



DIRECTORATE GENERAL OF NEW, RENEWABLE ENERGY, AND ENERGY CONSERVATION
MINISTRY OF ENERGY AND MINERAL RESOURCES OF THE REPUBLIC OF INDONESIA

Indonesia's Clean Energy Solutions

Presented by:

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Directorate General for New Renewable Energy and Energy Conservation

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OUTLINE

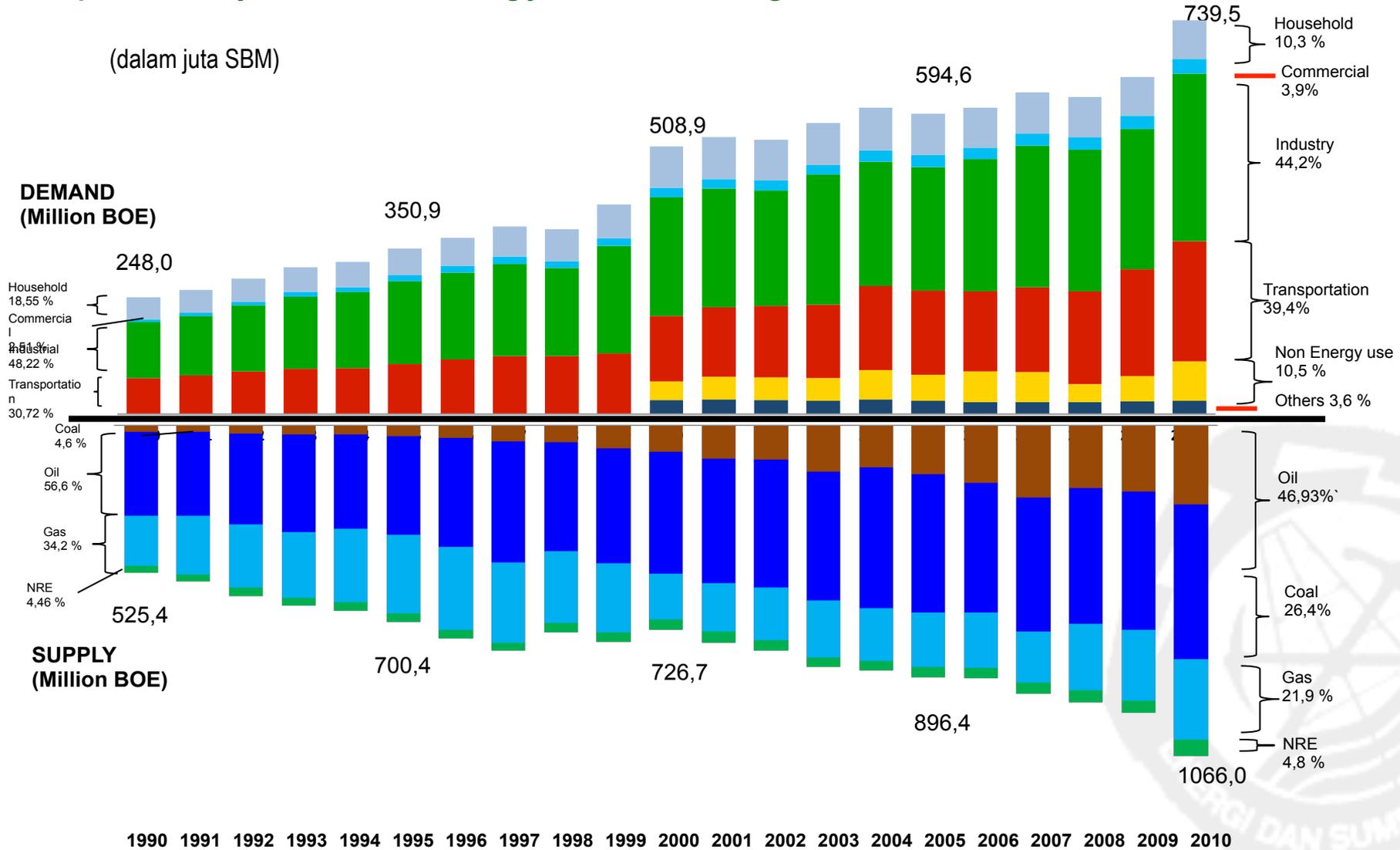
- I. INDONESIA'S ENERGY CONDITION
- II. INDONESIA'S ENERGY RESOURCES
- III. ENERGY POLICIES
- IV. NEW RENEWABLE ENERGY & ENERGY CONSERVATION DEVELOPMENT
- V. NEXT STEP FOR NEW RENEWABLE ENERGY AND ENERGY CONSERVATION
- VI. ICONIC ISLAND PROGRAM
- VII. CONCLUSION





