THAILAND'S ENERGY SITUATION AND MAJOR CHALLENGES

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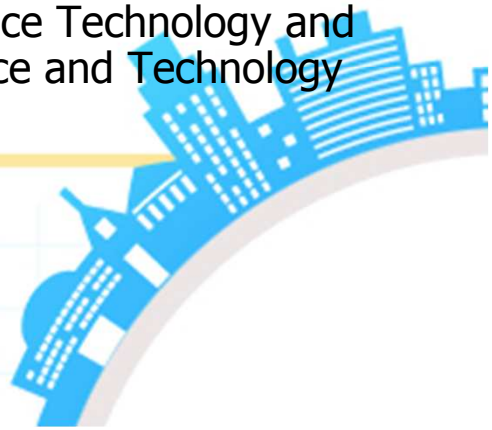
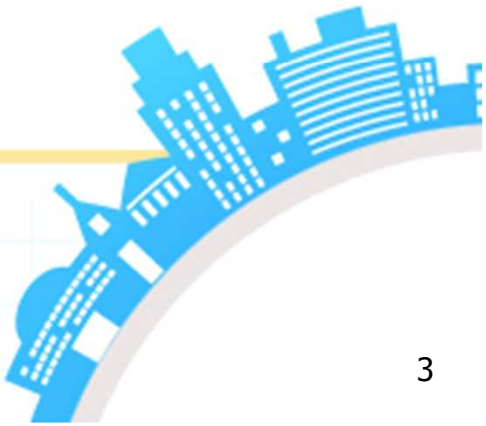


Outline

- Thailand's Energy Situation and Main Energy Problems
- Energy Policies and Plans
- CO_2 – Reduction Outlook
- Science, Technology and Innovation Needs

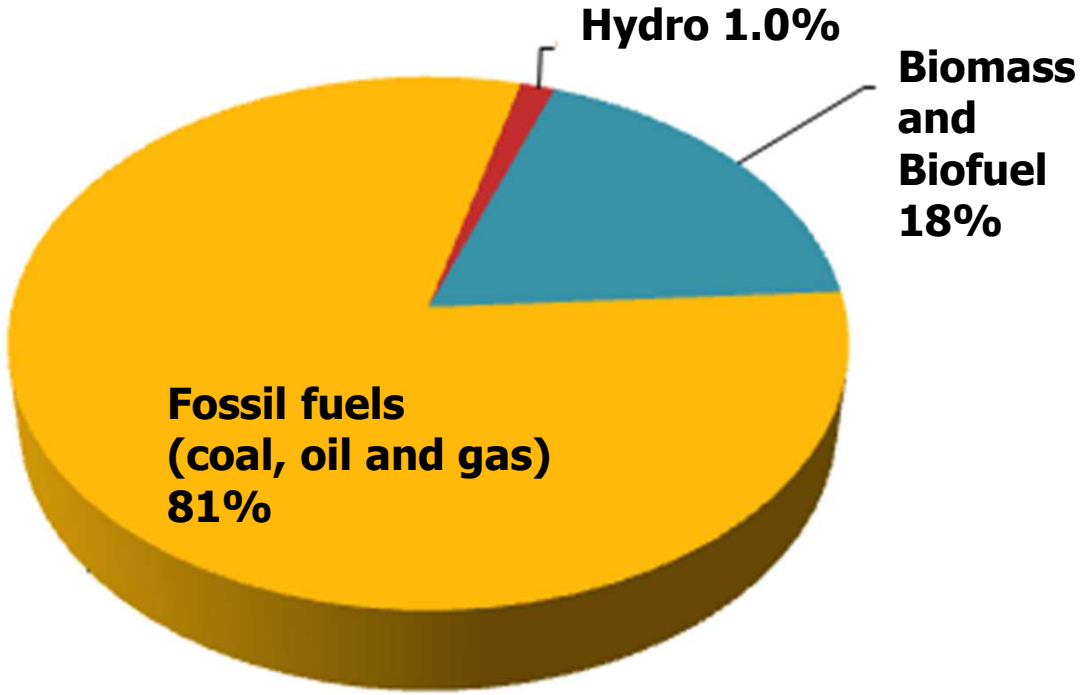
Thailand's Energy Situation and Main Energy Problems



