

**INDONESIA:  
CURRENT ENERGY SITUATION  
and IT's 2050 VISION**

# CURRENT CONDITIONS

At present, energy conditions in Indonesia are as follows:

- There are great potential energy sources
- Society's access to energy is still limited
- Oil fuel consumption is 63% of total energy consumption
- Gas and coal prices are higher on the export market than on the domestic market, Domestic consumers have low purchasing power.
- The energy industry is not optimal
  - Limited energy infrastructure (Appendixes G1 s/d G4, pages 33-36)
  - Energy prices (such as for fuel, gas for fertilizer factories and new/ renewable energies) that are not commensurate with their economic value (Appendix H, page 40)
  - Inefficient energy utilization (Appendix I, page 41)

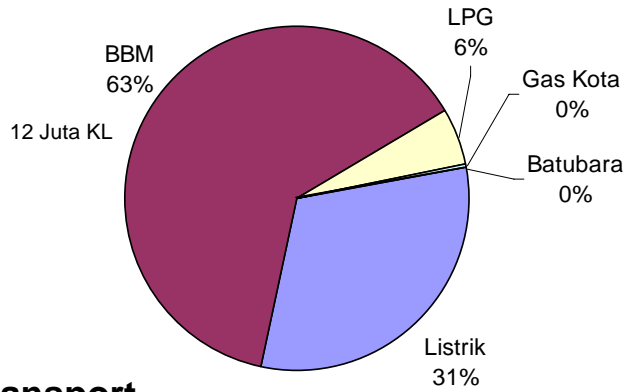
# EXPECTED CONDITIONS

- Rational Energy prices
- Society's access to energy
- Better economic conditions will increase society's purchasing power
- Security of energy supply (Balanced Energy Mix)