I. INDONESIA'S ENERGY CONDITION

1. Growth of energy demand is high, dependency to fossil energy is increasing

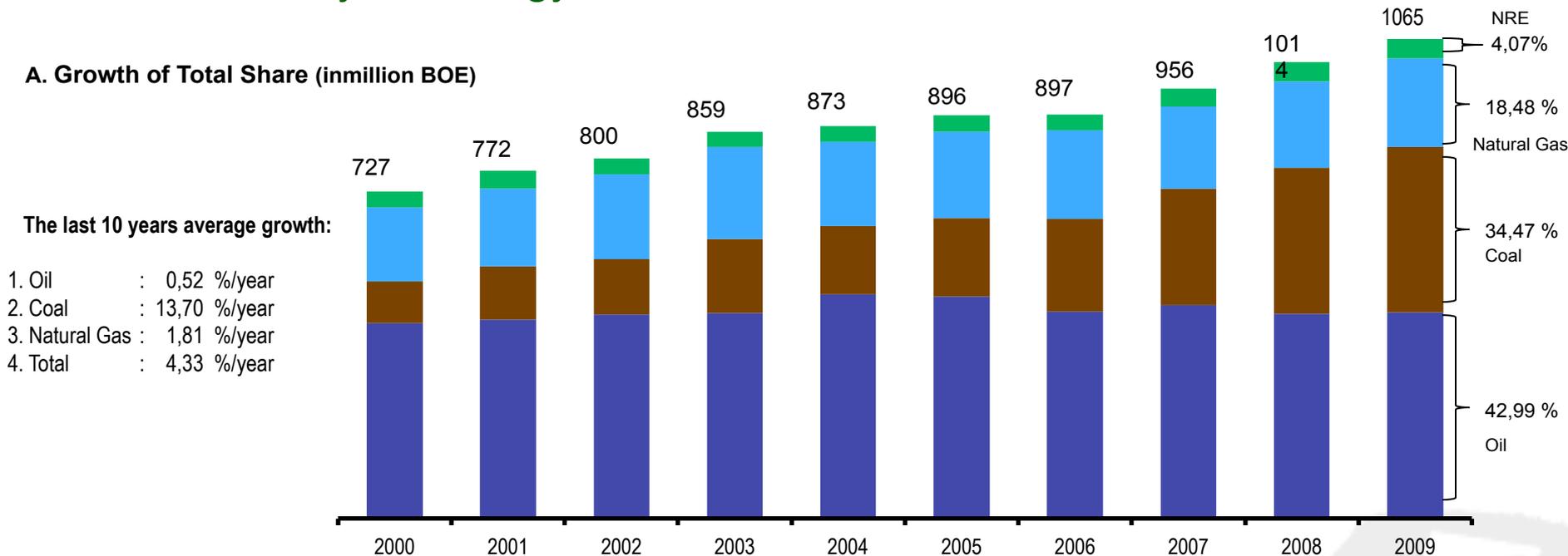


I. INDONESIA'S ENERGY CONDITION



2. More subsidy for energy

A. Growth of Total Share (in million BOE)



B. Growth of Fossil Subsidy (in trillion Rupiah)

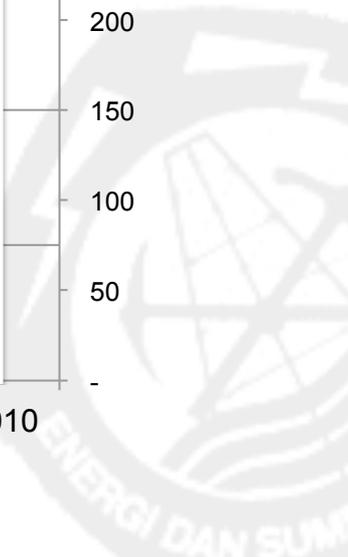
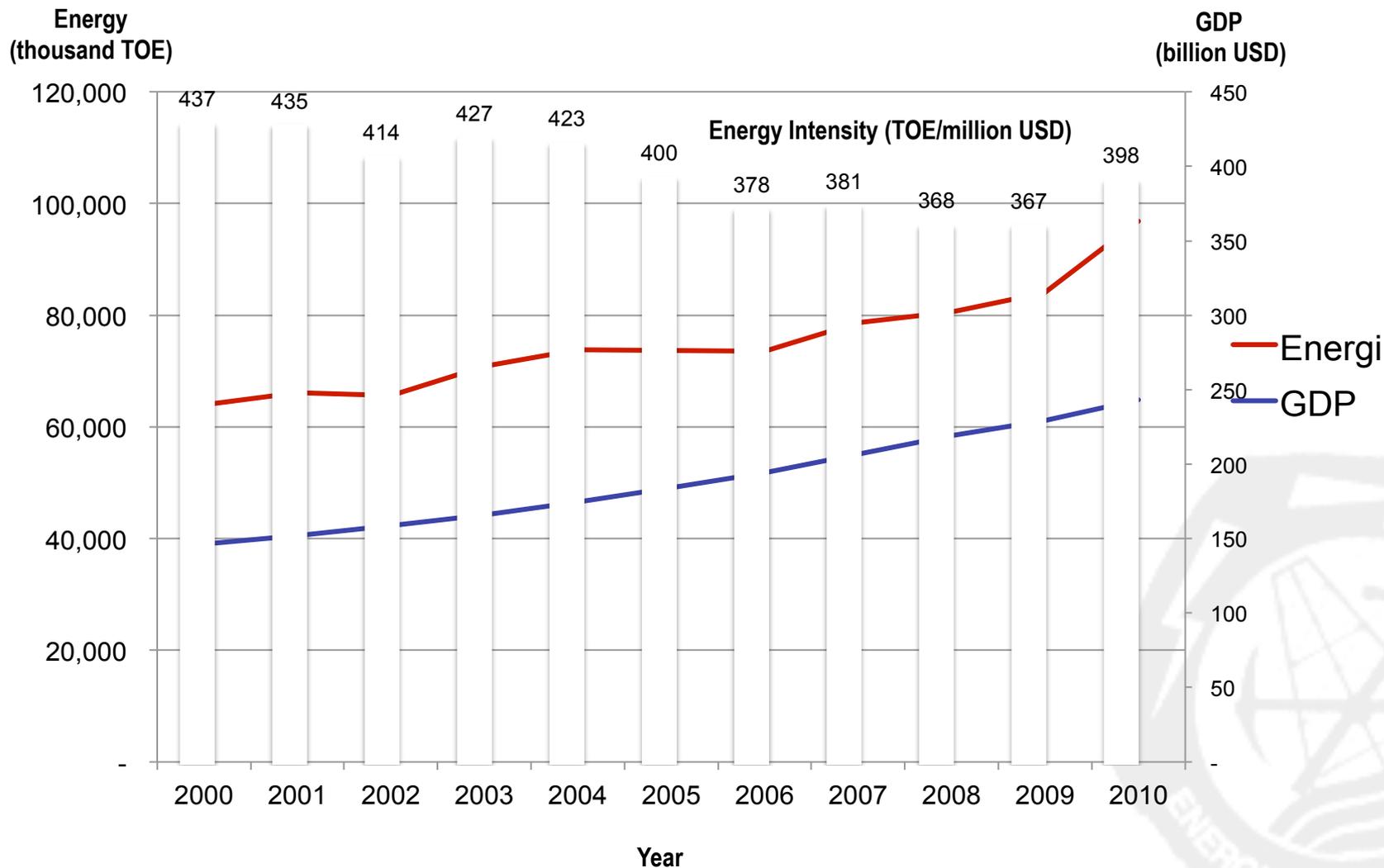
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1. Electricity Subsidy	3,93	4,30	4,10	3,36	3,31	10,65	33,90	37,48	78,58	53,72
2. Fossil Electricity Subsidy *)	3,30	3,55	3,49	2,92	2,86	9,20	29,75	32,63	68,16	46,14
3. Fuel Subsidy	55,64	63,26	31,75	30,04	59,18	103,35	64,21	83,79	139,03	45,04
4. LPG Subsidy	0	0	0	0	0	0	0	0,15	3,84	7,78
Total Fossil Subsidy	58,94	66,81	35,24	32,96	62,04	112,55	93,96	116,57	211,03	98,96

*) Proportionate to the role of fossils in the composition of primary energy for electricity supply

