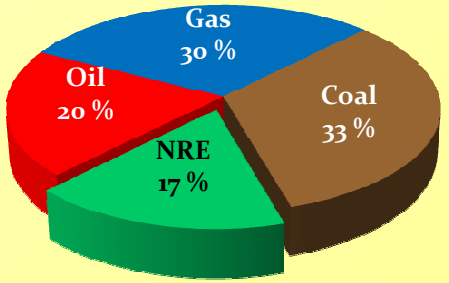
CURRENT ENERGY CONDITION

1. Electrification ratio in 2011 is 72,95%;
2. Energy consumption growth is 7% per year, which not **balance** with energy suppy;
3. The **dependence on fossil energy** is high, but the energy reserve is limited;
4. Fossil subsidy is increasing;
5. The utilization of renewable energy and implementation of energy conservation has not been optimized;
6. Link with **environmental issue**:
   a. Climate change mitigation;
   b. Clean energy initiative:
      National commitment to reduce emission by 26% in 2020;
7. **Funding** for energy development is limited

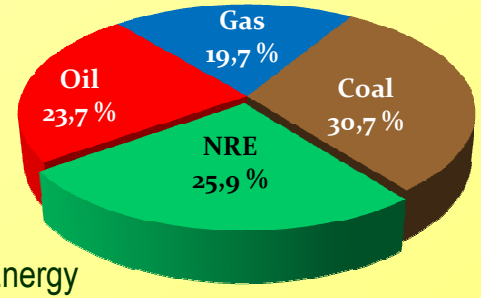
2011 **2025**



Gov. Reg. NO. 5/2006



NEP Draft By NEC



Note:
NRE = New and Renewable Energy
NEP = National Energy Policy
NEC = National Energy Council

GEOTHERMAL POTENTIAL

RESOURCES (MWe)		%	RESERVE (MWe)			%
Speculative	*Hypothetical*		*Possible*	*Probable*	*Proven*	
8.231	4.964	45.17%	12.909	823	2.288	54.83%
13.195			**16.020**			
29.215						

Source : Geological Survey, MEMR(2011)

Note:

- Preliminary Survey
- Detail Survey
- Ready to Developad
- Already Developed

II. Geothermal Policy

GEOTHERMAL POLICY

Policy Directions:

- The paradigm of national energy management is shifting from Supply Side Management to demand side management Management;
- Supply Side Management on fossil focused energy sources;
- Demand Side Management focused on optimizing energy efficiency and new renewable energy sources;
- The Law No. 30/2007 on Electricity, emphasis on diversification and energy conservation.

Opportunities:

- Environmental issues and sustainable development;
- A paradigmatic shifting in the management of the national energy;
- Indonesia has huge of renewable energy potential;
- High potential for energy savings.

GEOTHERMAL POLICY

1. **Revision of Law 27/2003 on Geothermal:**

   GoI is revising the law 27/2003 on Geothermal, law 5/1990 on Conservation of Natural Resources, and law 41/1999 on Forestry.

2. **MoU Between MEMR – Minister of Forestry**

   MEMR and Minister of Forestry have signed MoU regarding the acceleration of geothermal utilization permit within production forest, protected forest, and conservation forest .

3. **Feed-in Tariff:**

   Feed-in Tariff is a Government policy to set the price of electricity from geothermal power plant which is final and can not be negotiated by PT. PLN

4. **Funding incentives :**
   - Government guarantee on the feasibility of PT. PLN;
   - “Geothermal Fund" for geothermal exploration;
   - Green Banking Program.

III. Geothermal Program

GEOTHERMAL PROGRAM

POWER PLANT DEVELOPMENT 2010 – 2015

Development	2010	2011	2012	2013	2014	2015
Geothermal Development						
1. Added Capacity (MW)		37	115	3	375	1.797
2. Installed Capacity (MW)	1.189	1.226	1.341	1.344	1.719	3.516

Note:
- Capacity Factor of Geothermal Power Plant = 90%

GEOTHERMAL WORKING AREA FOR TENDER

No	Geothermal Working Area (GWA)	Location	Potential Capacity (MW)
1	Gn. Talang	West Sumatera	36
2	Songa Wayaua	North Maluku	140
3	Danau Ranau	Lampung & South Sumatera	210
4	Mataloko	East Nusa Tenggara	63
5	Gn. Endut	Banten	80
6	Way Ratai	Lampung	105
7	Candi Umbul Telomoyo	Central Java	72
8	Simbolon Samosir	North Sumatera	155
9	Bora Pulu	Central Sulawesi	123
10	Gn. Lawu	Central Java	195