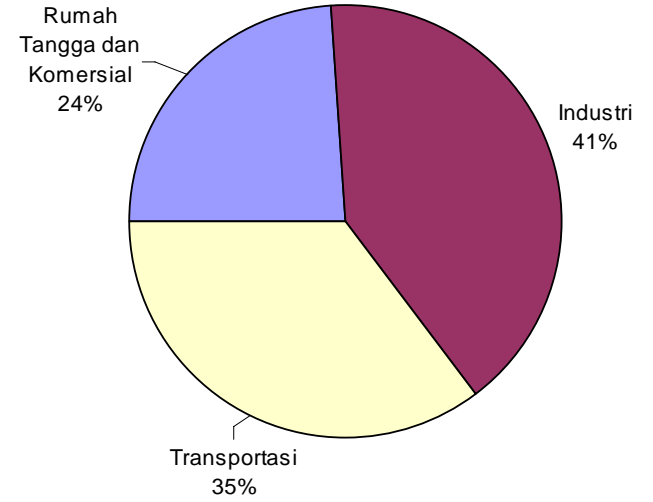


# FINAL ENERGY CONSUMPTION 2005

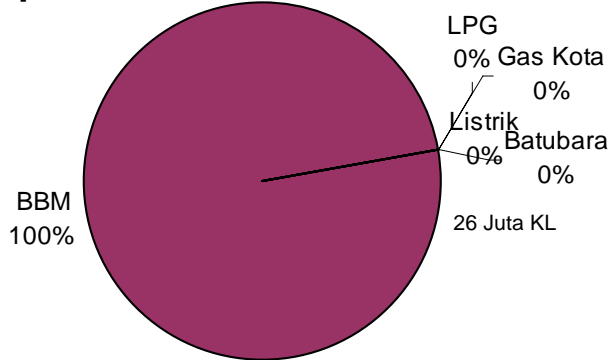
## Household&Comercial



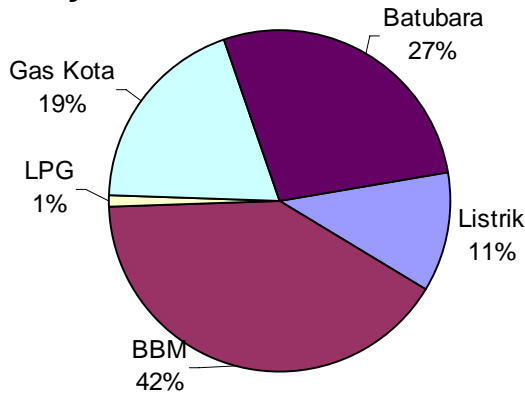
## by Sector



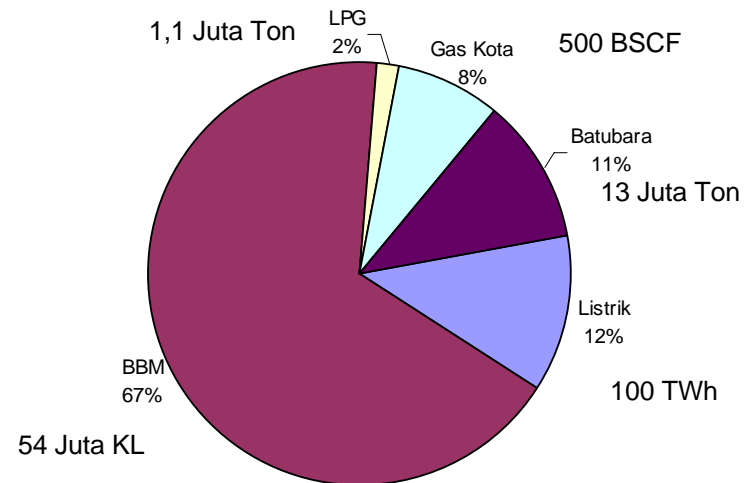
## Transport



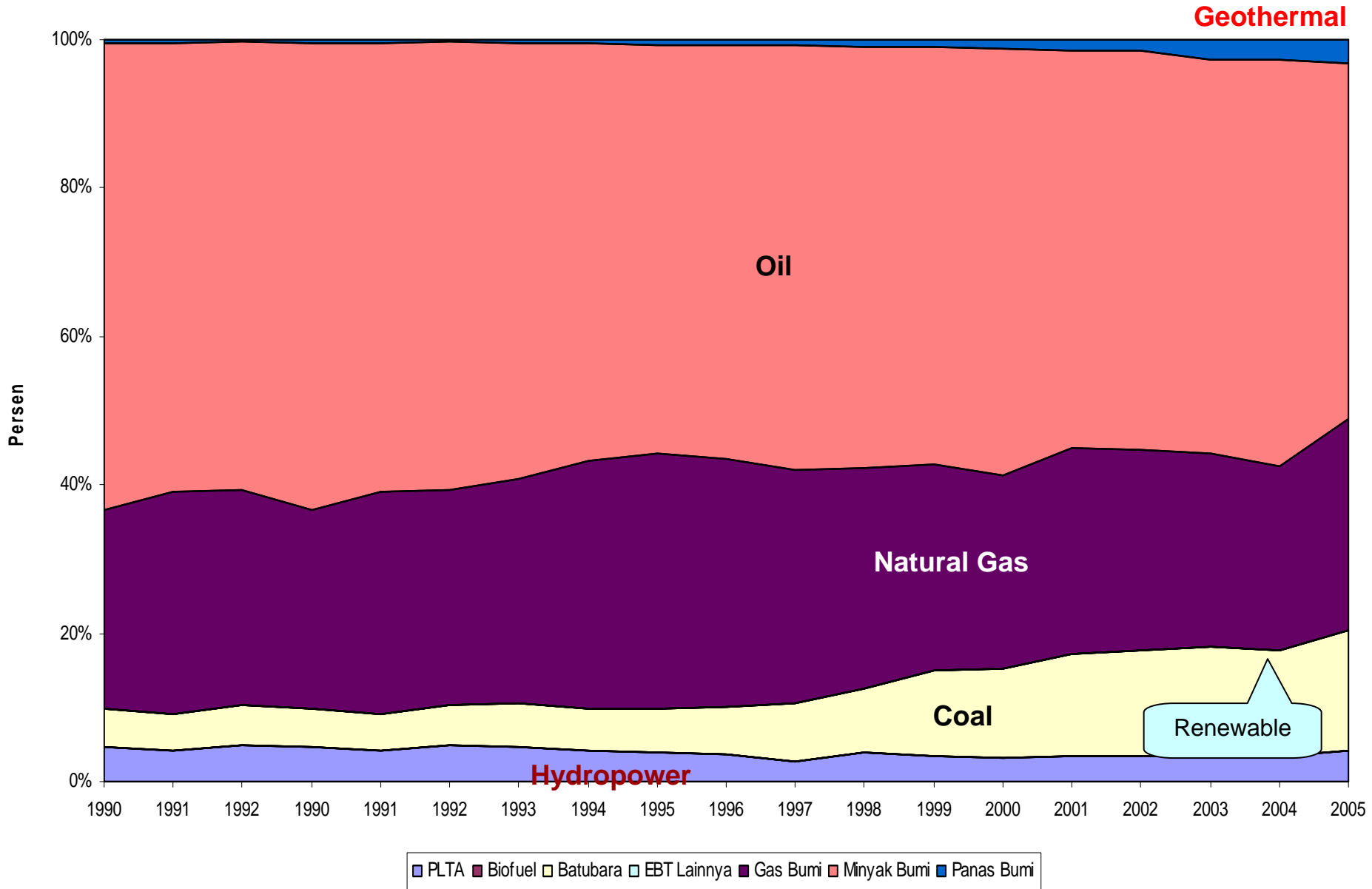
## Industry



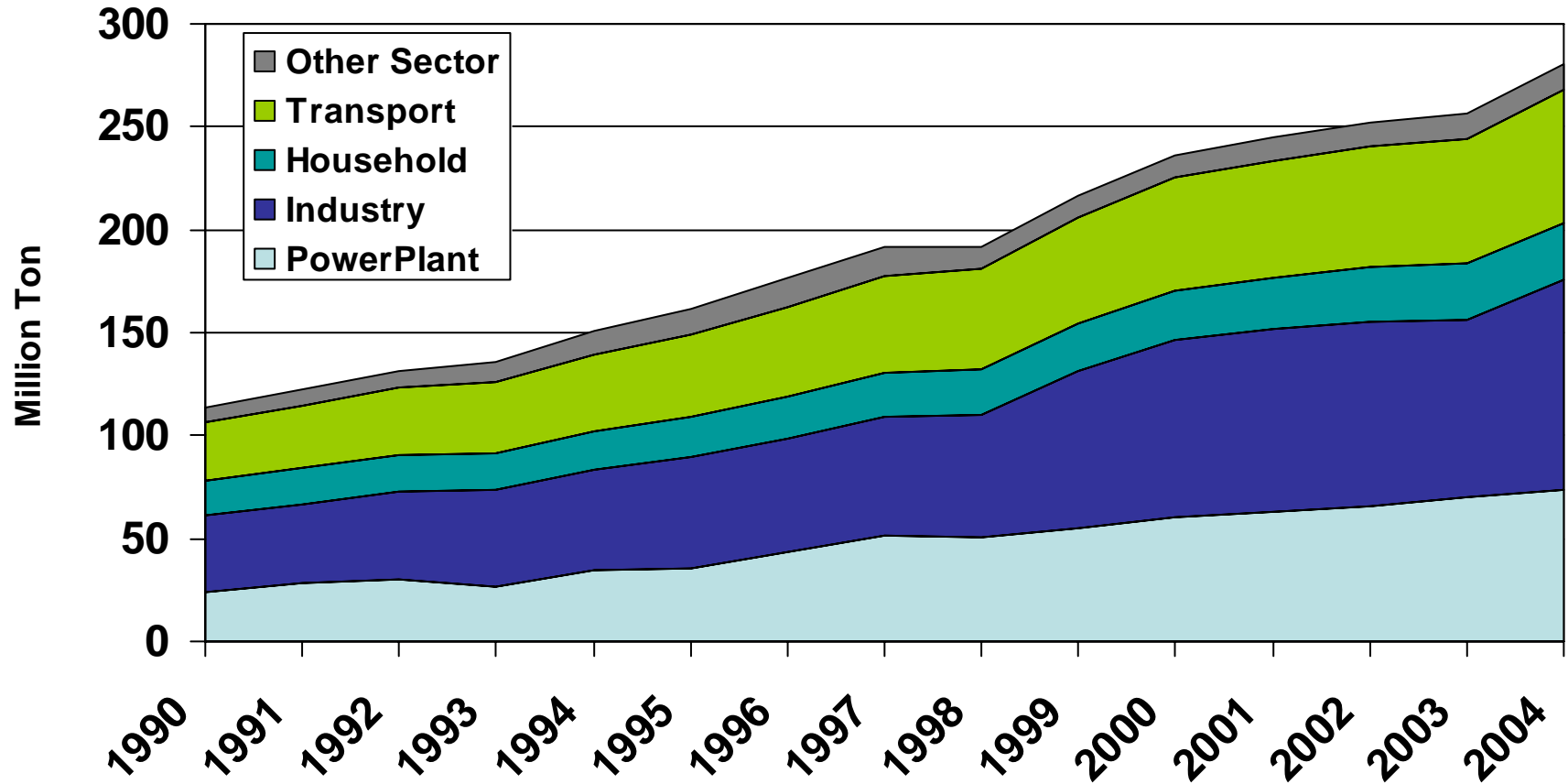
## By Fuel Type



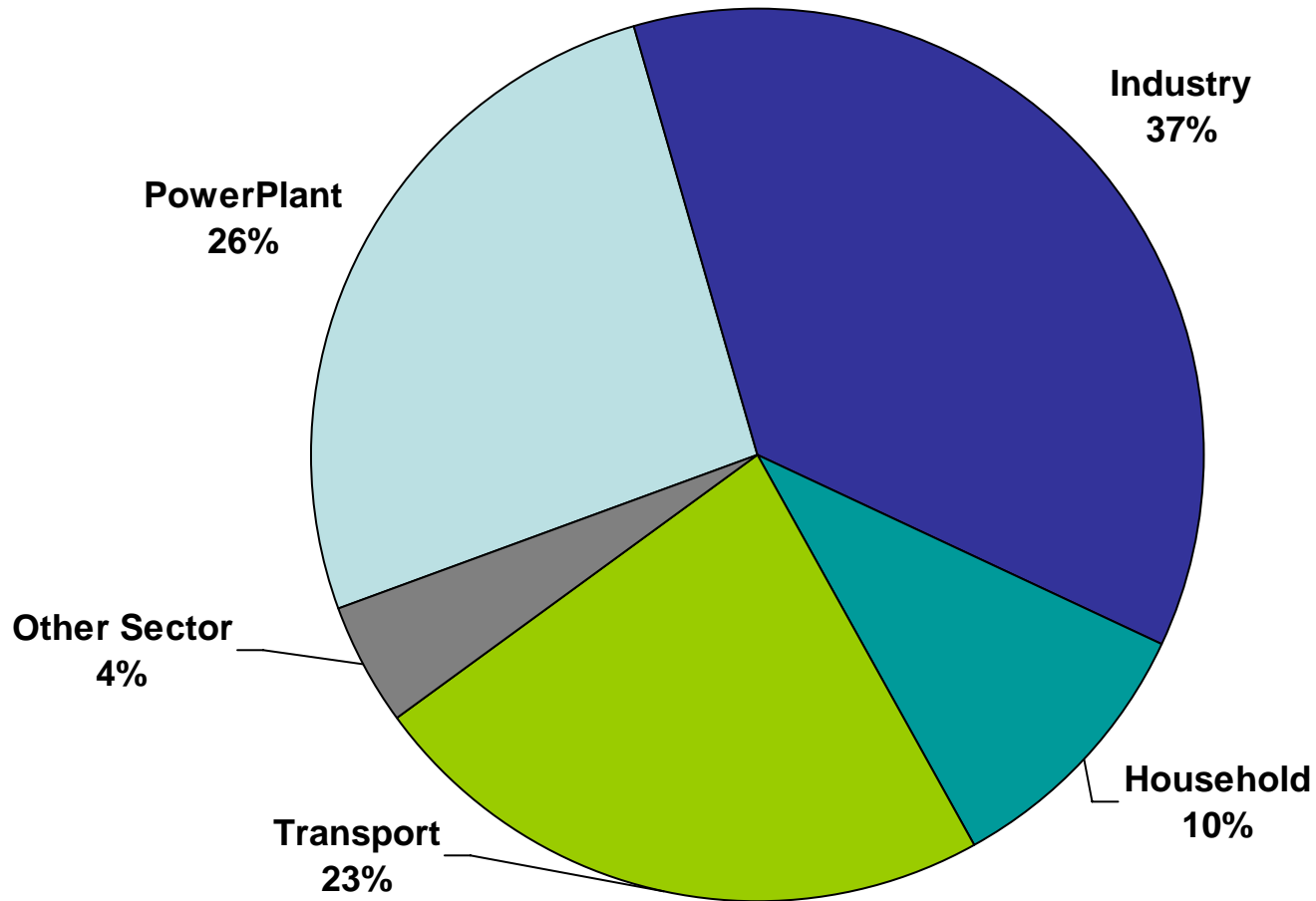
# Trend of Indonesia Primary Energy Mix



# CO<sub>2</sub> Emission from Energy Utilization



# 2005 CO<sub>2</sub> Emission by Sources



# NATIONAL ENERGY POTENTIALS 2004

TYPES OF FOSSIL-BASED ENERGY	RESOURCES	RESERVES (Proven + Possible)	PRODUCTION (per annum)	CAD/PROD RATIO (without exploration) Years