Thailand's Energy Situation and Main Energy Problems

- **Thailand Primary Energy Consumption (PEC)**

Total Thailand Primary Energy Consumption in 2008: 110 Mtoe

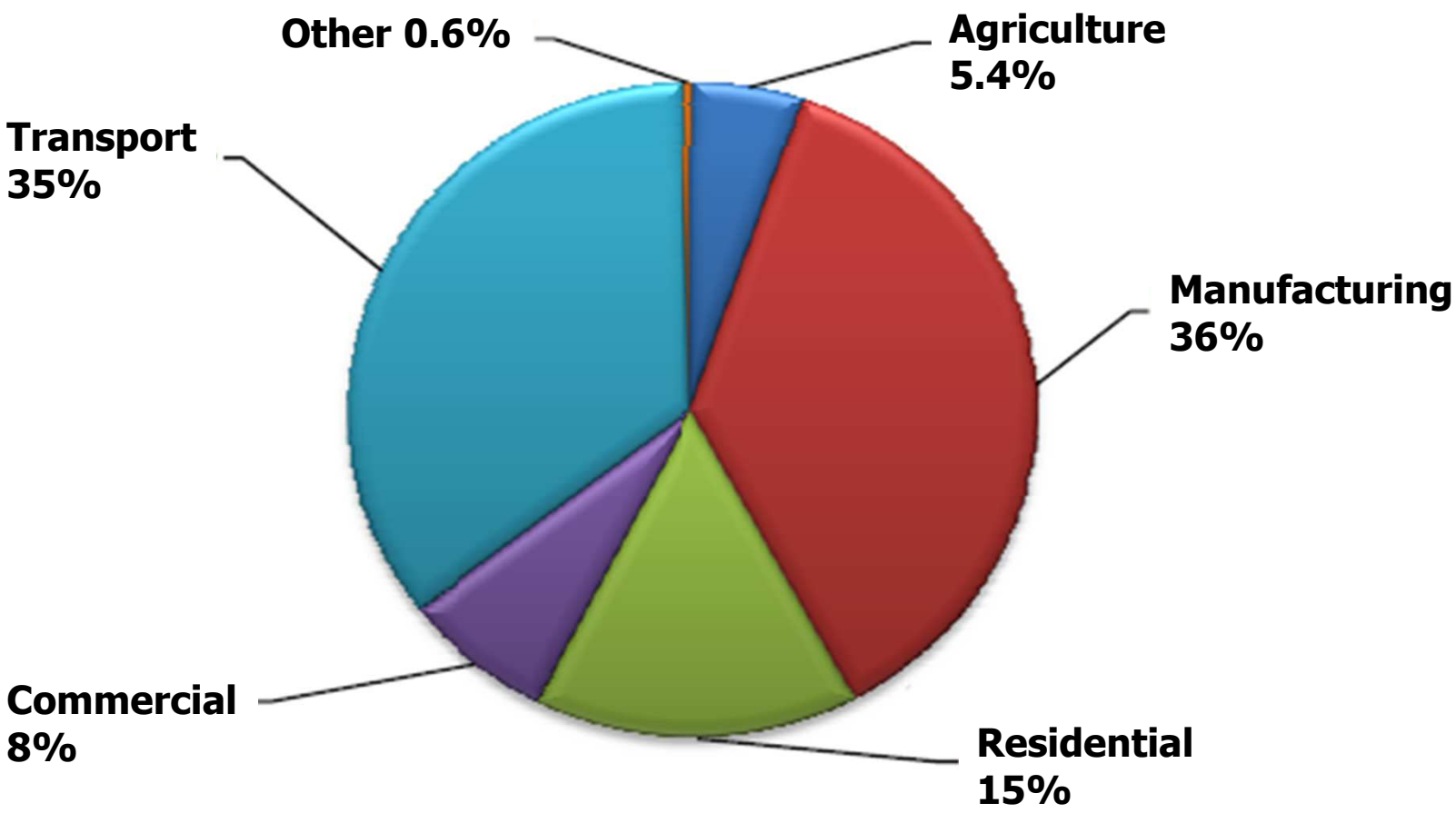


(Source : Thailand Energy Situation, DEDE, 2010)

