Risks and Barriers

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Financing Sustainable Energy:

Seizing the Business Opportunities for Financial Institutions

Renior Room, Novotel Bangkok

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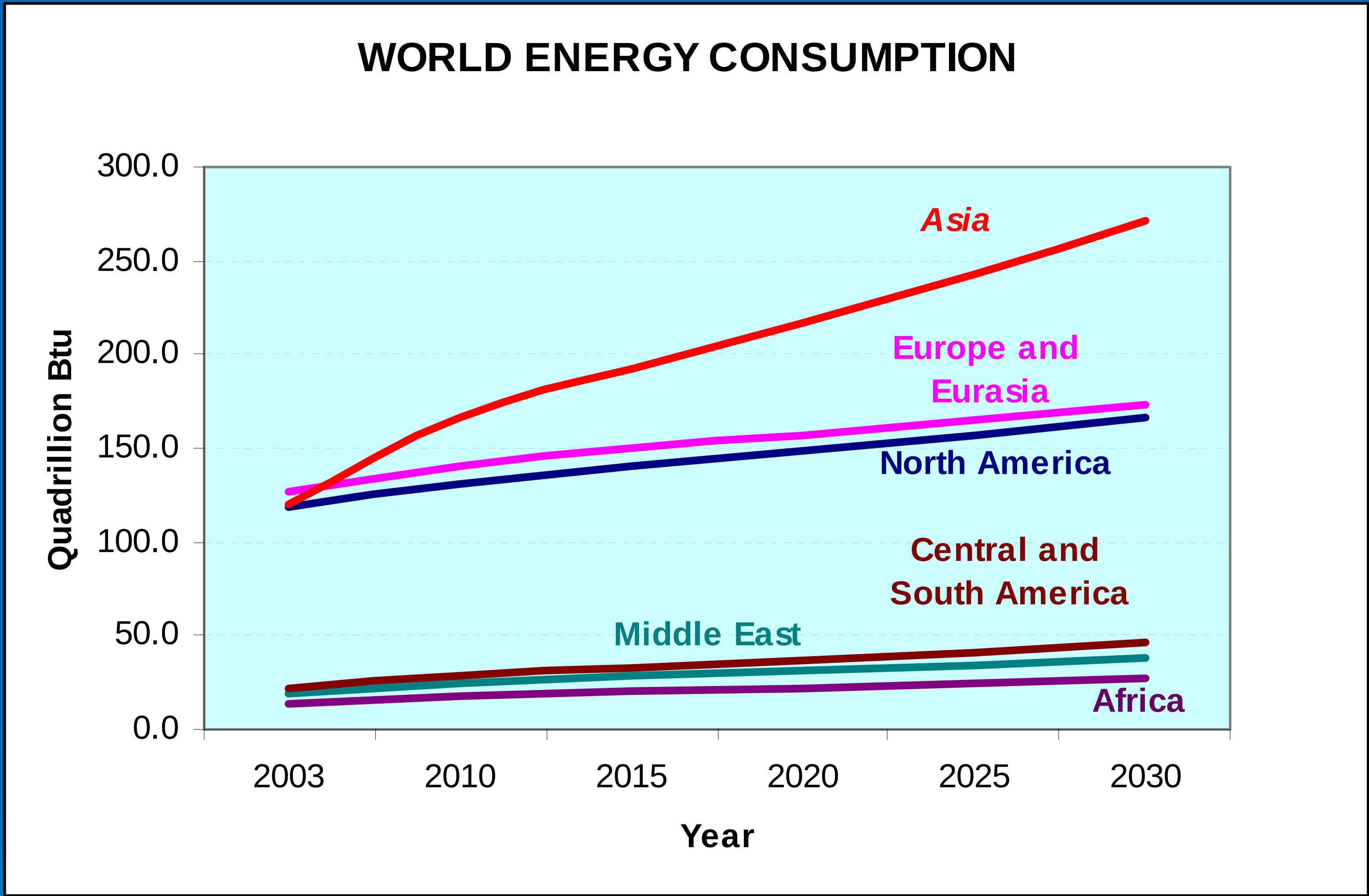
"…the fact that ASEAN is one of the **fastest growing regions in the world**, which requires increasing energy supplies to fuel its rapid pace of economic expansion.