Oil	86.9 billion barrels	9 billion barrels	500 million barrels	18
Gas	384.7 TSCF	182 TSCF	3.0 TSCF	61
Coal	57 billion tons	19.3 billion tons	130 million barrels	147

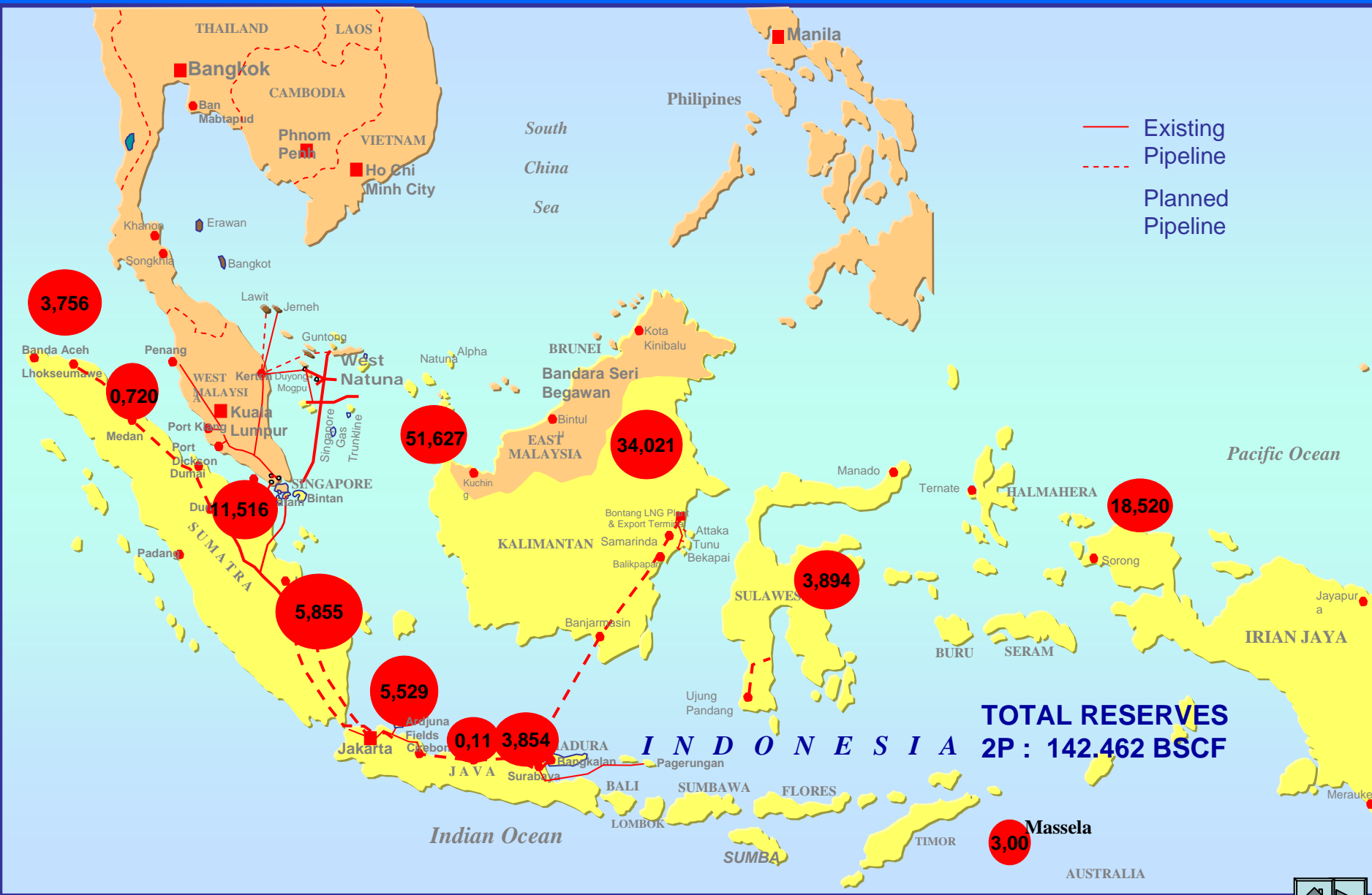
NON-FOSSIL ENERGY	RESOURCES	EQUAL TO	USAGE	INSTALLED CAPACITY
Hydroelectric power	845.00 million BOF	75.67 GW	6,851.00 GWh	4,200.00 MW
Geothermal power	219.00 million BOF	27.00 GW	2,593.50 GWh	800.00 MW
Mini/Micro hydro	458.75 MW	458.75 MW		84.00 MW
Biomass		49.81 GW		302.40 MW
Solar energy		4.80 kWh/m <sup>2</sup> / day		8.00 MW
Wind power		9.29 GW		0.50 MW
Uranium (Nuclear)	24.112 Tons* e.q. 3 GW for 11 years			