Thailand's Energy Situation and Main Energy Problems

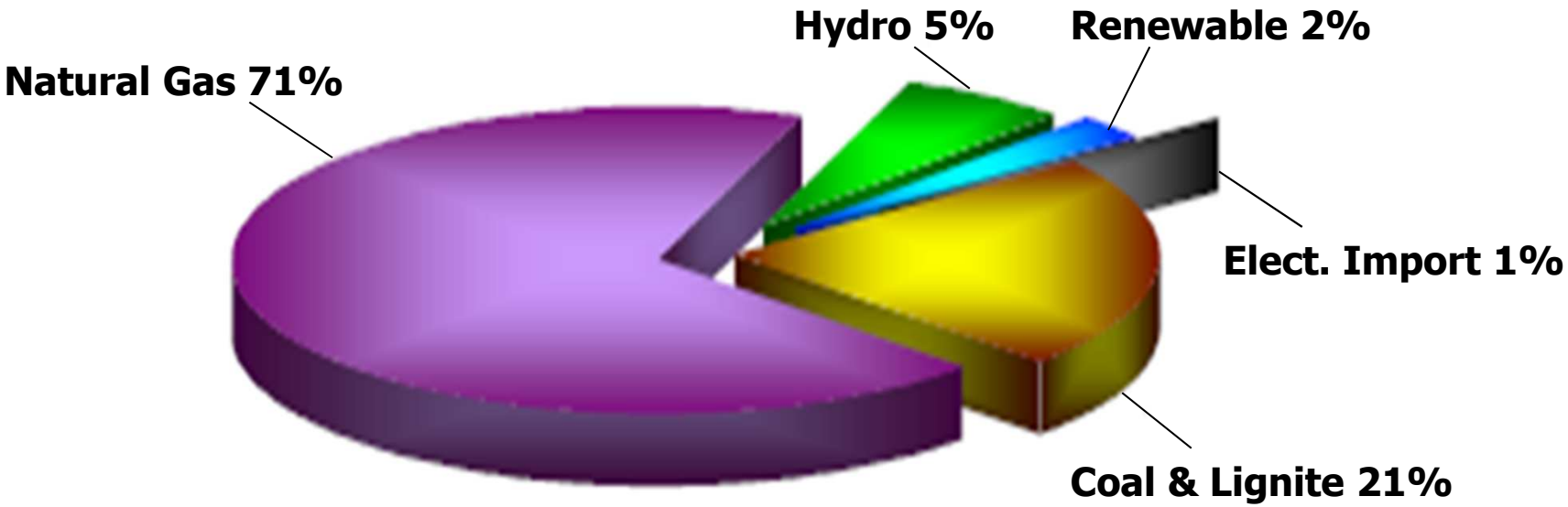
- **Final Energy Consumption by Economic Sector**

Total Final Energy Consumption in 2010 : 71.2 Mtoe



(Source : Thailand Energy Situation, DEDE, 2010)

Types of Energy Used For Electricity Generation (Present)



(Source : DEDE, Ministry of Energy)

Thailand Main Energy Problems

- **Thailand has limited fossil fuel resources :**
  - Oil reserve is insignificant.
  - Natural gas to run dry in 20 years
  - Increase use of lignite for power generation is not possible due public opposition.
- **The Role of Hydropower is limited :**
  - Development of the remaining 7,000 MW of large hydropower is not possible.
  - Thailand has been importing hydro electricity from neighboring countries (total reserves 11,000 MW).
- **Impact of Energy Import on the Economy is significant :**

$$\frac{\text{Energy Import}}{\text{GDP}} \longrightarrow 10\% \text{ in } 2010$$