I. INDONESIA'S ENERGY CONDITION



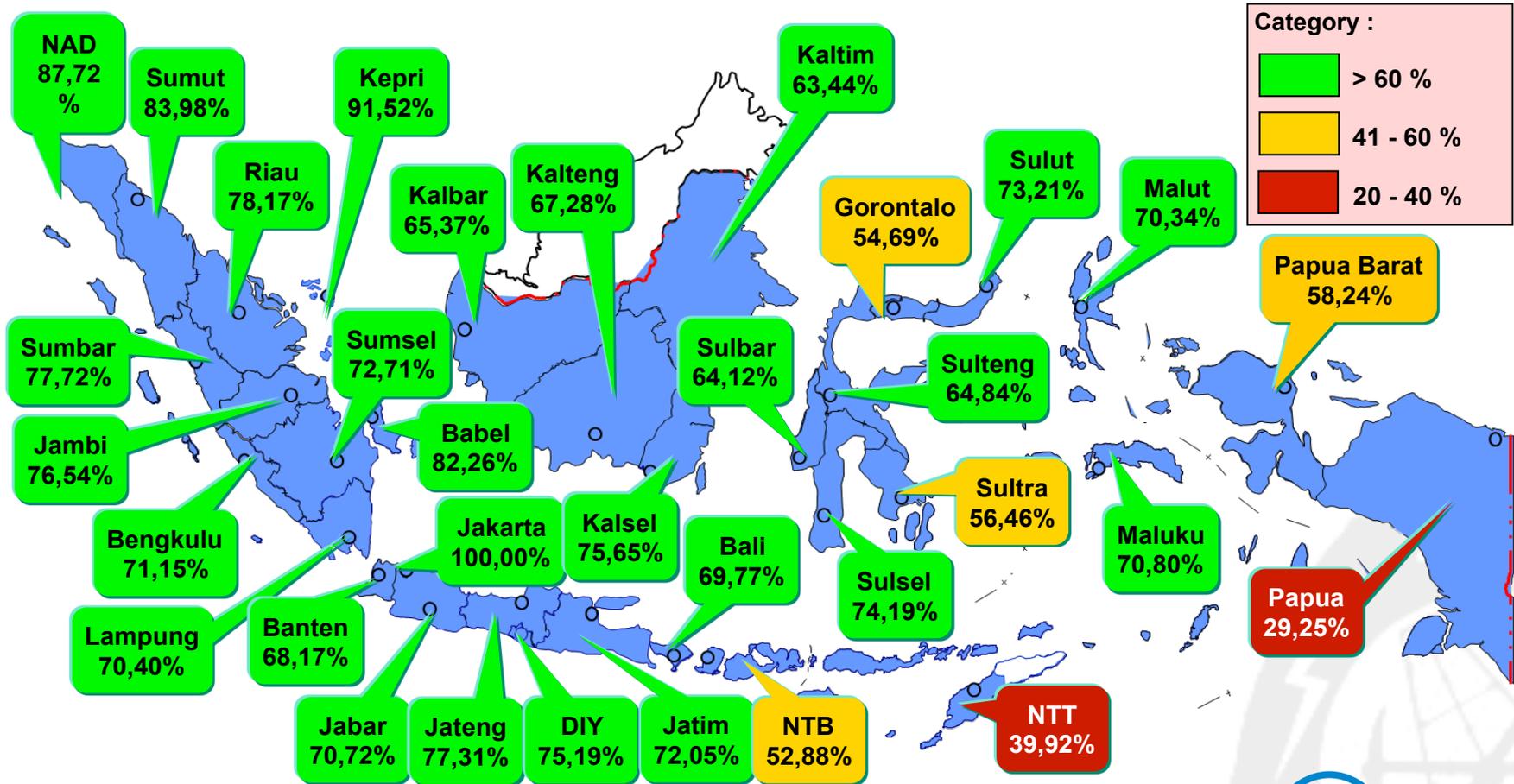
3. There is an opportunity for energy efficiency & conservation in all sectors



I. INDONESIA'S ENERGY CONDITION



3. Electrification ratio has only reached 75%



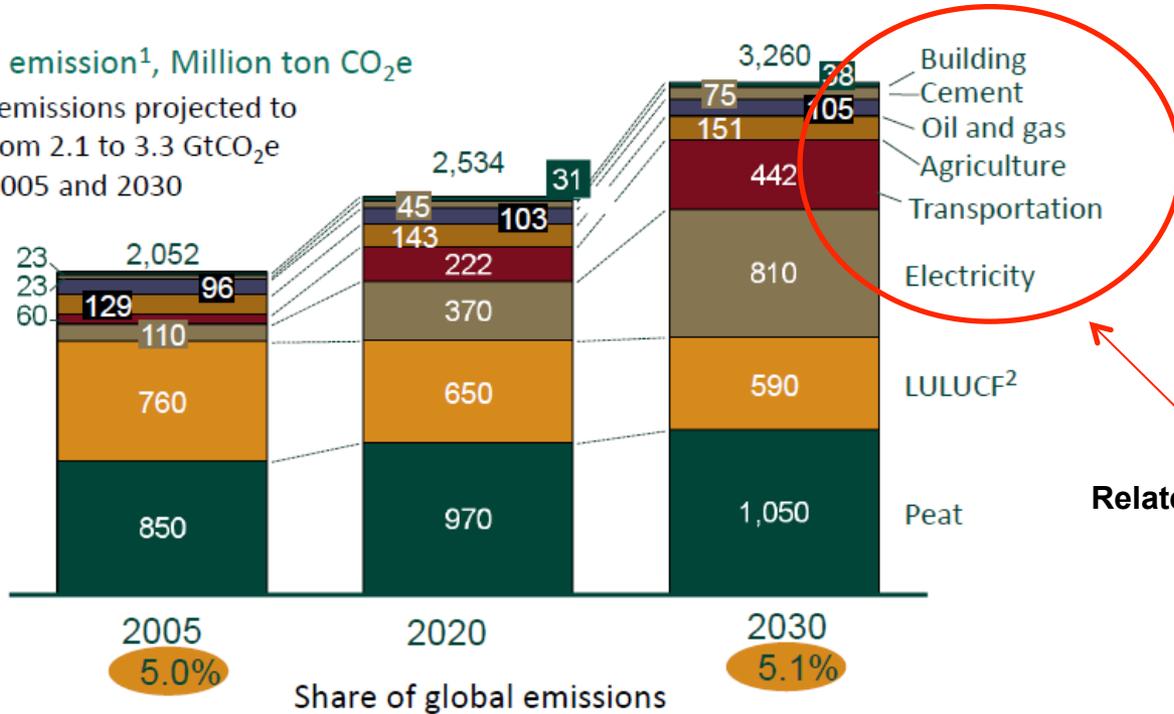
	REALIZATION (Year)						PLAN (Year)			
	2006	2007	2008	2009	2010	2011	2012	2013	2014	
Electrification Ratio	63%	64,3%	65,1%	65,8%	67,2%	72,95%	75,9%	78,0%	80,0%	