\* Only in the Kalan region – West Kalimantan





# RESERVES AND NETWORKS OF GAS PIPELINES



● GAS RESERVE 2P (BSCF)



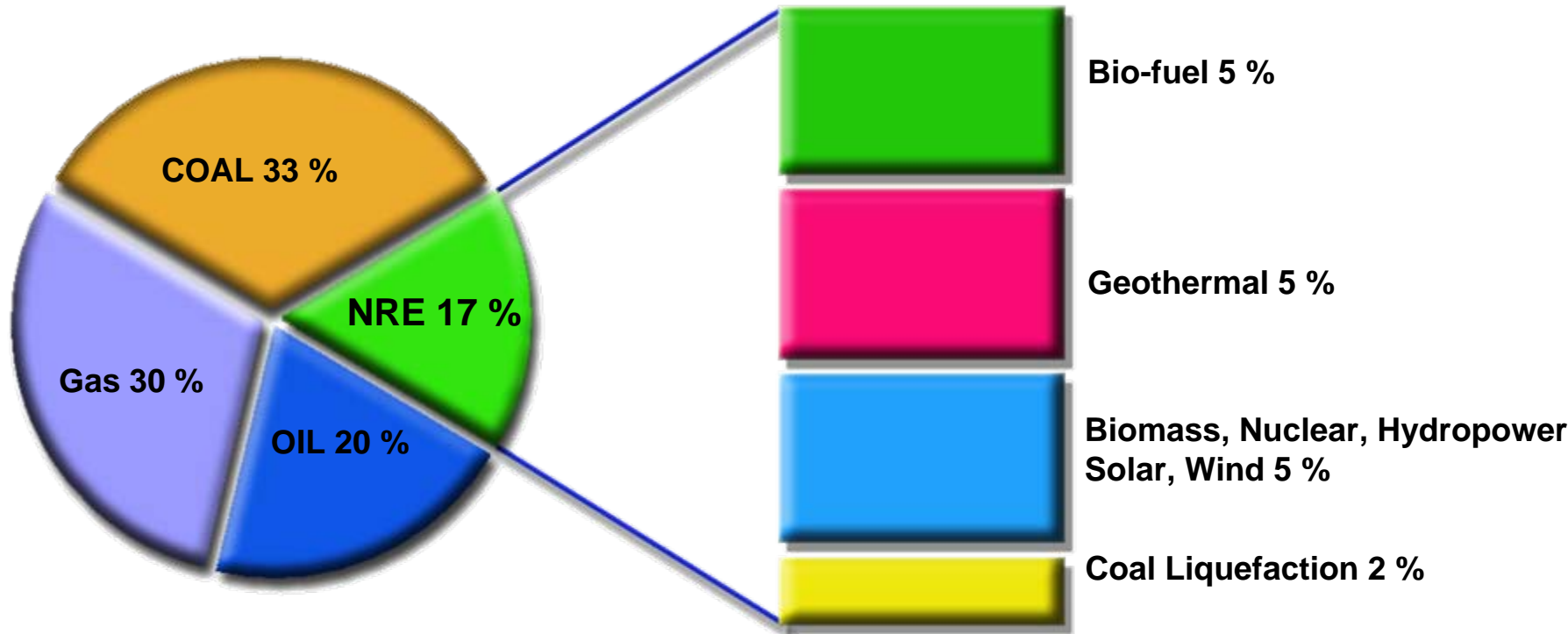


# TARGETS:

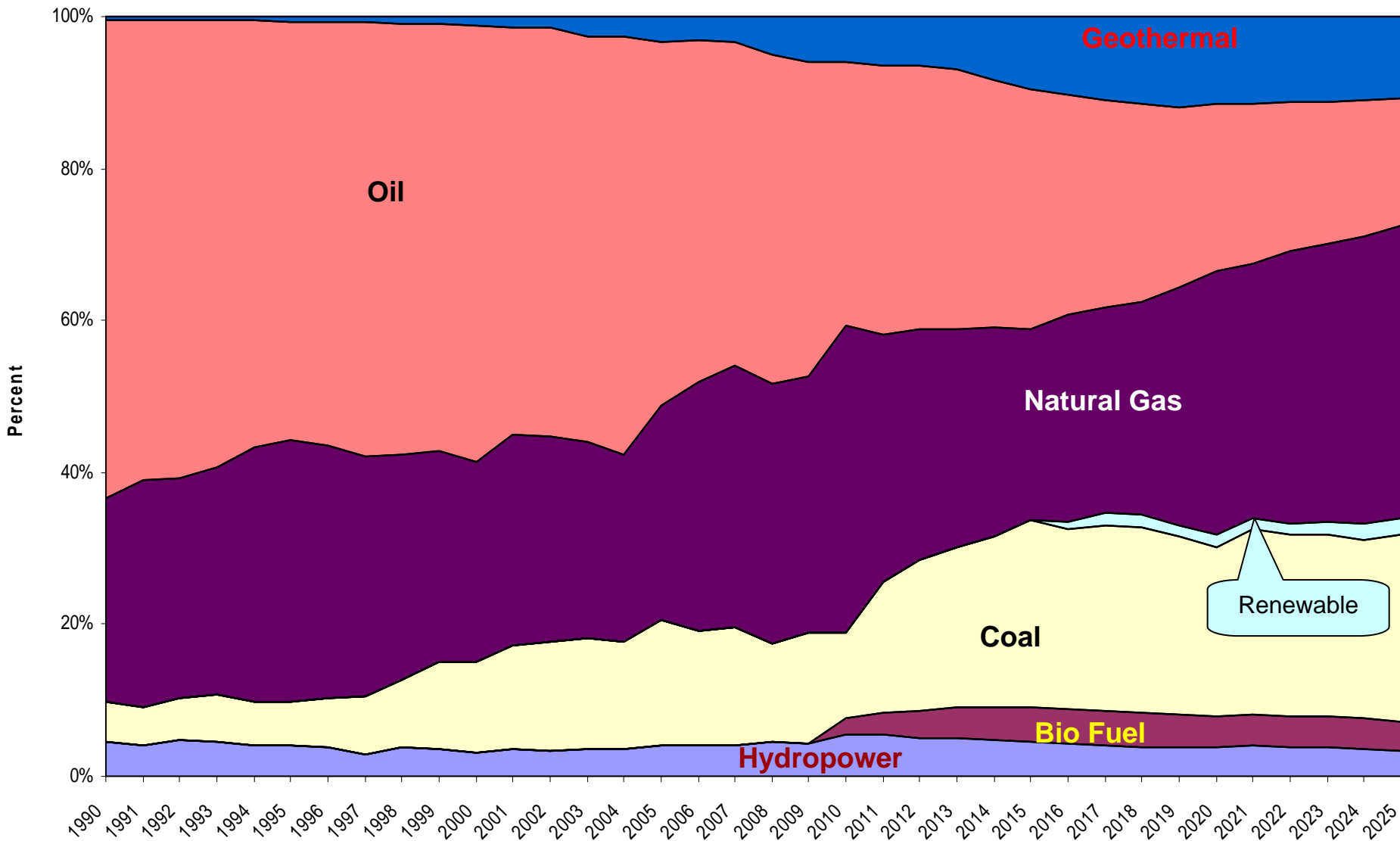
1. Per-capita energy consumption of a minimum of 10 BOE (RIKEN) and 95% electrification ratio 95% (RUKN) in the year 2025
2. To achieve the security of domestic energy supply, through:
  - Energy elasticity less than 1 in the year 2025
  - An optimal (primary) energy mix in 2025 :
    - The role of oil decreases to 26.2%
    - The role of natural gas increases to 30.6%
    - The role of coal increases to 32.7%
    - The role of geothermal power increases to 3.8%
    - The role of new and renewable sources of energy increases to 4.4%
  - The fulfillment of fossil-based domestic energy supply through the gradual reduction of exports