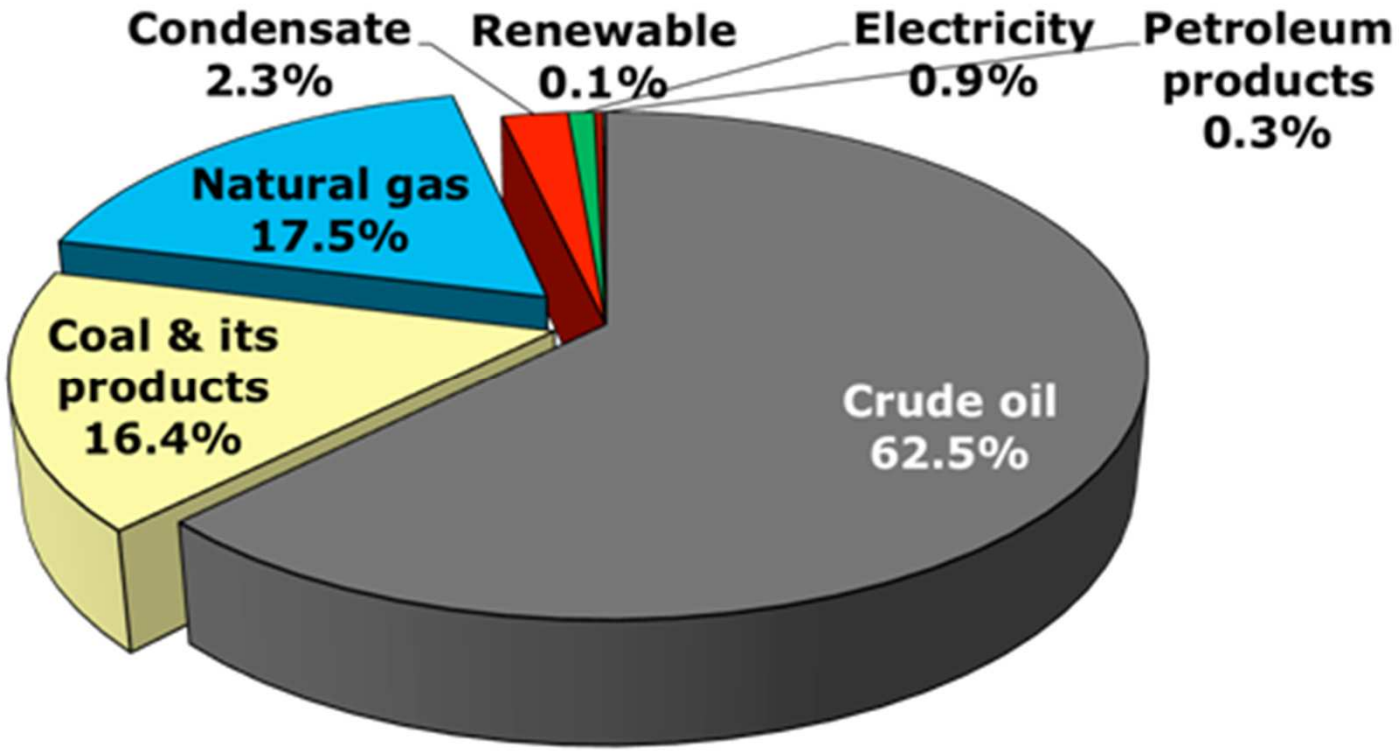
- **Energy is not used very efficiently.**
  - The energy intensity (E/GDP) is still high compared with those of industrialized and neighboring countries.

Energy Security Challenges

- Energy security means adequate, affordable and reliable supplies of energy.
- Thailand's energy security needs to be improved urgently due to the following:
  - Nearby 50% of fossil energy used has to be imported.
  - All major commercial energies have to be imported:
    - Oil (~85%)
    - Natural gas (~25%)
    - Electricity (~ 5%)
    - Coal (~ 70%)
  - About 70% of electricity is produced from natural gas.
  - Nearly all fuels for the transport sector (~90%) have to be imported.
  - The total cost of energy import has been rising and has reached about 11.6% of GDP in 2011
  - The contribution of renewable energy cannot be increased rapidly

(Source : DEDE, Ministry of Energy)

Crude Oil Dominates Energy Import (Total Import: 65 Mtoe, 2010)

