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# Philippines Country Presentation

Energy Policy Course

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# Presentation Outline

- ❑ General Information on Philippines
- ❑ Current Energy Policy and Measures
  - Fossil Fuels
  - Clean Energy
  - Fuelling Sustainable Transport Program
  - Energy Efficiency and Conservation
- ❑ Energy Demand and Supply
- ❑ Energy Demand and Supply Outlook
- ❑ Challenges in Policy Formulation
- ❑ Subjects to be Studied



# General Information on the Philippines

# General Information

## *Philippines*

- ❑ Located in Southeast Asia
- ❑ Total land area of 300,000 km<sup>2</sup>
- ❑ Composed of 7,107 islands and divided into three (3) main islands – *Luzon, Visayas and Mindanao*
- ❑ Has 17 administrative regions, 81 provinces, 118 cities, 1,510 municipalities and 41,995 barangays
- ❑ Population density is 270 persons/km<sup>2</sup>
- ❑ National language is Tagalog
- ❑ Economy grew 7.6 percent in 2010
- ❑ 2010 Real GDP is US\$34,170 million (at constant 1985 prices)



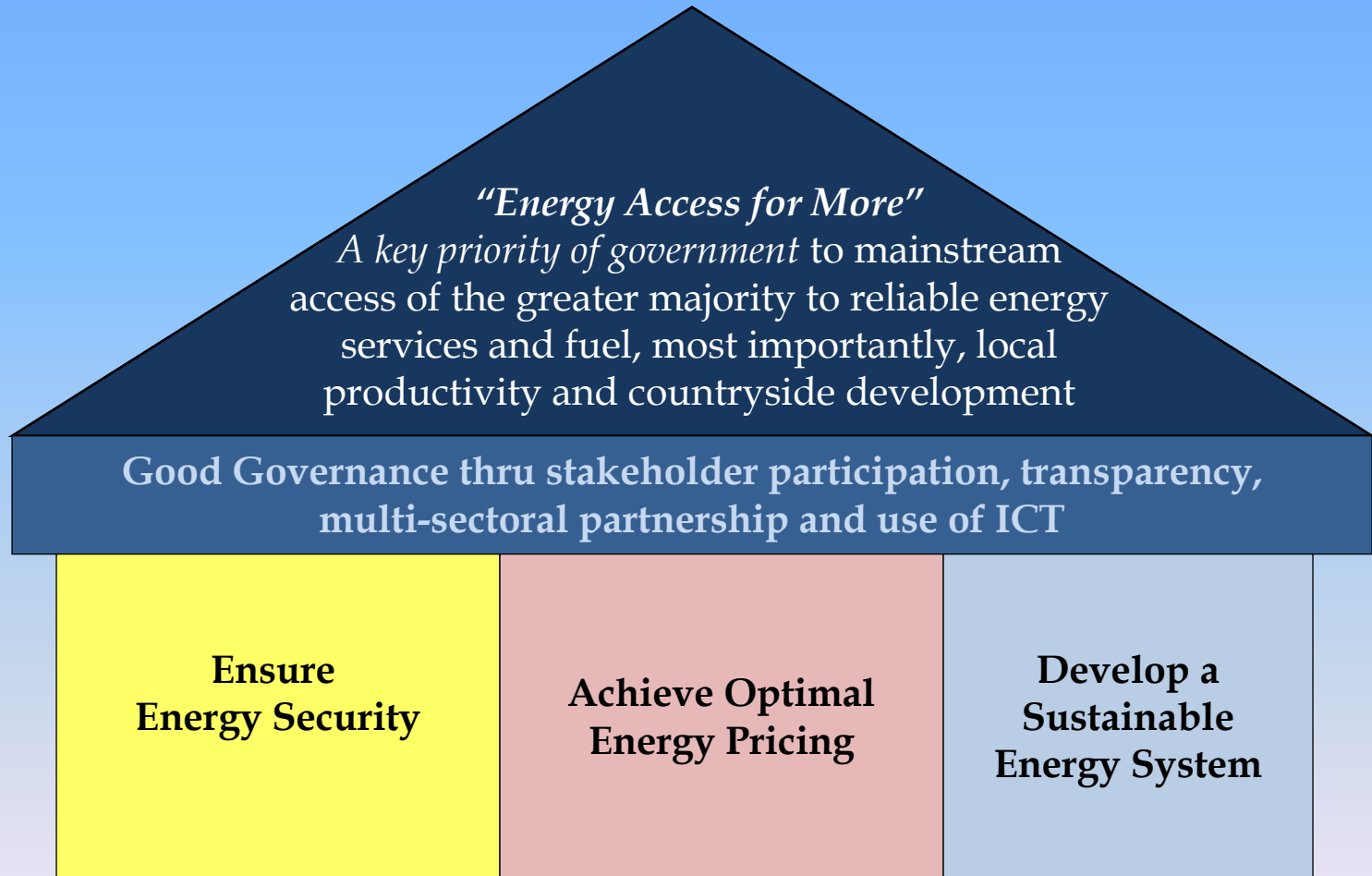


# Current Energy Policy and Measures

# Current Energy Policy and Measures

- ❑ The Department of Energy (DOE) crafted the Energy Reform Agenda (ERA)
- ❑ Key thrusts of the ERA are:
  - Expanding the use of renewable energy
  - Accelerating petroleum and coal exploration through the Philippine Energy Contracting Rounds (PECR)
  - Making energy efficiency a way of life for Filipinos
  - Strict monitoring of oil and electricity price and supply
  - Promoting the use of clean alternative fuels and technologies
  - Improving transport sector efficiency
  - Vigilant monitoring and supervision of energy sector reforms

# Energy Reform Agenda (ERA)



# Fossil Fuels

## ❑ Oil and Gas

- 16 sedimentary basins
- Potential of 4,777 million barrels of fuel oil equivalent (MMBFOE) or 689.8 million tons of energy (MTOE) of oil and gas reserves
- 28 Service Contracts (SCs) are continuously monitored which is a result of the Philippine Energy Contracting Round (PECR)

## ❑ Coal

- 13 coal basins
- Total resource potential is 2.4 billion metric tons (BMT)
- To date, there are 60 coal operating contracts (COCs) – 29 (exploration) and (31 development and production)



# Clean Energy

## ❑ Renewable Energy

- In December 2008, RA 9513 or the “*Renewable Energy Act of 2008*” was signed
- Launched the National Renewable Energy Program (NREP) in 14 June 2011. The NREP targets 15,000 MW total installed capacity by 2030