# NATIONAL ENERGI MIX TARGET FOR THE YEAR 2025

(GR No. 5 / 2006)

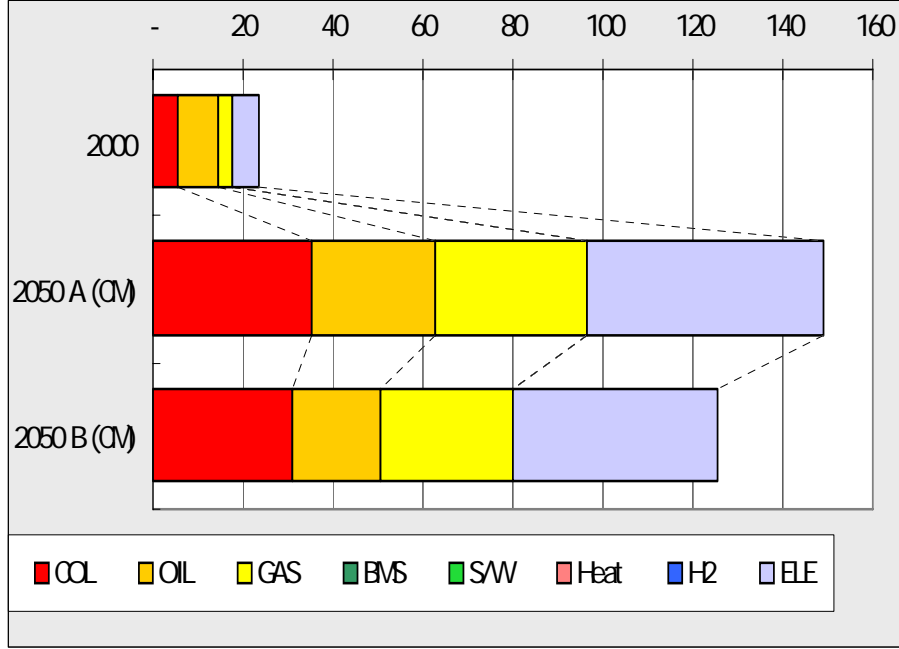
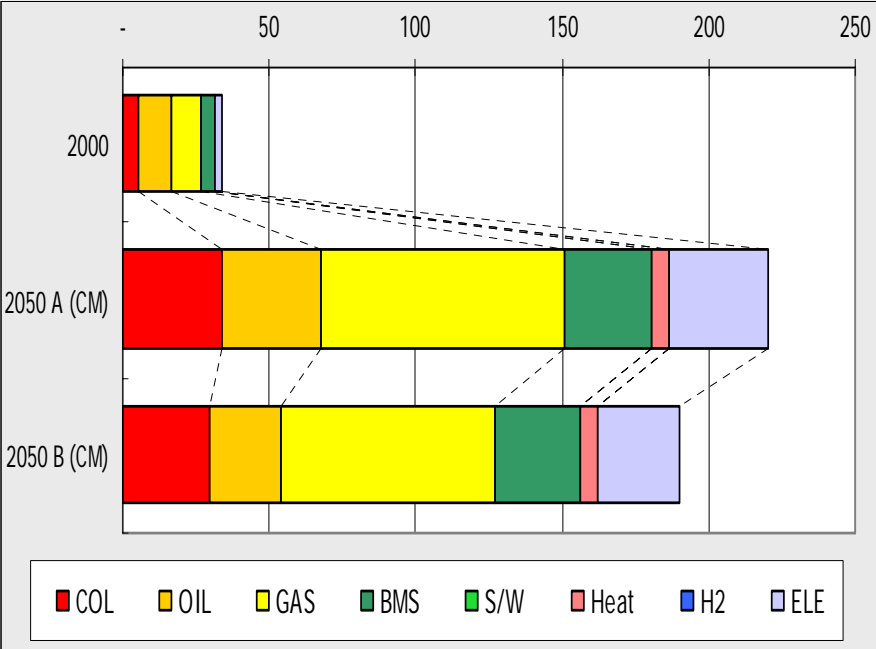