I. INDONESIA'S ENERGY CONDITION

4. GHG emission from energy is projected to surpass the emission from forestry sector in 2030

Projected emission¹, Million ton CO₂e

Indonesia emissions projected to increase from 2.1 to 3.3 GtCO₂e between 2005 and 2030



Related to Economic Growth

¹ Only sector direct emission are included

² LULUCF emission based on clean emission approximation, including absorption

(Indonesian GHG Cost Curve, http://www.dnpi.go.id/report/DNPI-Media-Kit/reports/indonesia-ghg_abatement_cost_curve/Indonesia_ghg_cost_curve_bahasa.pdf)





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INDONESIA'S FOSSIL ENERGY RESERVES

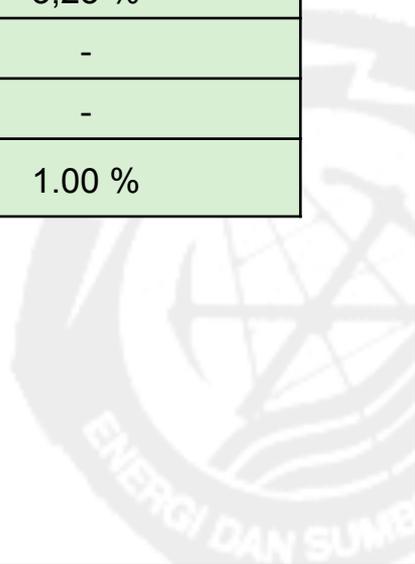
No	FOSSIL ENERGY	RESERVES	PRODUCTION PER YEAR	RESERVE TO PRODUCTION RATIO
1	Oil	4.0 billion barrel	347 million barrel	11 year
2	Natural Gas	104.71 TSCF	3212 BSCF	32 year
3	Coal	28 billion ton	329 million ton	85 year



INDONESIA'S RENEWABLE ENERGY RESOURCES POTENTIAL

NO	RENEWABLE ENERGY	RESOURCES (SD)	INSTALLED CAPACITY (KT)	RATIO KT/SD (%)
1	2	3	4	5 = 4/3
1	Large Hydro	75,670 MW	6,654 MW	8.8 %
2	Geothermal	29,038 MW	1,226 MW	4.2 %
3	Mini/Micro Hydro	769.69 MW	228.983 MW	29.8 %
4	Biomass	49,810 MW	1,618 MW	3,25 %
5	Solar Energy	4.80 kWh/m ² /day	22.45 MW	-
6	Wind	3 – 6 m/s	1.87 MW	-
7	Uranium	3,000 MW *)	30 MW **)	1.00 %