RE Resource	Capacity (in MW) as of 1 <sup>st</sup> Sem 2011
Hydropower	3,535.0
Geothermal	1,902.0
Wind	33.0
Biomass	54.0
Solar	1.0
<b>TOTAL</b>	<b>5,525.0</b>

# Clean Energy

Type of Technology	Estimated Capacity			
	Committed	Indicative	Potential	Total
Hydropower	27.80*	407.00	4,535.94	4,970.74
Geothermal	90.00	200.00	1,165.00	1,455.00
Wind		145.00	2,205.00	2,350.00
Biomass	23.00**	190.30	107.60	320.90
Solar			284.05	284.05
Ocean			70.50	70.50
<b>TOTAL</b>	<b>140.80</b>	<b>942.30</b>	<b>8,368.09</b>	<b>9,451.19</b>

\* Includes off-grid hydro committed projects

\*\* includes own-use (6-MW)



# Clean Energy

## □ Natural Gas

- In January 2011, DOE granted a Permit-to-Construct for the Pagbilao Liquefied Natural Gas (LNG) Terminal and Power Project
- Sectors that are main consumers of gas - *power, industrial and transportation*
- JICA has updated the Master Plan Study for the Development of the Natural Gas Industry in the Philippines
- As a complement to the JICA study, the World Bank is conducting a study to supply natural gas in Mindanao

# Fuelling Sustainable Transport Program

## ❑ Biofuels

- The country has put in place *RA 9367* or the “*Biofuels Act of 2006*”
- Mandated 1.0 percent biodiesel blend in 2007 and this was increased to 2.0 percent in 2009. Bioethanol blend at 10.0 percent (August 2011) from 5.0 percent in 2009

## ❑ Compressed Natural Gas (CNG)

- There are 61 CNG buses in the country of which 41 are running and plying the routes of Southern Luzon and Manila.
- By 2030, government targets to increase the number of CNG buses to 15,000 units



# Fuelling Sustainable Transport Program

## ❑ Auto-LPG

- 18,731 converted taxis as of 1<sup>st</sup> half 2011
- The Development Bank of the Philippines (DBP) has included the Auto-LPG initiative in its *Clean Alternative Transport Fuel Financing Program*

## ❑ Electric Vehicle (EV)

- To date, 630 EVs are being demonstrated nationwide
- Government targets to have 180,000 e-tricycles nationwide by 2030

# Energy Efficiency and Conservation

- ❑ **National Energy Efficiency and Conservation Program (NEECP)**
  - Resulted to energy savings of 27.48 MMBFOE in 2011
  - Sub-programs under the NEECP include the following:
    - ❖ *Recognition Awards through the Don Emilio Abello Energy Efficiency Awards (DEAEEA)*
    - ❖ *Government Energy Management Program (GEMP)*
    - ❖ *Energy Efficiency and Labeling Program*
    - ❖ *Energy Audit Services*
    - ❖ *Philippine Energy Efficiency Project (PEEP)*
  
- ❑ **The *Bright Now! Do Right, Be Bright Campaign* was launched in December 2011 to educate and empower Filipinos to be smart energy users.**



# Energy Efficiency and Conservation

- ❑ JICA is currently conducting the *Development Study on Energy Efficiency and Conservation for the Philippines*
- ❑ Government targets 10.0 percent savings on total annual energy demand of all economic sectors from EE & C



# Energy-Economy Indicators

	2009	2010
<b>Economic Parameters</b>	<b>Actual</b>	
GDP (in billion PhP)	5,297.2	5,701.5
Growth Rate (in percent)	1.1	7.6
Population (in million)	91.1	92.3
Forex (PhP/US\$)	47.6	45.1
Crude Cost (\$ per barrel)	61.7	78.1
<b>Energy</b>	<b>Actual</b>	
Primary Energy Supply (in KTOE)	38,748.2	39,741.9
Growth Rate (in percent)	-2.9	3.3
Final Energy Consumption (in kTOE)	22,816.4	23,756.0
Growth Rate (in percent)	1.6	4.1
Oil Supply (in MB)	97,605.1	106,224.1
Growth Rate (in percent)	-1.6	8.8
Electricity Generation (in GWh)	61,934.4	67,742.8
Growth Rate (in percent)	1.8	9.4
<b>Emission</b>	<b>Actual</b>	
CO <sub>2</sub> Emission (MTCO <sub>2</sub> e)	69.1	74.1