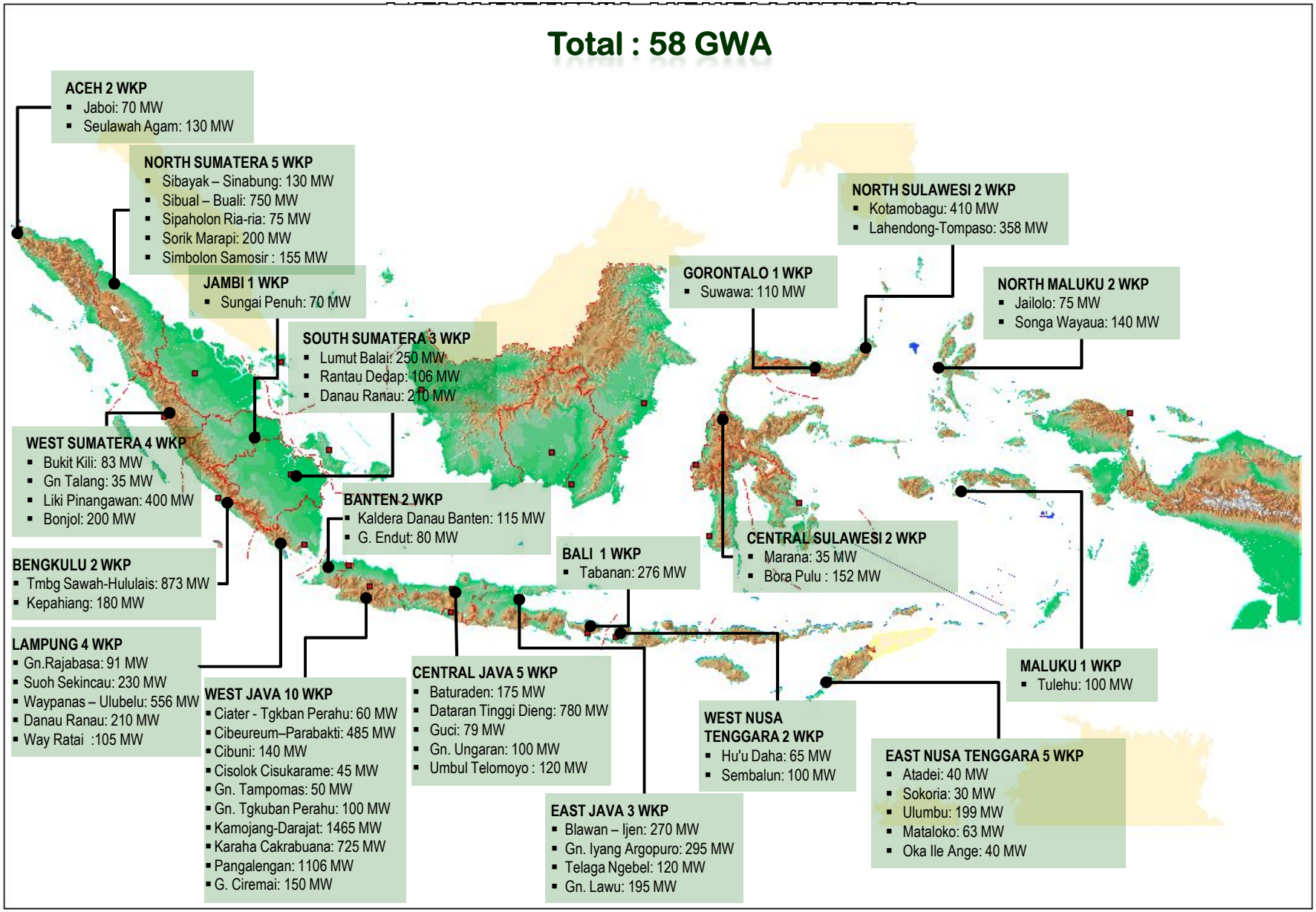
PRELIMINARY SURVEY ASSIGNMENT'S AREA
2012

No	Geothermal Working Area (GWA)	District/ City	Province
1	Gn. Hamiding	West Halmahera, North Halmahera	North Maluku
2	Pentadio	Gorontalo, Bone Bolango, Gorontalo City'	Gorontalo
3	Graho Nyabu	Merangin, Kerinci, Muko-Muko	Jambi and Bengkulu
4	Gn. Wilis	Ponorogo, Madiun, Nganjuk, Kediri, Tulungagung, Trenggalek	East Java
5	Gn. Geureudong	Central Aceh, Bener Meriah, North Aceh	Nanggroe Aceh Darussalam

IV. Geothermal Development

GEOTHERMAL DEVELOPMENT

Total : 58 GWA



GEOTHERMAL DEVELOPMENT TARGET (2010 - 2014)

- Presidential Regulation No. 04/2010 on Assignment to PT. PLN to Accelerate Power Plant Development Using Renewable Energy, Coal and Gas

- MEMR Regulation No. 01/2012 as revised in Ministerial Regulation No. 15/2010 on Projects List of Power Plant Accelerated Development using Renewable Energy, Coal and Gas as well as Related Transmission

- **Target for Geothermal Power Plant Development on Crash Program 10.000 MW Phase II**
  - Existing field (on Production Phase) : 465 MW
  - Existing field (not on Production Phase) : 1535 MW
  - New Geothermal Working Area : 2925 MW

  Total of Geothermal Development **4925 MW**

V. Investment Opportunities

INVESTMENT OPPORTUNITIES

- The development of 4,925 MW electricity from Geothermal in Second Phase Crash Program 10,000 MW up to the year 2014 requires more than US$ 14,000 millions for the investment.
- The development plan of 12,000 MW Geothermal Power Plant up to the year 2025, international supports are needed.
- Foreign ownership in Geothermal Business is allowed up to 95 %;
- Access to Potential Geothermal Resources for Investors:
  - Preliminary Survey Assignment
  - Participate in the geothermal business through GWAs tendering mechanism
- Other business opportunities in geothermal sector:
  - Geothermal direct use;
  - Low temperature geothermal potential;
  - Small scale power plant;
  - CER under CDM Scheme;
  - Services company to support the core business of geothermal.

Thank You

Go Green Indonesia !

green energy, future energy

MINISTRY OF ENERGY AND MINERAL RESOURCES REPUBLIC OF INDONESIA

DIRECTORATE GENERAL OF NEW, RENEWABLE ENERGY, AND ENERGY CONSERVATION

Jalan Jenderal Gatot Subroto, Kav. 49 Jakarta 12950; Telp: 021-52904235; 5250575; Faks: 021-25529106; 25529212

Email: bahan@ebtke.esdm.go.id ; bahan_ebtke@yahoo.com

www.ebtke.esdm.go.id