*) Only in Kalan – West Kalimantan
 **) For non-energy research purposes





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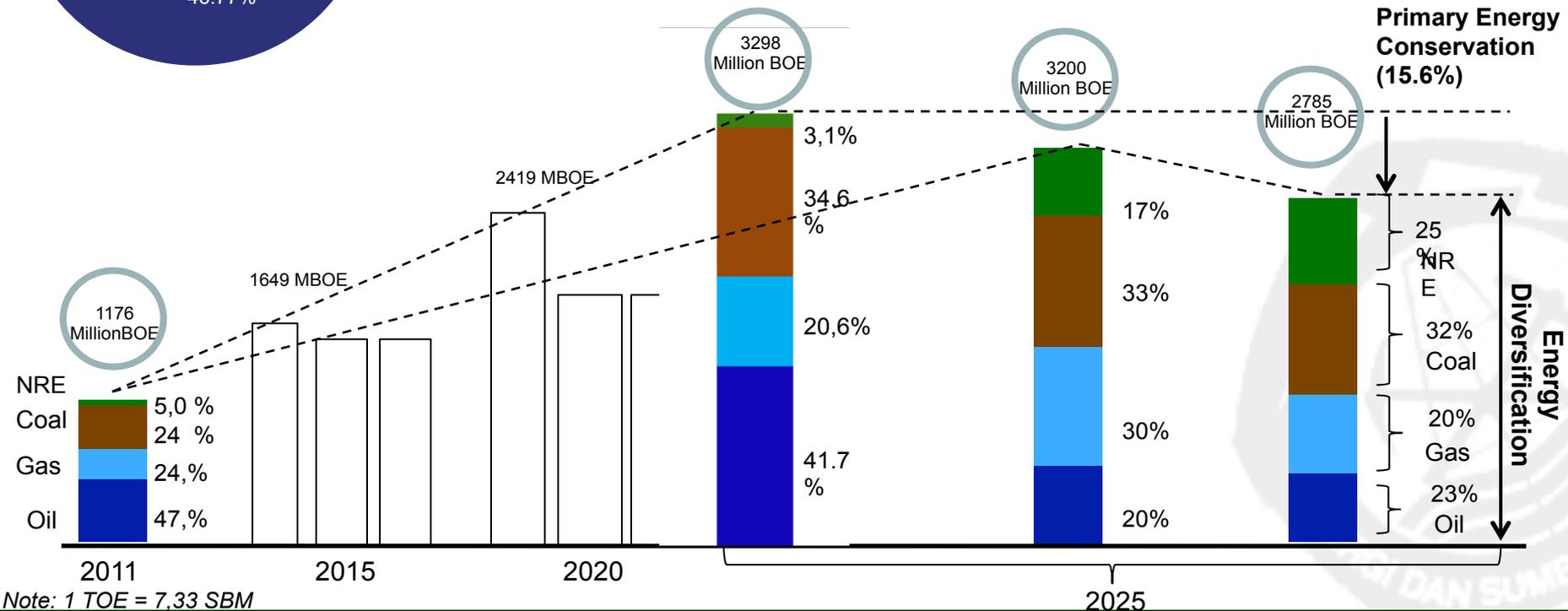
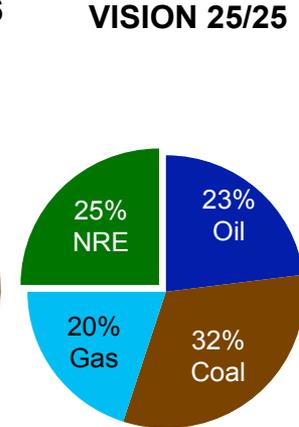
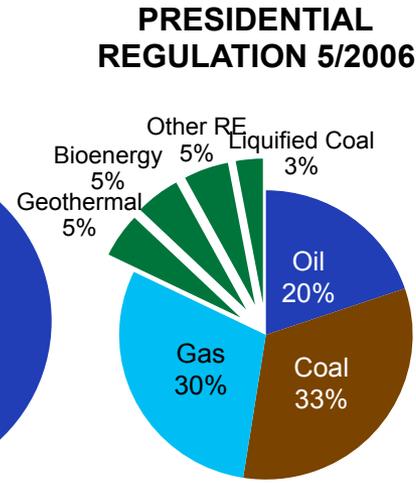
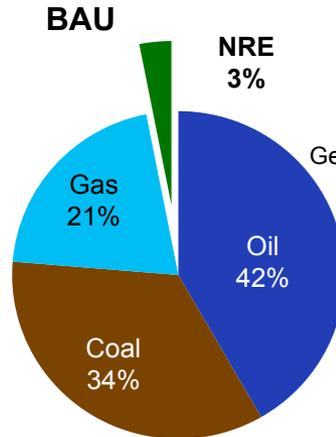
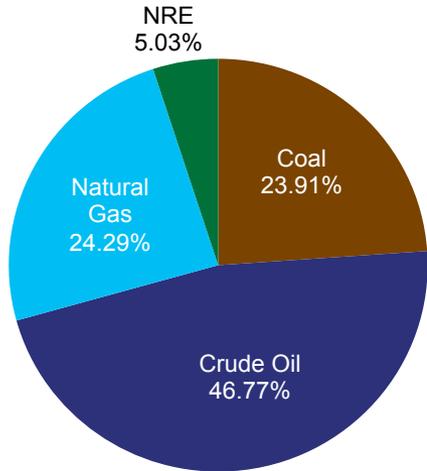
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II. ENERGY POLICIES



1. POLICY DIRECTION



II. ENERGY POLICIES



2. NATIONAL COMMITMENT ON GHG EMISSION REDUCTION

- President Commitment on G-20 Pittsburgh and COP15 To reduce the GHG Emission in 2020
- Presidential Regulation No. 61 & 71 Year 2011

Unilateral

26%
(767 mln Ton)

41%
(26%+15%)

Unilateral & International Support

Forestry, Peat Land, Agriculture	680 million Ton
Energy Sector	30 million Ton
Waste	48 million Ton
Industry and Transportation	9 million Ton

Through the development of new renewable energy and implementation of energy conservation



3. MAIN ENERGY POLICIES

1. **Energy Conservation** to improve efficiency in energy utilization from up-stream up to down-stream (***Demand Side***) i.e industrial, transportation, household and commercial sector
2. **Energy Diversification** to increase new renewable energy share in national energy mix (***Supply Side***). i.e

New Energy

- a. Liquefied Coal,
- b. Coal Bed Methane,
- c. Gasified Coal,
- d. Nuclear,
- e. Hydrogen,
- f. Other Methanes.

Renewable Energy

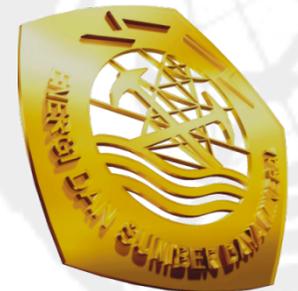
- a. Geothermal,
- b. Bioenergy,
- c. Hydro,
- d. Solar,
- e. Wind,
- f. Ocean.