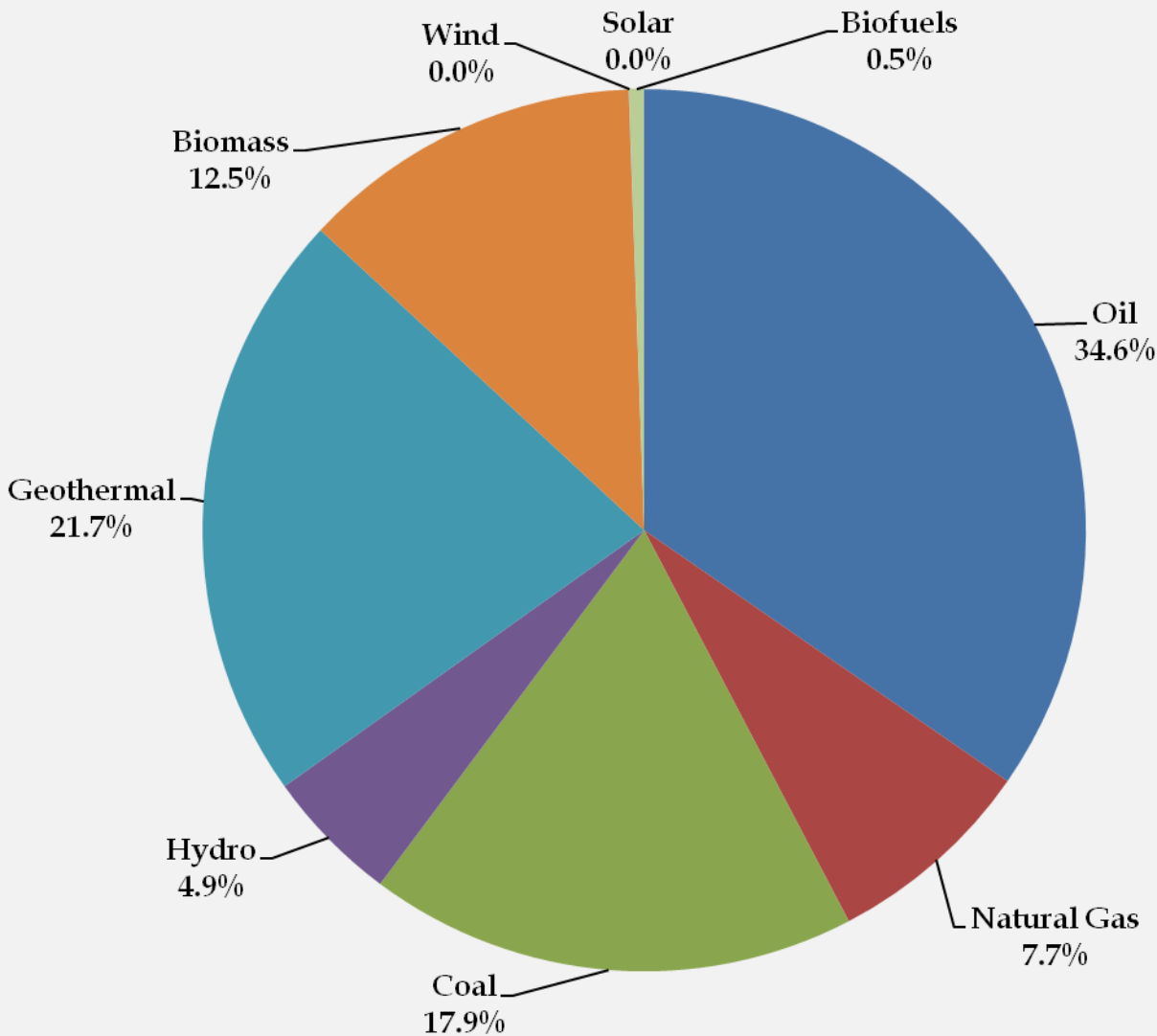




# Energy Supply and Demand

# Energy Demand and Supply

## 2010 Total Primary Energy Supply



**Total Energy - 39.27 MTOE**

### Shares

**Self-sufficiency - 58.52%**

**Green Energy - 47.0%**

**RE - 39.2%**

### Biomass Breakdown

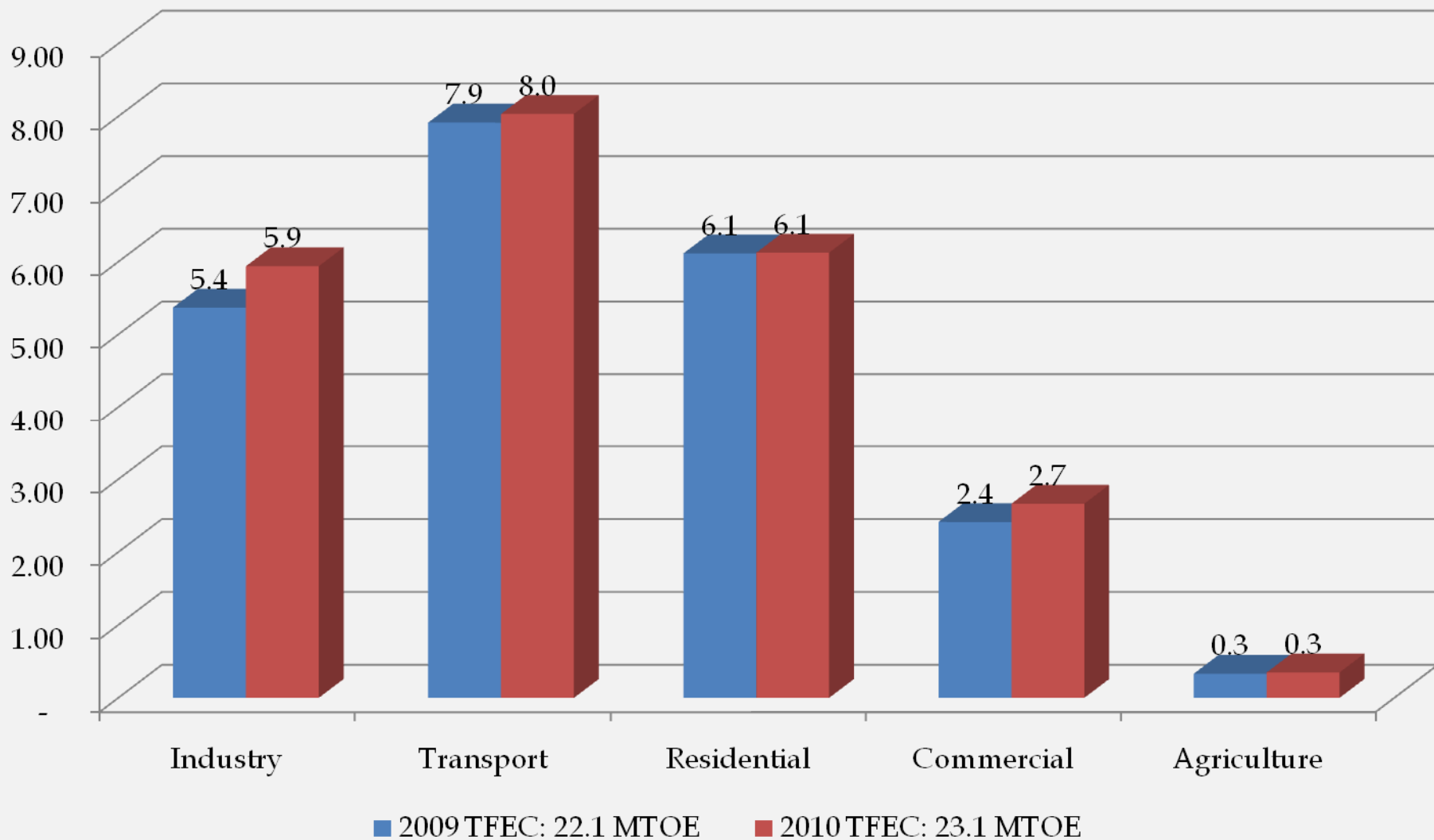
**Industry - 20.9%**

**Residential - 72.7%**

**Commercial - 6.4%**

# Energy Demand and Supply

## *Final Energy Consumption by Sector (in MTOE)*



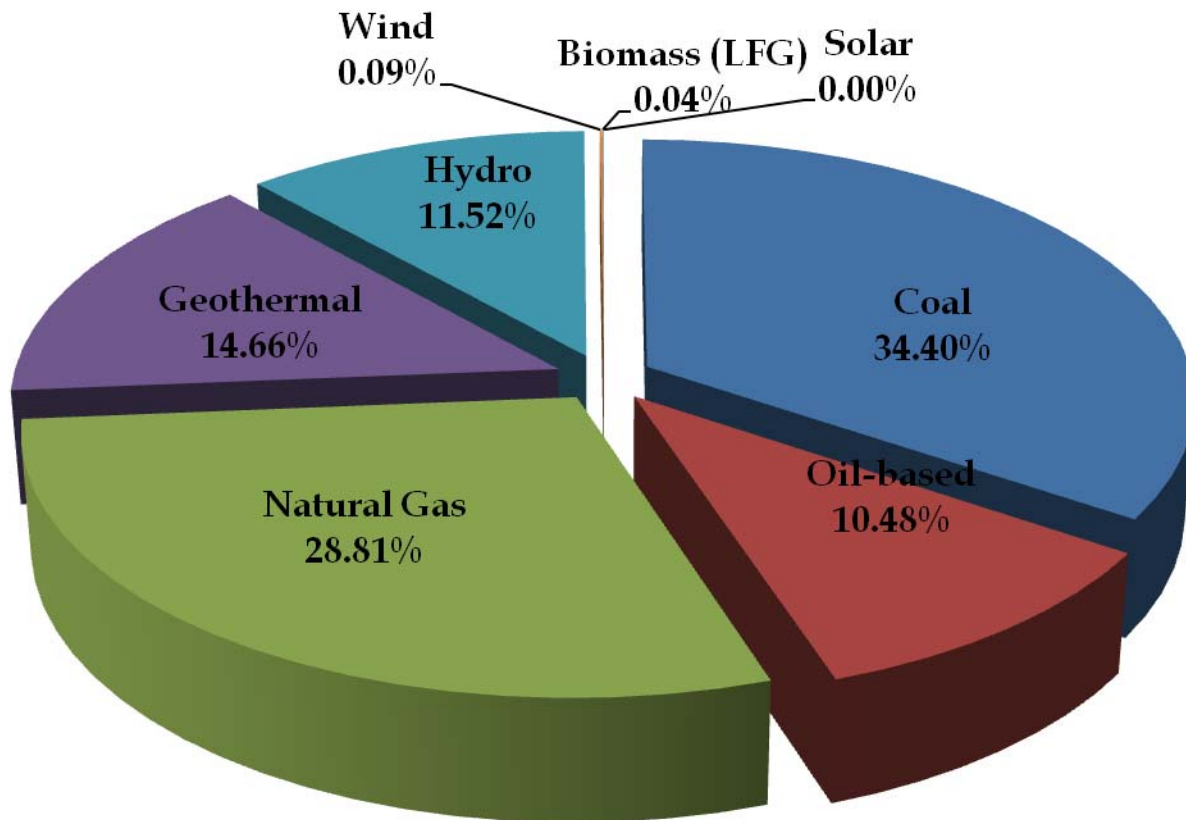
# Energy Demand and Supply

## *2010 Installed and Dependable Capacity*

Plant Type	Philippines			