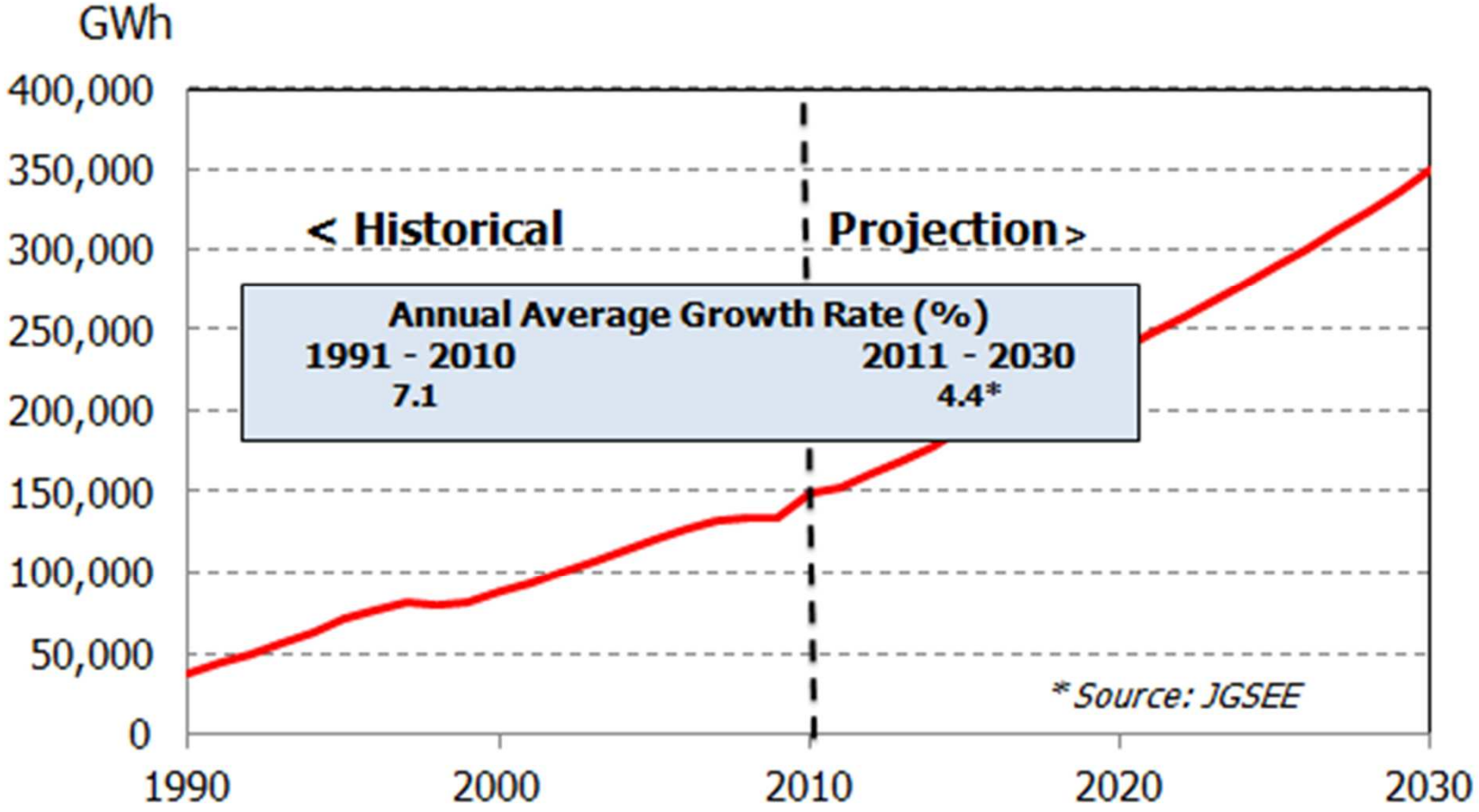


(Source : DEDE, Ministry of Energy)