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AGENDA ON NEW, RENEWABLE ENERGY AND ENERGY CONSERVATION

A. MAIN AGENDA

1. Development and harmonization of laws and regulations on NRE and EC
2. Revision of General Plan for Energy Diversification and Conservation
3. Increasing energy efficiency
4. Development of geothermal
5. Development of bioenergy (biomass, biofuel, biogas)
6. Development of other new renewable energy (mini/micro hydro, solar, wind, nuclear energy, etc)
7. Development of Clean Energy Initiative (REFF - Burn)
8. Increasing the local content and supporting industries on NRE & EC
9. Implementation of Self-sufficient Energy Village
10. Developing pilot projects and best practices for NRE & EC

B. SUPPORTING AGENDA

1. Promoting the R&D on NRE & EC
2. Promoting the training and capacity building on NRE & EC





CLEAN ENERGY INITIATIVE : REDUCING EMISSIONS FROM FOSSIL FUEL BURNING (REFF-BURN)

A. Pre-Fossil Combustion to **avoid** using more fossil energy :

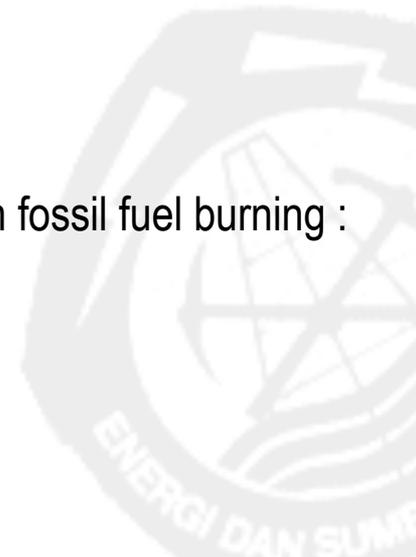
1. Efficient Energy Technology (demand side)
2. Renewable Energy Technology
3. Fossil Pre-Treatment

B. During Fossil Combustion to **reduce** greenhouse gases emitted from fossil fuel :

1. Efficient Technology (supply side)
2. Low Carbon Electricity Generation
3. Clean Fuel Technology

C. Post Fossil Combustion to **capture and store** the greenhouse gases from fossil fuel burning :

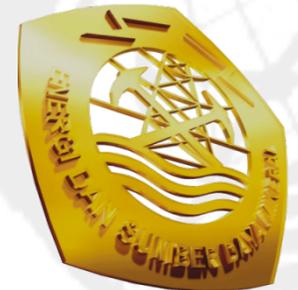
1. Carbon Capture and Storage (CCS)
2. Utilization of CO₂





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II. NEXT STEPS FOR NRE & EC



1. BARRIERS

- a) **Price**, renewable energy development is difficult, as it has to compete with subsidized fossil fuel. It also hamper the interest for energy efficiency and conservation in the demand sector.
- b) **Funding**, local banks and other financial institutions are still not interested in NRE & EC projects, due to lack of awareness and understanding of the projects.
- c) **Incentives**, there is almost no incentive for NRE & EC, either in energy consumer and producer side.
- d) **Institutional and management**, there are still issues regarding institutionalization and management of new energy in Indonesia, causing doubt in legality.
- 5. **Need significant breakthrough** in new energy development (currently treated as business as usual).

II. NEXT STEPS FOR NRE & EC



2. EFFORTS ON NRE & EC

a) Price

- Providing subsidy for RE (consider easier than to remove fossil energy subsidy for the people)
- Developing and revising the *Feed in Tariff* for the NRE, such as Ministerial Regulation No. 2 year 2012 for Geothermal and Minis. Regulation No. 4 year 2012 for other renewable energy and excess power.

b) Funding

- Developing “green” development banking for NRE & EC projects, in coordination with DGEEU and the Central Bank
- a. Providing government assurances, such as the geothermal fund for exploration.

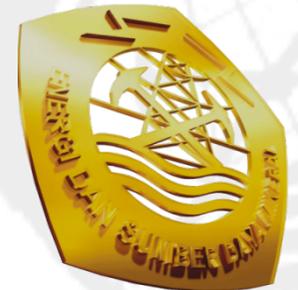
c) Incentives

- Providing incentives for NRE & EC producers, e.g. fiscal incentive.
- Providing incentives for energy consumers to shift to NRE supply and implement EC
- Providing incentives for the NRE & EC supply chain industry
- Developing a special-appointed state owned company to develop NRE



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OVERVIEW: ICONIC ISLAND INITIATIVES

The Iconic Island Initiatives was initiated on 2010 on the objectives of:

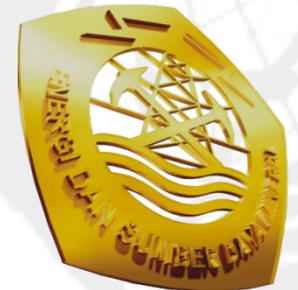
1. Provide access to reliable and renewable forms of energy to the population of a medium sized island and support development and economic activities
2. End dependency on fossil fuels: show case that all energy needs can be served by renewable sources at lower costs
3. Attract interest, cooperation and funding from institutions, companies, authorities and the public
4. Develop a replicable model that addresses both climate change and poverty alleviation





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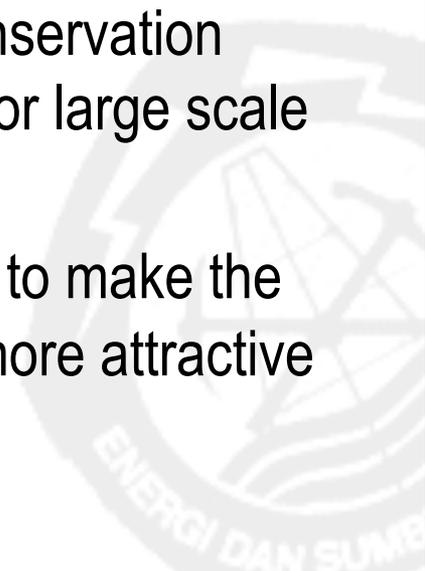
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IV. CONCLUSIONS



- Indonesia has relatively huge potential of renewable energy, therefore, Indonesia is the right place to develop investment of renewable energy due to particularly high growth demand of energy (electricity and non-electricity).
- Renewable energy and energy conservation as part of clean energy development, to secure of energy supply and at the same time, reduce the greenhouse gases emission.
- Development of new renewable energy and energy conservation need the cooperation and coordination of stakeholder for large scale dissemination
- Government has issued and revised some regulations to make the renewable energy and energy conservation business more attractive to private communities and other stakeholders



Thank You



Go Green Indonesia !

green energy, future energy



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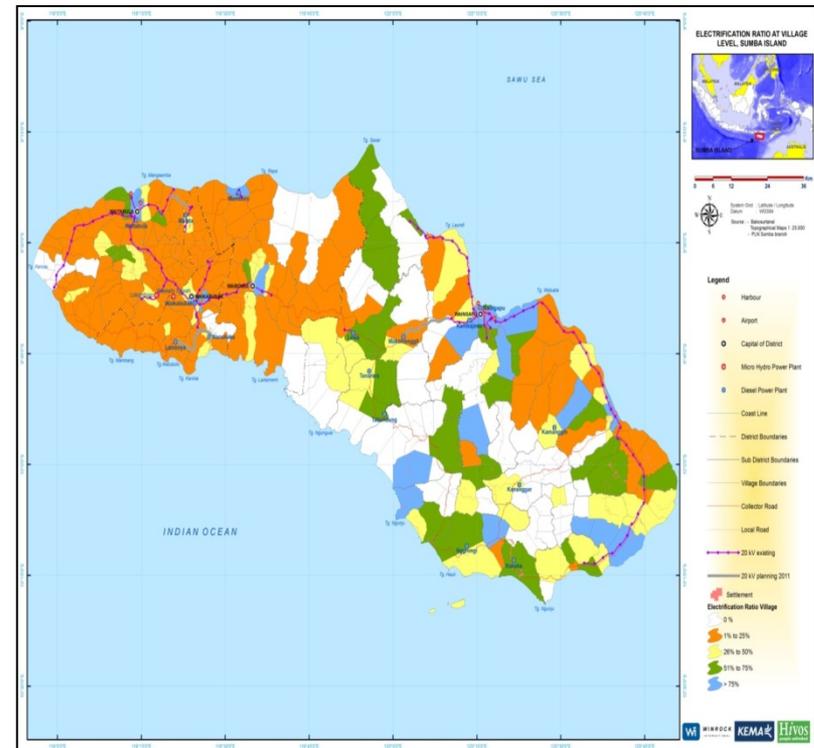
Energy for the Wealth of People

IV. PILOT PROJECTS: SUMBA ICONIC ISLAND INITIATIVES



OVERVIEW: SUMBA ISLAND

- Most of the people live below the poverty level;
- Low access to modern energy;
- Highly dependant to off-grid small scale diesel generators;
- Fossil fuel is supplied from other islands/regions, making it more expensive, and subsidized by the local government;
- Rich with renewable energy resources potential (solar, wind, biogas, fuel crop, etc)



IV. PILOT PROJECTS: SUMBA ICONIC ISLAND INITIATIVES



TARGETS

- Replace the existing 9 MW of fossil fuel generation by 20 MW from renewable sources in 2020
- Avoid 7,511 tCO₂e/year CO₂ emissions from electric power generation (level 2010)
- Provide additional 225.000 people electricity access through grid extension (extra one third of population)
- Provide estimated 25.000 households for off-grid access to energy (20-25% of population)
- Improved cooking quality and conditions through biogas implementation in 6.900 households