	Capacity		Percent Share	
	Installed	Dependable	Installed	Dependable
Coal	4,867	4,245	29.75	30.53
Oil-based	3,193	2,488	19.52	17.90
Natural Gas	2,861	2,756	17.49	18.83
Geothermal	1,966	1,350	12.02	9.71
Hydro	3,400	3,021	20.78	21.73
Wind	33	20	0.20	0.14
Solar	1	1	0.01	0.01
Biomass	39	20	0.24	0.15
<b>TOTAL</b>	<b>16,359</b>	<b>13,902</b>		

# Energy Demand and Supply

## 2010 Power Generation Mix



**Total Generation = 67,742 GWh**

*Shares:*

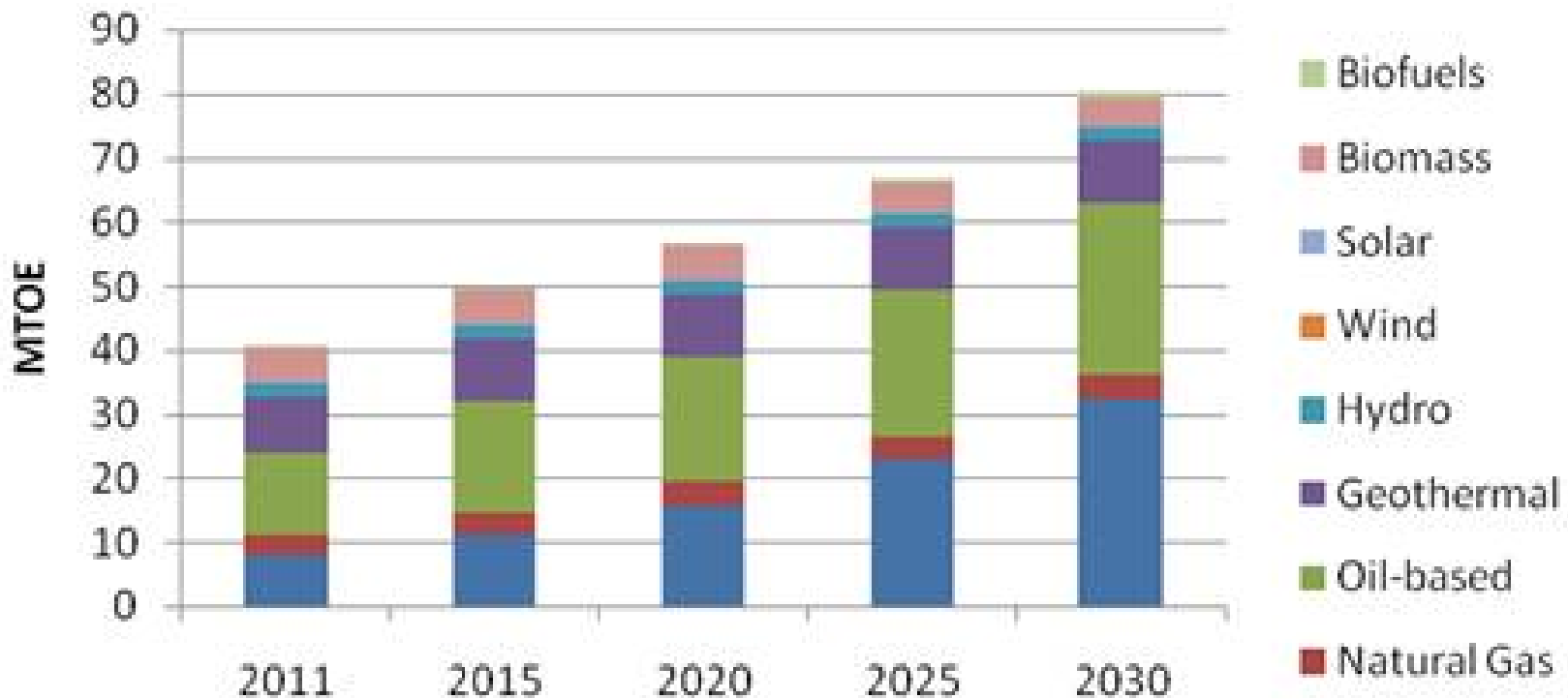
Self-sufficiency = 62.9%  
Green Energy = 55.12%  
RE = 26.31%



