15th FNCA SOM and MM, Sydney, Australia, 18-19 November 2014

Country Report of Indonesia

Djarot S. Wisnubroto
National Nuclear Energy Agency of Indonesia

batan

Indonesia Electricity Infrastructure (2013)

- **Total Population : 250 Million**
- **Electricity Generation : 170 Billion kWh**
- **GDP/capita : USD 3,500**
- **Generation Plant Cap. : 47,128 MW**
- **Electricity Consumption : 680 kWh/capita**

National Energy Policy

Goal of Energy Policy:

To realize energy independence and security for supporting sustainable national development.

Energy Problems:

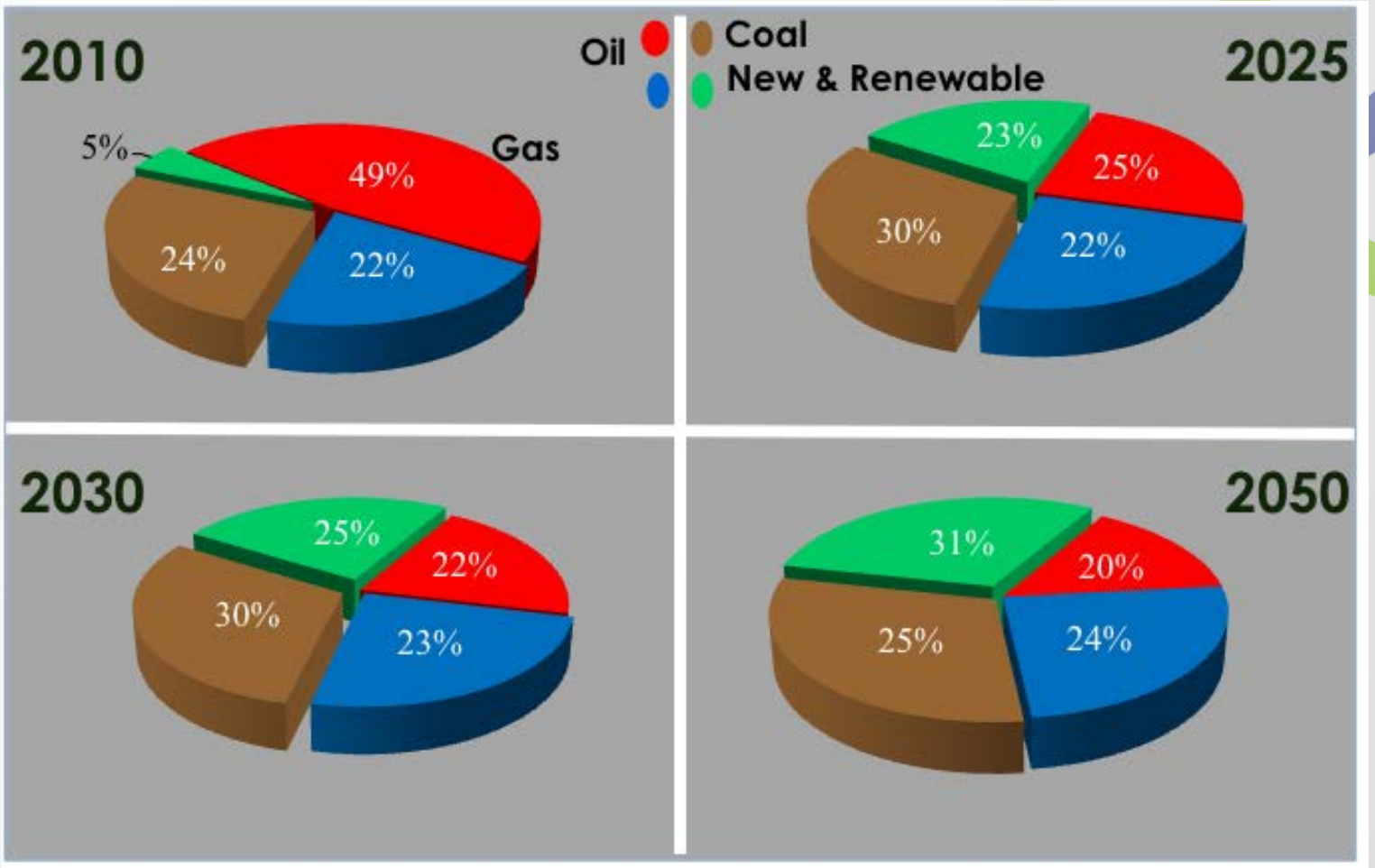
- Decreasing of National Oil Production and becoming oil importer;
- Fossil fuel is dominant in the energy system;
- Energy subsidy is still high;
- Utilization of new and renewable energy (NRE) require improvement of infrastructure, while the new National Energy Policy (Government Regulation no 79/2014) targeting that by 2025 NRE contribute 23%.

Projection of National Electricity Need

DESCRIPTION	UNIT	YEAR						
		2010	2015	2020	2025	2030	2040	2050
ELECTRICITY CONSUMPTION								
High Scenario	TWh	148	245	397	628	933	1680	2710
Low Scenario	TWh	148	208	341	511	733	1330	2100
Per capita (high scenario)	kWh	620	980	1521	2316	3332	5619	8827
Per capita (low scenario)	kWh	620	832	1308	1886	2618	4448	6840
Growth (low scenario)	%	7	7.1	10.4	8.4	7.5	6.1	4.7
Elasticity		1.06	0.89	1.30	1.05	1.00	0.9	0.7
GENERATION CAPACITY								
High Scenario	GW	35	58	92	145	203	340	550
Low Scenario	GW	35	49	79	115	159	270	430
AVERAGE UTILISATION								
High Scenario	Hours	4722	4731	4791	4805	5065	5435	5420
Low Scenario	Hours	4722	4754	4834	4977	5157	5468	5470

(based on National Energy Policy, 2014)

Energy Mix Projection



NPP Potential Site Study

- Site study for NPP has been conducted in three locations, i.e. Ujung Lemah Abang (Central Java), Banten (West Java) and Bangka (South Sumatera)
- The most recent study in Bangka (2011-2013) have been conducted by BATAN (Site, technology, fuel cycle, and management aspects) and PT PLN (energy planning, economic and financing, transmition grid aspects)
  - Both sites of South Bangka and West Bangka are feasible for NPP construction, and fulfill all criteria for site acceptability
  - Optimum capacity for West Bangka and South Bangka Sites are 6 x 1000 MWe and 4 x 1.000 MWe respectively
  - Based on the FS result, generation cost of Bangka NPP will vary 6.0 until 8.4 US Cent/kWh, including transmition cost

Other Related Activities

- Signing of Cooperation Agreement BATAN - PT PLN for Acceleration of SMR NPP Construction (Jakarta, 21 August 2013)
- Publication of Indonesia Nuclear Energy Outlook (INEO), 2014
- Preparation of "White Paper of NPP Development, 5000 MWe in 2024" (initiated by Ministry of Energy and Mineral Resources)
- Intensive discussion for NEPIO establishment with various stake holders
- Pre-Project Activities for construction of demonstration NPP with low power and advanced design

Expectations for FNCA

- FNCA continues to pursue the cooperation to promote the nuclear technology utilization for supporting the sustainable development in each participating countries
- FNCA Project activity should reflect the common needs of the participating countries
  - Information and knowledge sharing should be conducted in each project for benefit of all participating countries
  - Where ever possible, cooperation with other nuclear activity projects in the region, such as IAEA regional cooperative projects, would be plausible
- FNCA continues to support the development of human resources capacity in the field of nuclear science and technology

Thank You