# Projected Trends of Indonesia Primary Energy Mix



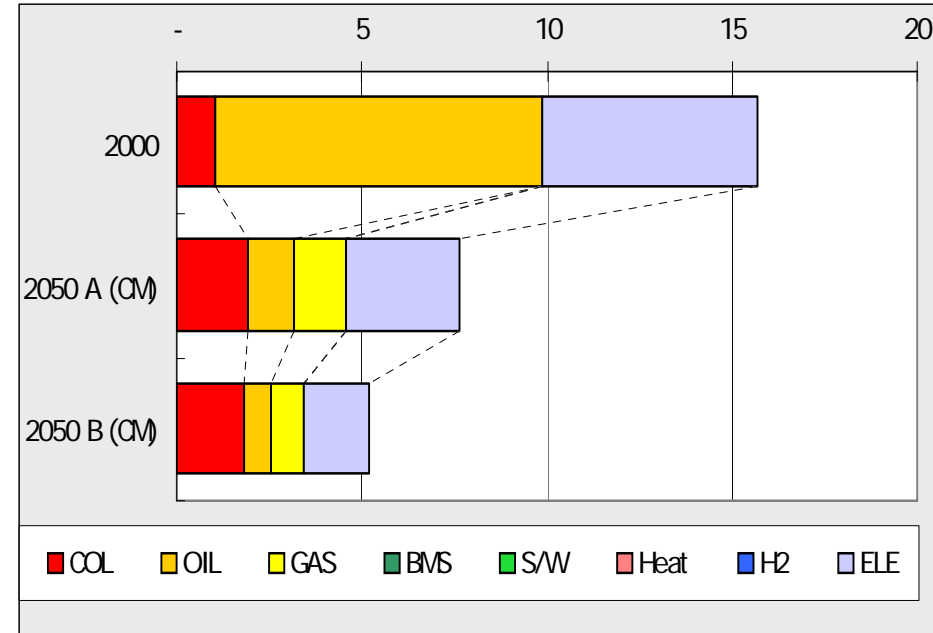
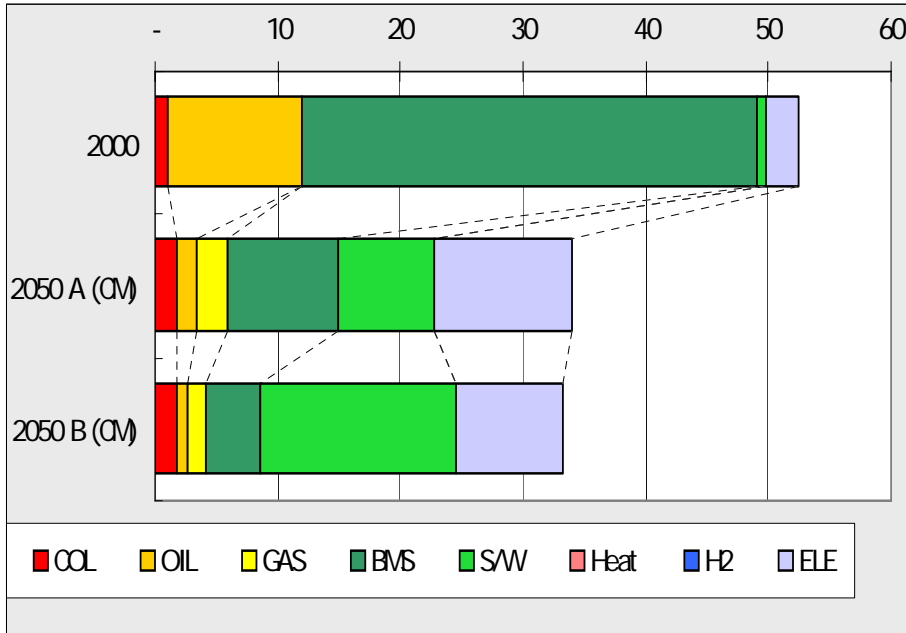
# Energy Snap-Shot

# Energy Snap-Shot Industrial Sector



Skenario	A	B
Economic (VA)	increase 4% p.a	increase 4% p.a.
Energy Mix	Oil Reduction (50%)	Oil Reduction (60%) + New Technology
Efficiency Increase	Fuel 10%, Ele 25%	Fuel 25%, Ele 50%

# Energy Snap-Shot Residential Sector



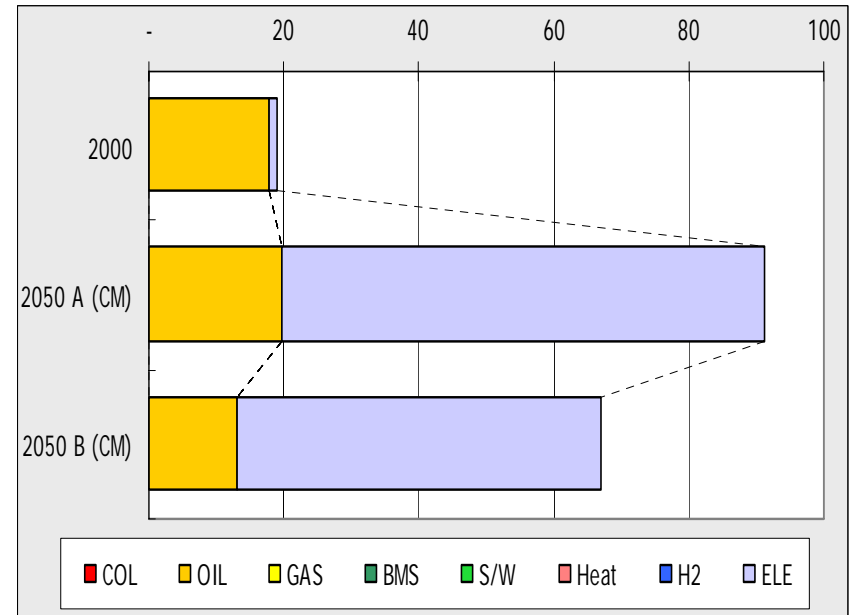
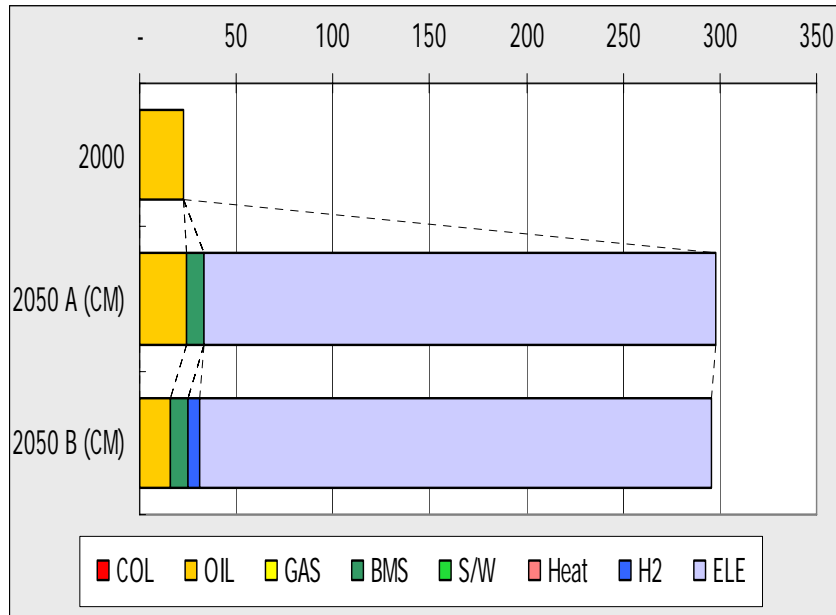
Energy consumption in Residential sector (Mtoe)

CO2 emission in Residential sector with allocated emission from heat, H2, electricity (MtC)

Skenario	A	B
Growth Rate	Cooling 1.5%, Cook(S) 1%, Hot Wtr 0.5%, Cook(E) 1.5%, Lighting (2%), Appliance (2.5%)	
Energy Mix	Oil Reduction; Changed of Non Commercial F	A + Advanced Tech. Hot Water, Cooking, etc
Efficiency Increase	20%	25%