# Energy Supply and Demand Outlook

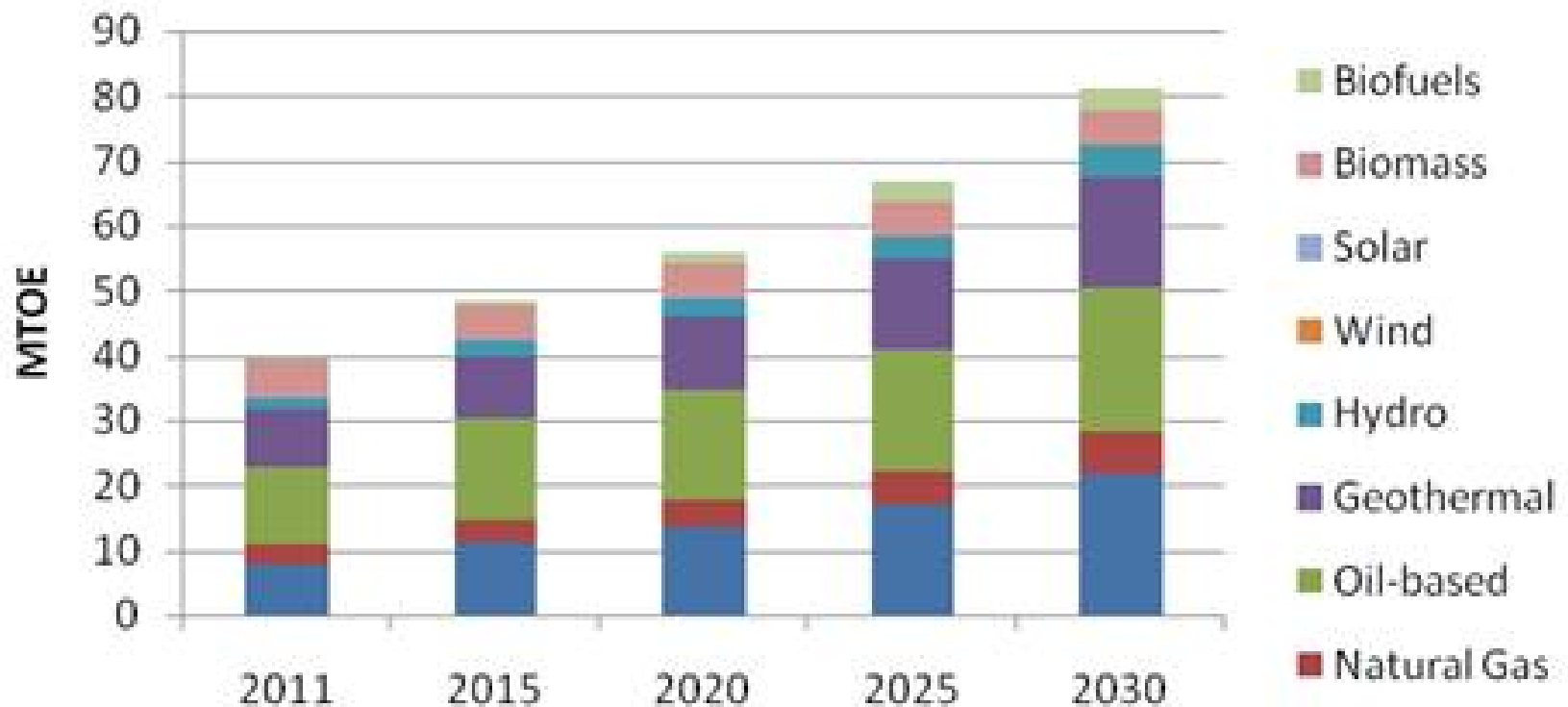
# Energy Demand and Supply Outlook

## Primary Energy Supply (BAU)



# Energy Demand and Supply Outlook

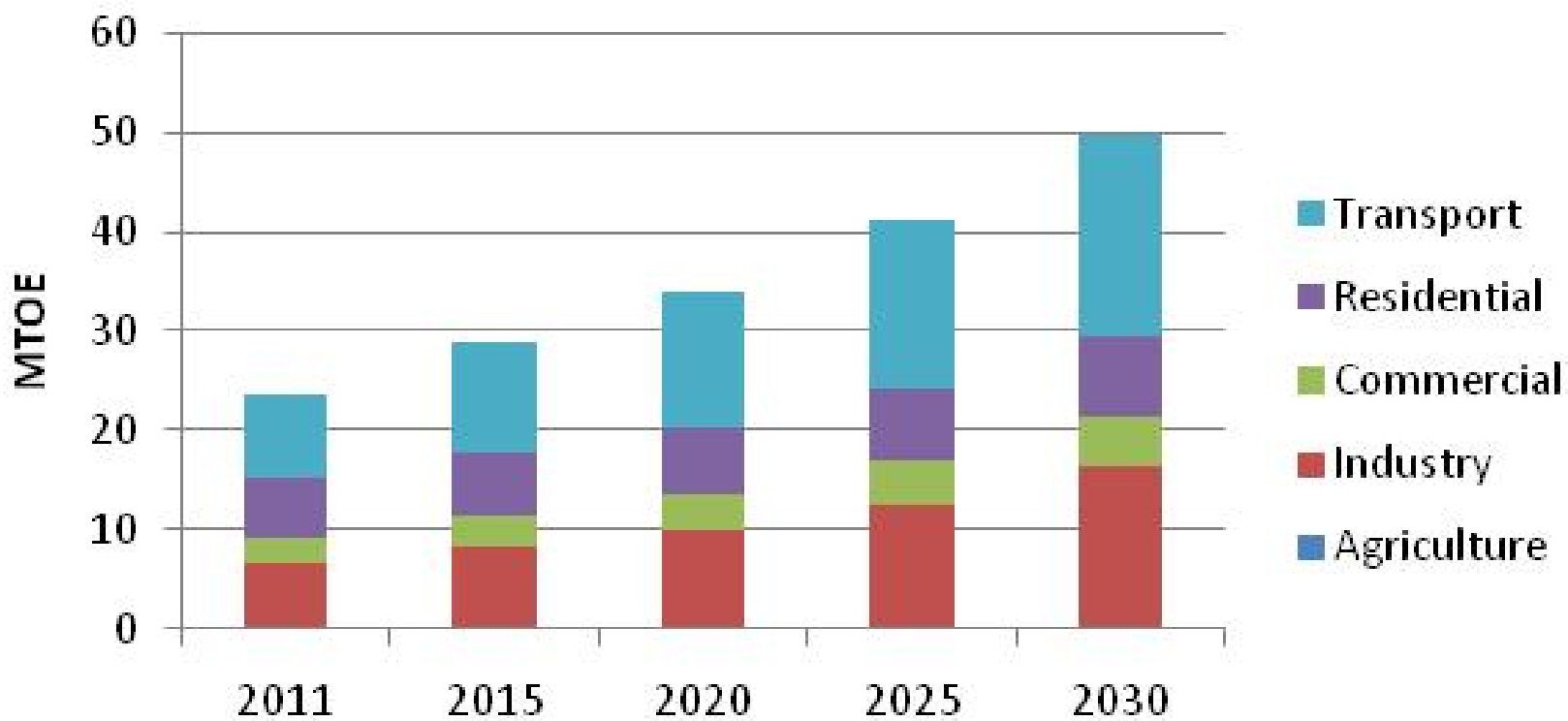
## Primary Energy Supply (GGS)