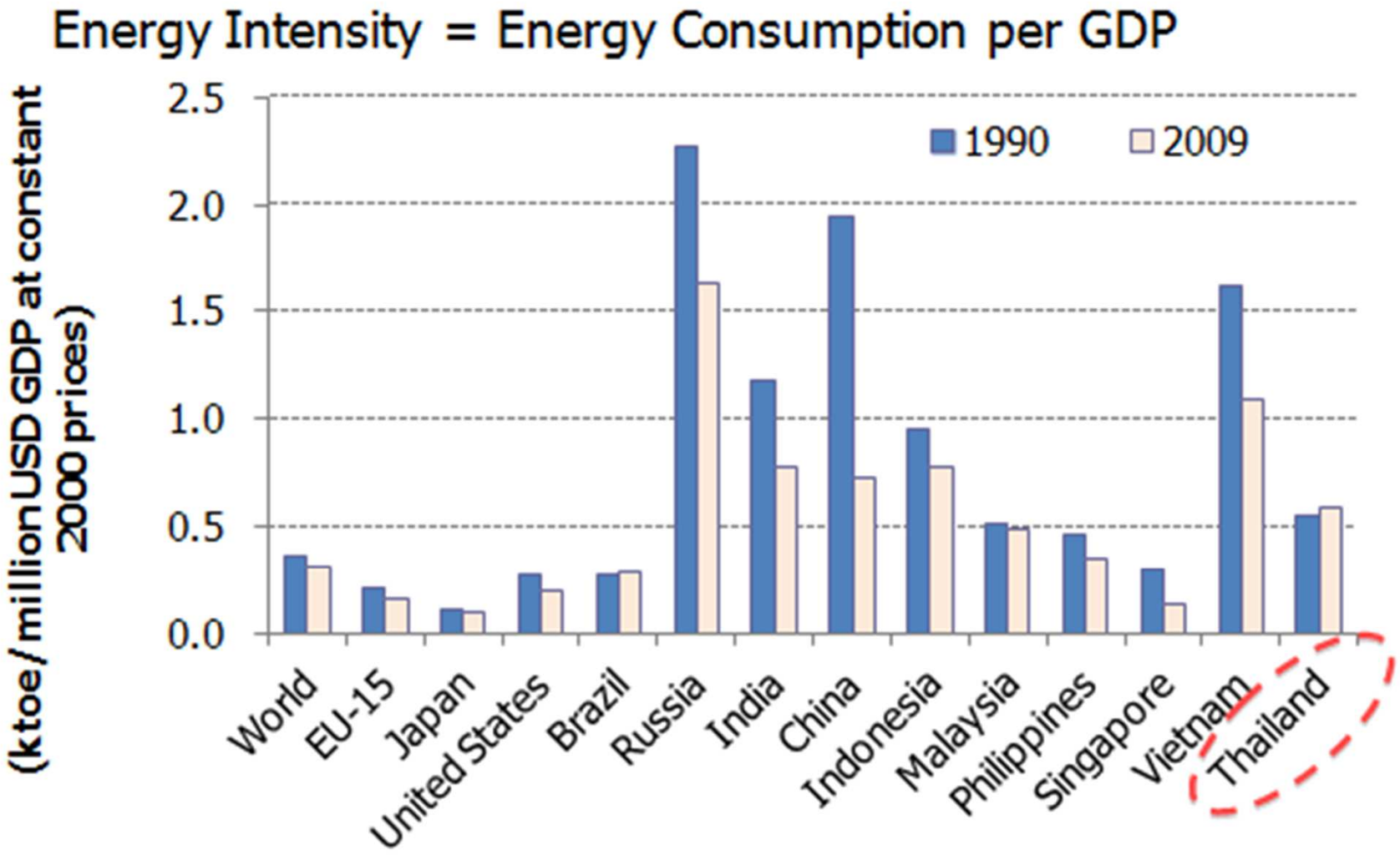
Rising Energy Consumption Trend

- On average, energy consumption grew 4.4% annually over the past 2 decades, and projected to grow at 4.2 % annually over the next 2 decades (BAU scenario)
- Electricity demand grew even faster, at 7.1% annually, becoming more dependent on electricity and gas imports from neighbors

Continued High Growth Rate in Electricity Consumption



Relatively high energy intensity as compared to world average and developed economies



thank
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