# Energy Snap-Shot Transport Sector

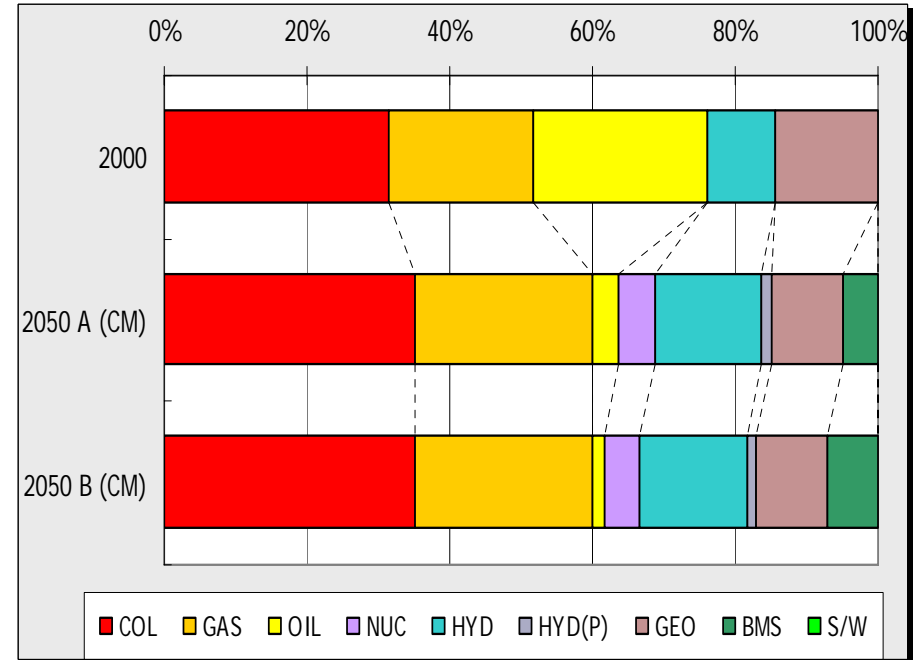
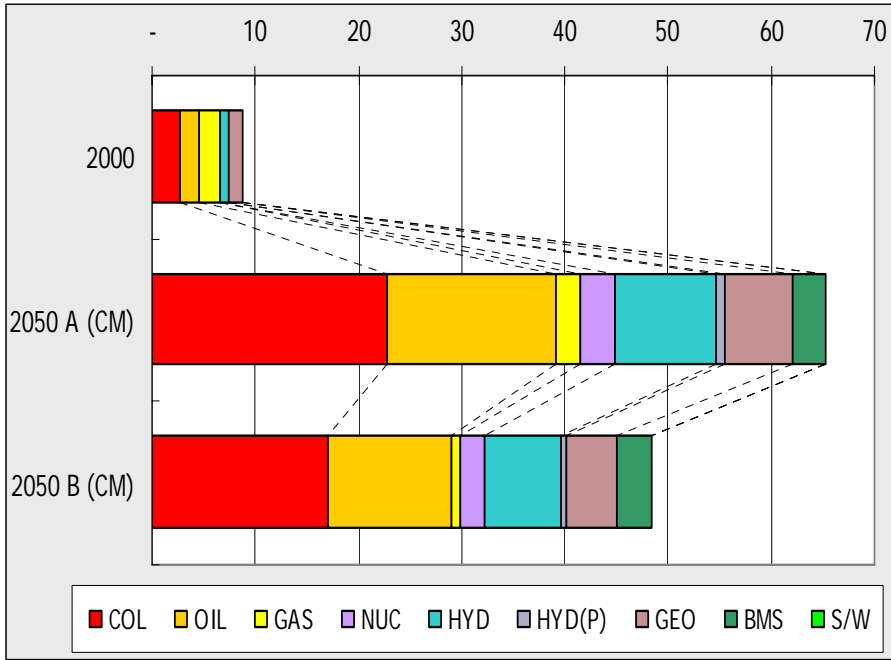


Energy consumption in Transport sector (Mtoe)

CO2 emission in transport sector with allocated emission from heat, H2, electricity (MtC)

Skenario	A	B
Growth Rate	Private car 1%, Commercial 5%, Bus 2.5%, Train 10%, Ship 2.5%, Air 2.5%	
Energy Mix	Introducing Bio Fuel	Introducing BioFuel + Hydrogen
Efficiency Increase	Reguler 300%, Hydrogen 400%, Electric 500%	

# Energy Snap-Shot Power Generation

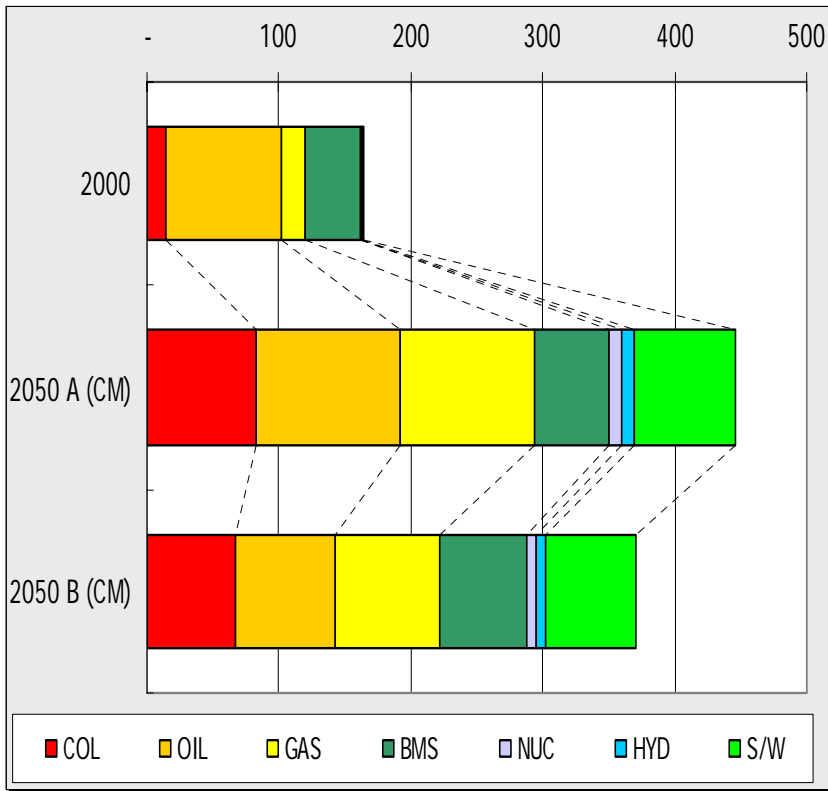


Energy consumption in Transport sector (Mtoe)