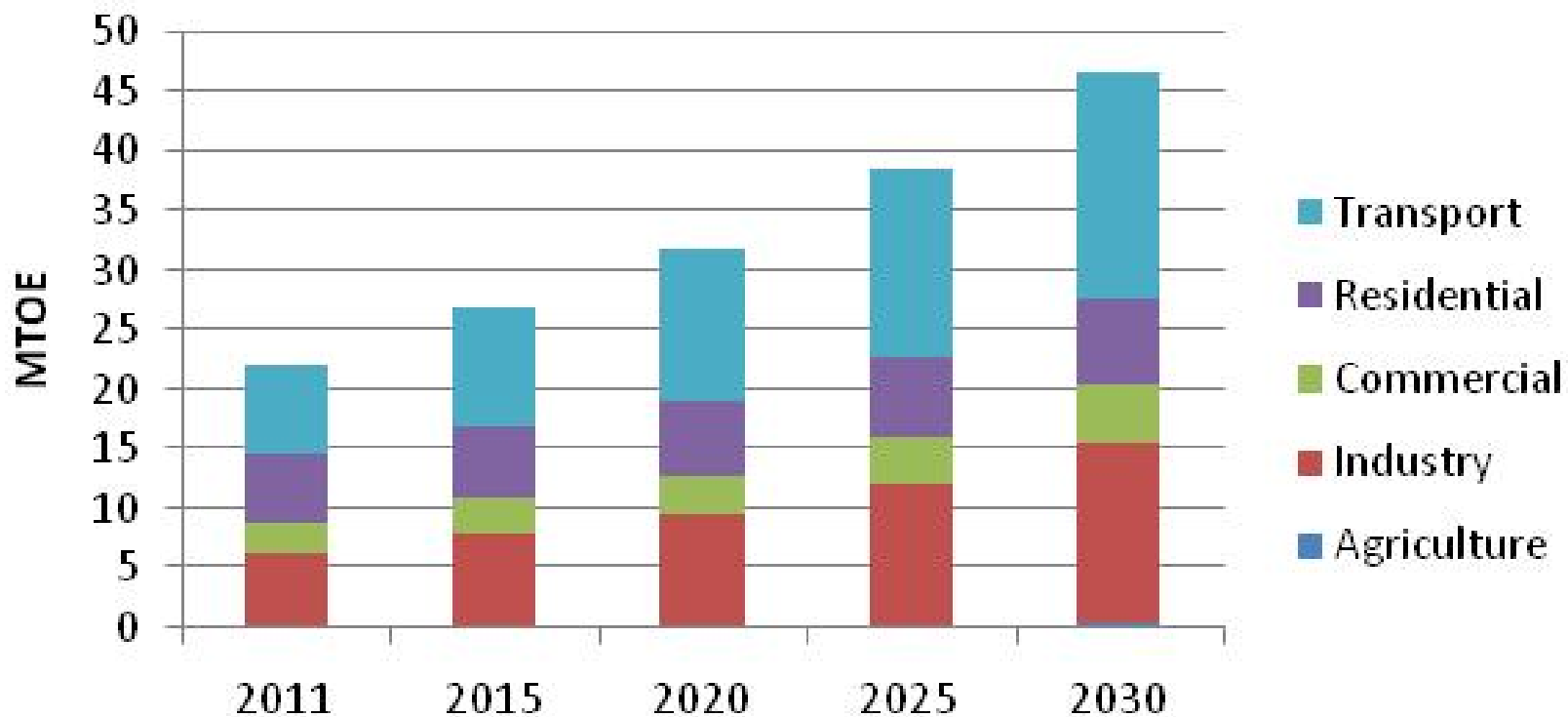
# Energy Demand and Supply Outlook

## Energy Demand by Sector (BAU)



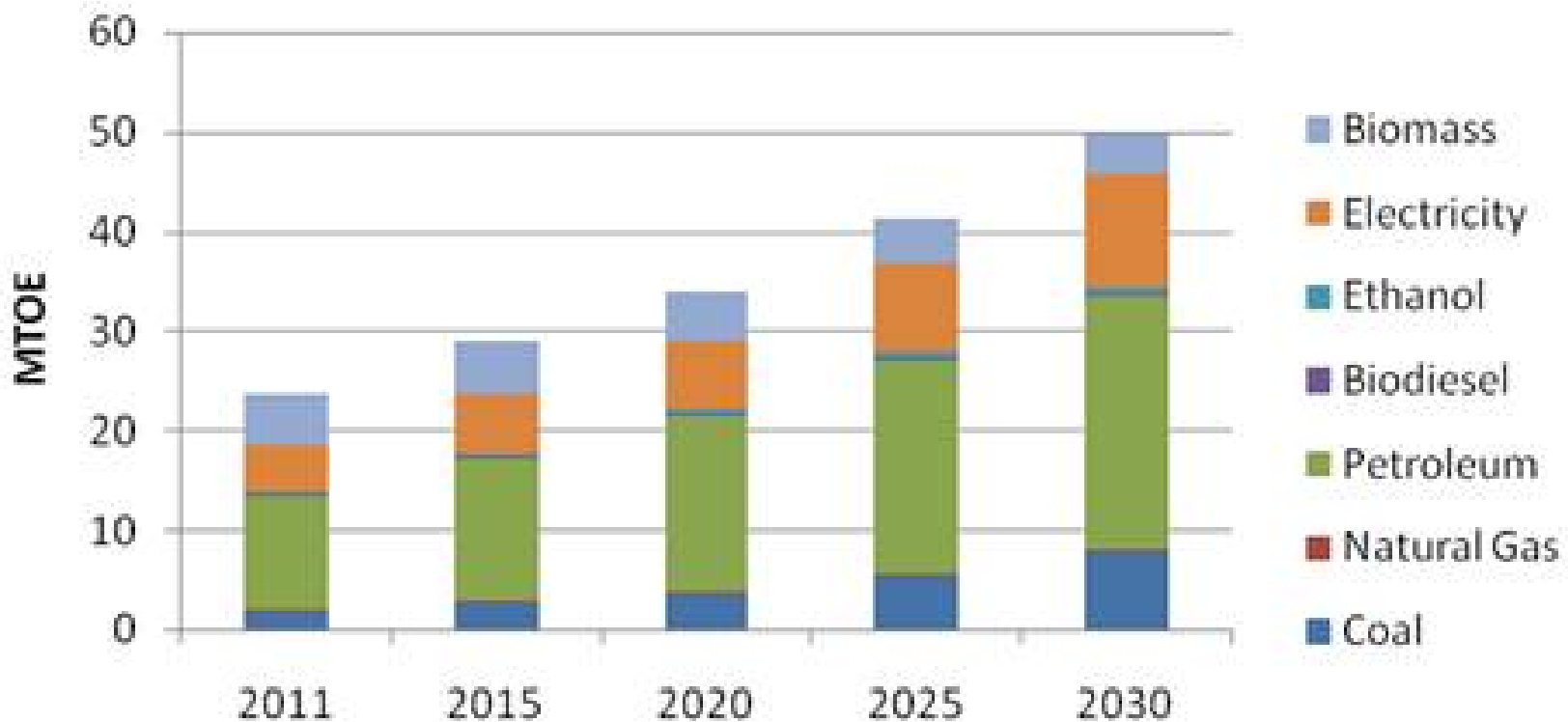
# Energy Demand and Supply Outlook

## Energy Demand by Sector (GGS)



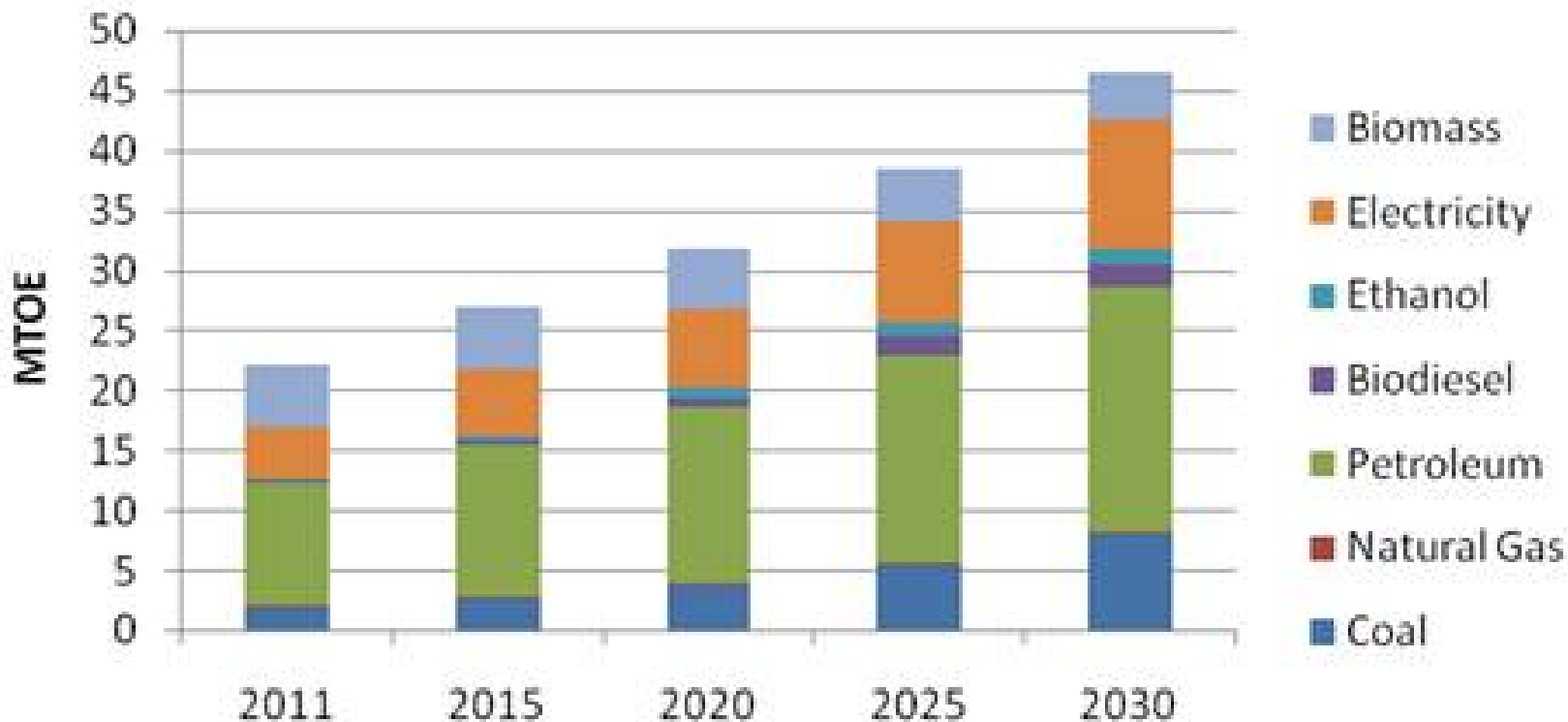
# Energy Demand and Supply Outlook

## Energy Demand by Fuel (BAU)



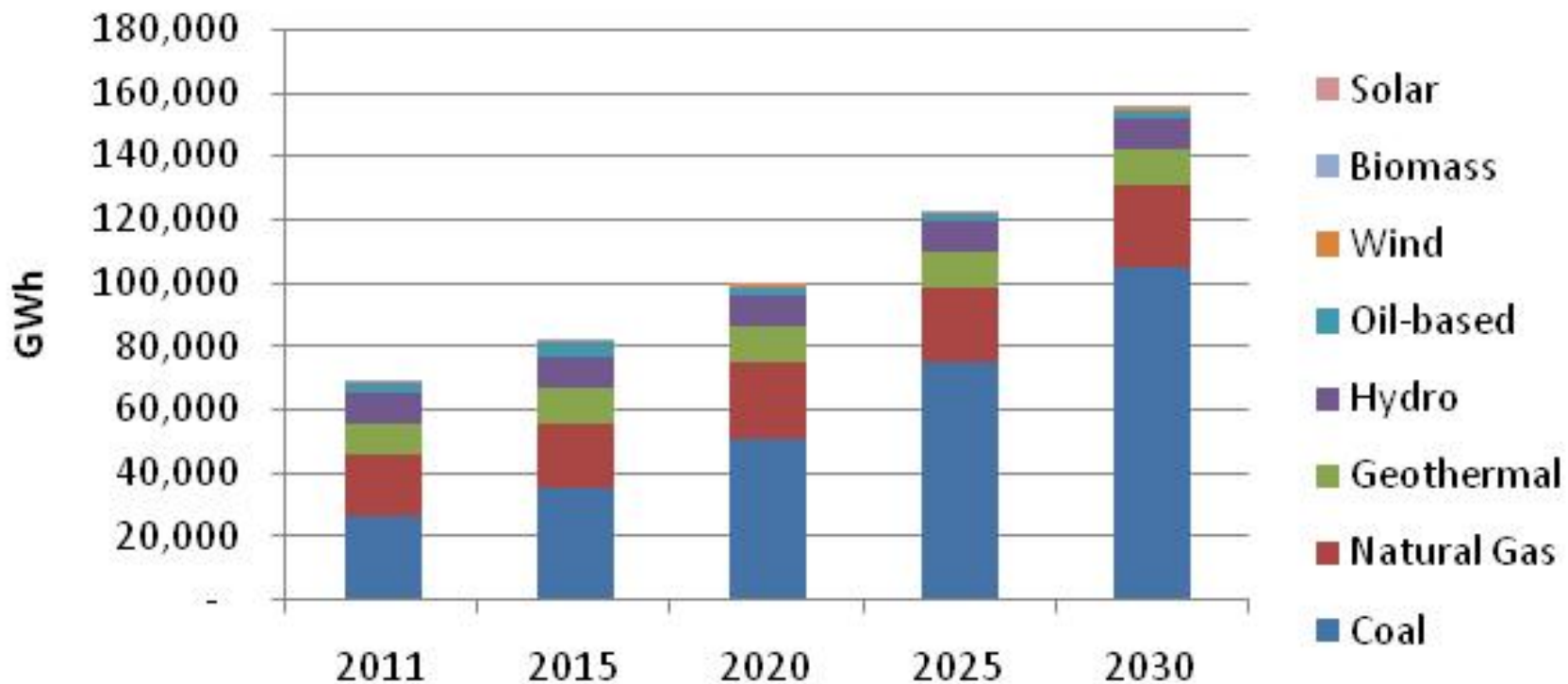
# Energy Demand and Supply Outlook

## Energy Demand by Fuel (GGS)



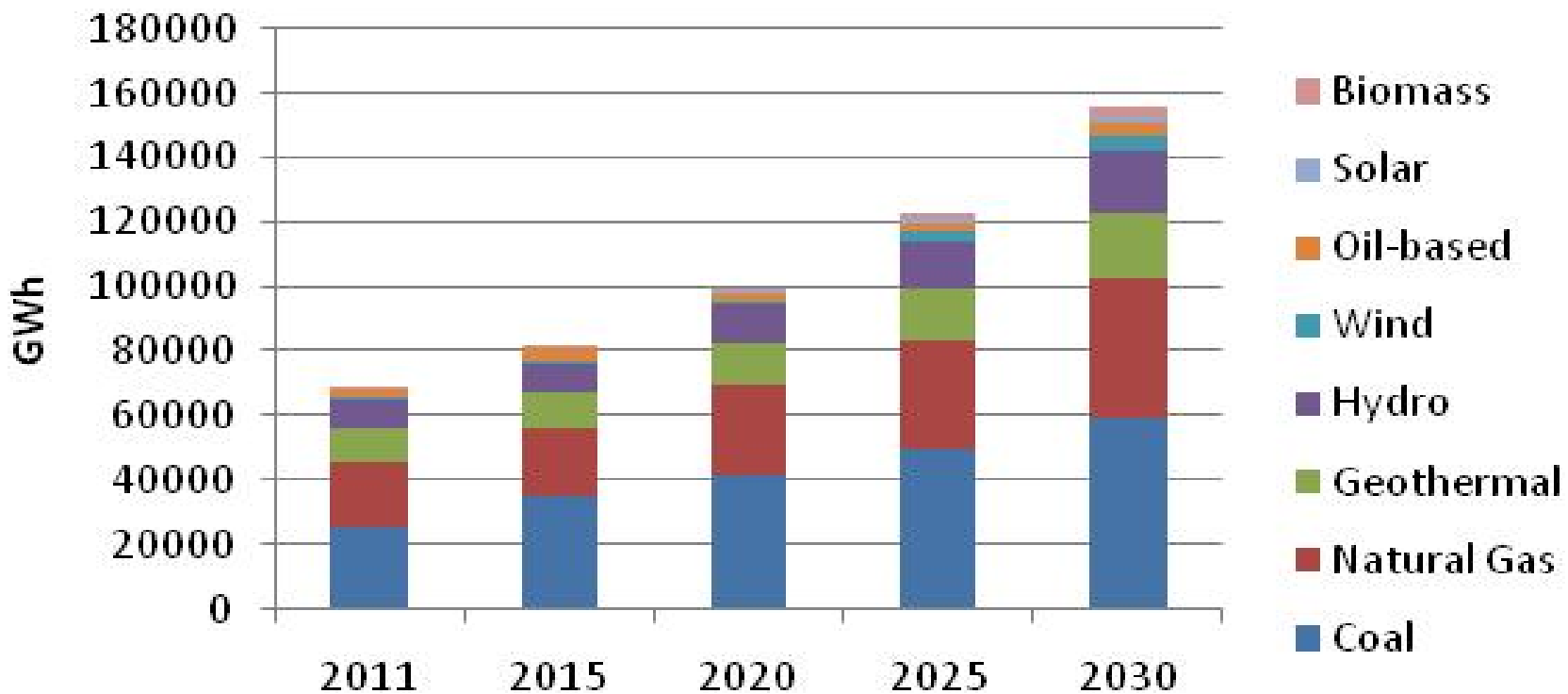
# Energy Demand and Supply Outlook

## Power Generation (BAU)



# Energy Demand and Supply Outlook

## Power Generation (GGS)





# Challenges in Policy Formulation and Subjects to be Studied

# Challenges in Policy Formulation

- ❑ Energy policies are sometimes not considered as national priority
- ❑ Lack of studies to support formulation of a proposed energy policy



# Subjects to be Studied

- Implementation of the Alternative Fuels Program
- Energy Efficiency and Conservation Policy
- Renewable Energy
- Nuclear Energy



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