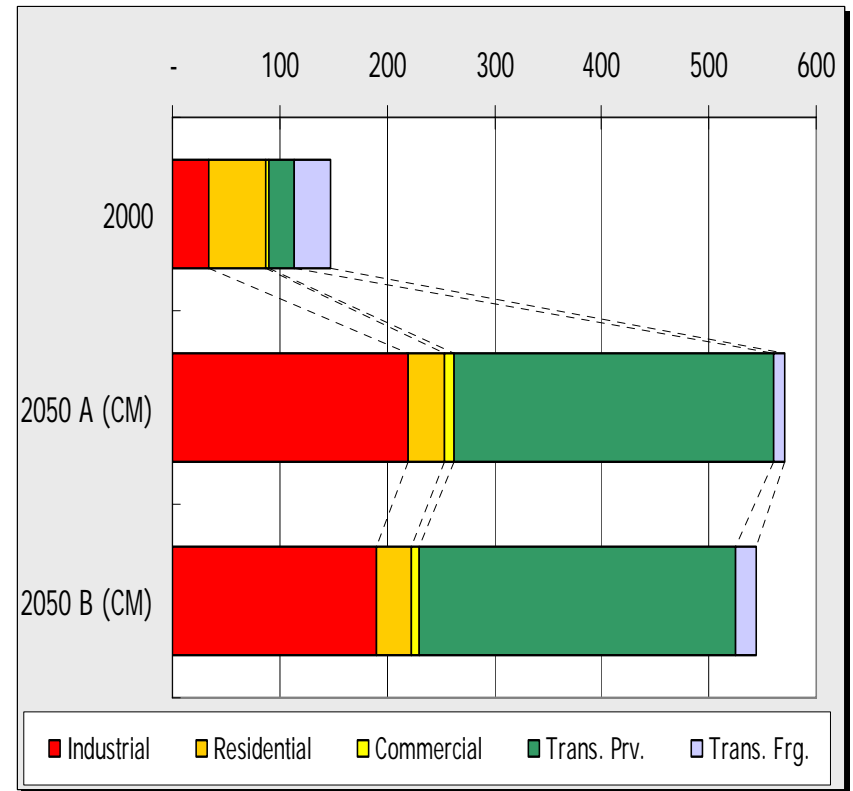
CO2 emission in transport sector with allocated emission from heat, H2, electricity (MtC)

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# Energy Demand Projection

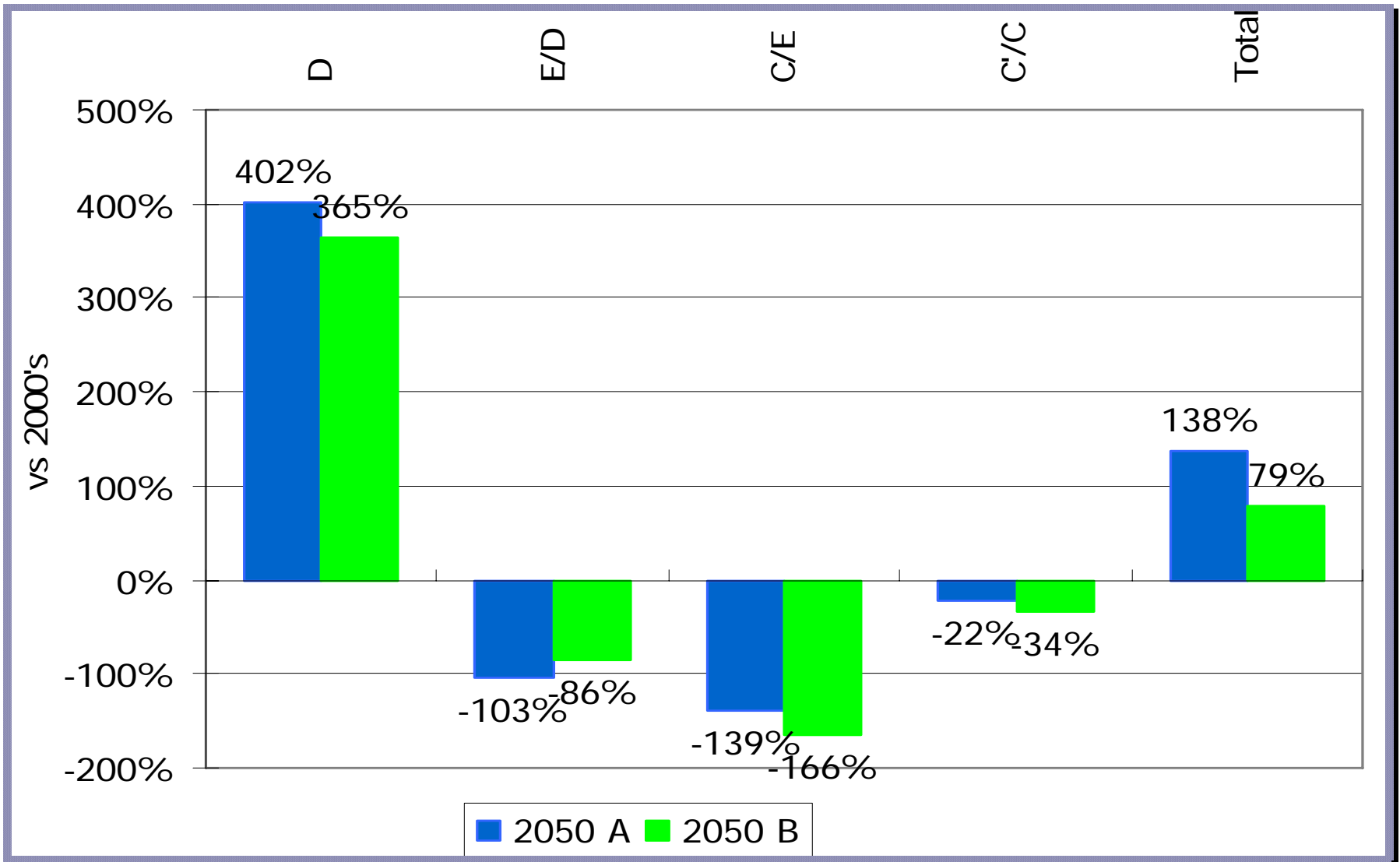


Primary Energy (Mtoe)



Final Energy (Mtoe)

# Factor Analysis Total



AIM/End-use

# Oil Subsidy Reduction for Residential Oil Used

## Residential Energy Service Requirement

### **Cooking -> devices**

Kerosene Stove

Gas Stove

Biomass Stove

Electric Stove

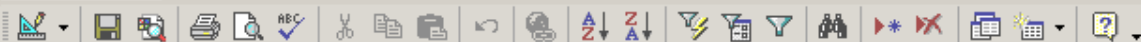
### **Lighting -> devices**

Incandescent Bulb

Compact Fluorescent Lamp

Kerosene Lamp

### **Electric Appliances**



Go C:\AIM\_Enduse\Data\indonesia.mdb

# AIM/Enduse Database System ver 2.0

Technology : Form

## Energy Device Data

Update factor of energy device with checking

Energy Device Code *	Energy Device Name	Life Time *	Device Unit	Specific Service Output (/year/device unit) *		Fixed Cost *	Specific Energy Co
				Name	Quantity		
3 ST_KE	KEROSENE STOVE	5			100	30	[EN_KE] KEROSENE
4 ST_FW	FIREWOOD STOVE	2			100	10	[EN_FW] FIREWOOD
8 LH_BUL	INCANDESCENT BULB	1	1kWh	[HH_Li] Household Lighting (GJ)	100	100	[EN_EL] Electricity
9 LH_CFL	COMPACT FLUORESCENT LAMP	2	4Watt	[HH_Li] Household Lighting (GJ)	400	2000	[EN_EL] Electricity



ERROR 011 in 'Stock in Start Year (AS)' table  
Null is found in the following field.

Field Name = Mixture of Removal Process Code

OK

Cost=US\$, Energy Consumption=GJ

exit, data is updated automatically in this table and "Stock" table with using data in "Improvement of energy device" table.

rd Source : Technology



### Technology

Energy Device Data (Tabular)

- Tax / Regulation Class.
- Group for Tax / Regulation
- Tax / Regulation

AIM/Enduse GIS System



Form View