Exacerbating the situation is the fact that the industrial and transportation sectors in **ASEAN tend to be more energy intensive and less energy efficient** than their counterparts in the developed countries. For instance, though economies in Asia are responsible for approximately 11 per cent of the global oil production, they actually consume around 21 per cent of it. This leaves the region with a scenario that almost half of its oil needs has to be imported from external sources and 4 per cent of the region's GDP goes towards securing energy supply…"

Remarks by H.E. Ong Keng Yong
Secretary-General of ASEAN
ASEAN Energy Business Forum
Siam Reap, Cambodia, 12-14 July 2005

Opportunity

- Strong economic growth
- Continuing political transformation and positive economic transition
- Strategic role of renewable and decentralized technology
- Regulative promotion and investment incentives
- The implementation of the Kyoto Protocol

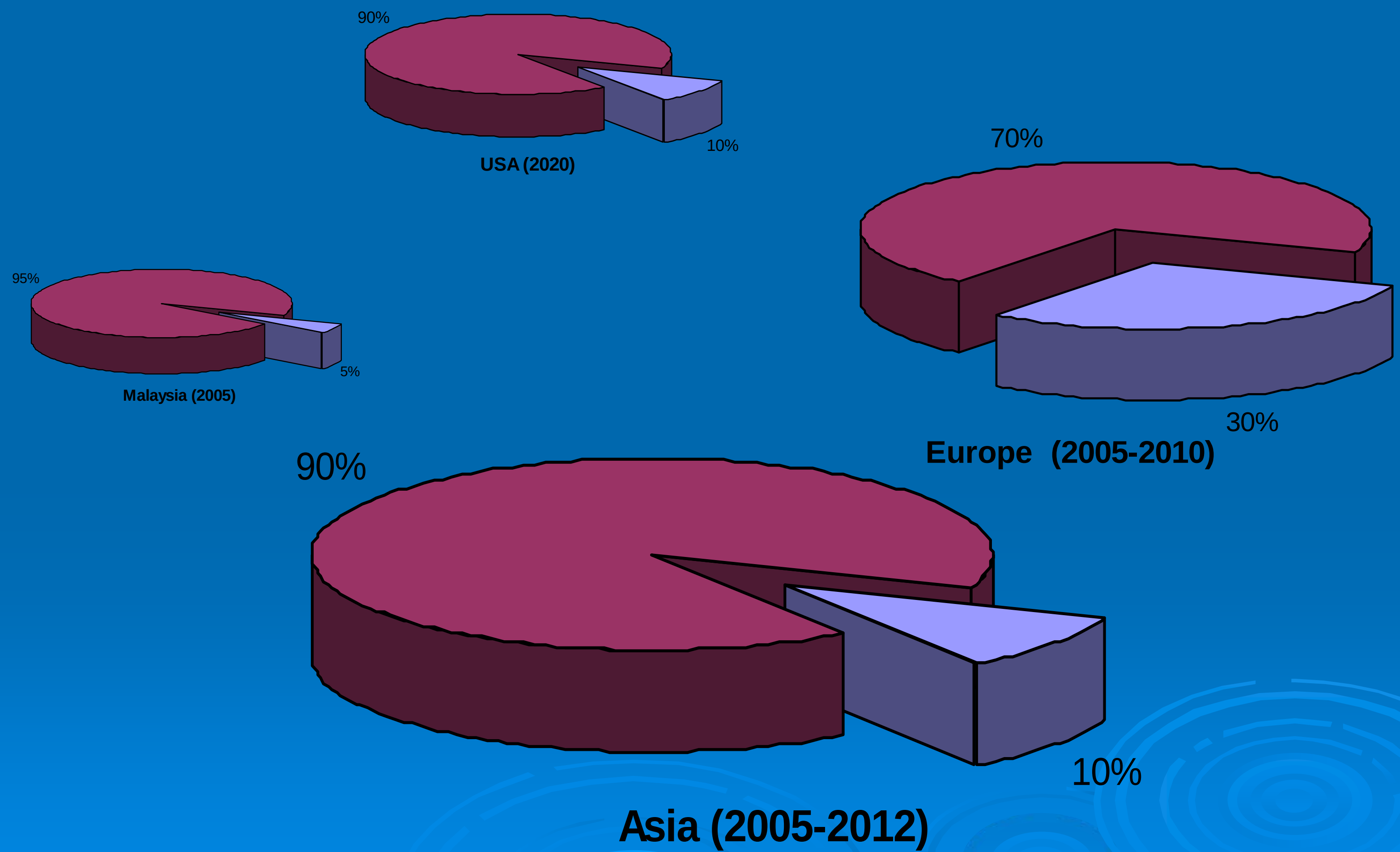


Source: International Energy Outlook, June 2006, Energy Information Administration, Office of Integrated Analysis and Forecasting, www.eia.doe.gov/oiaf/ieo/index.htm

Note: quadrillion = 10^{24}

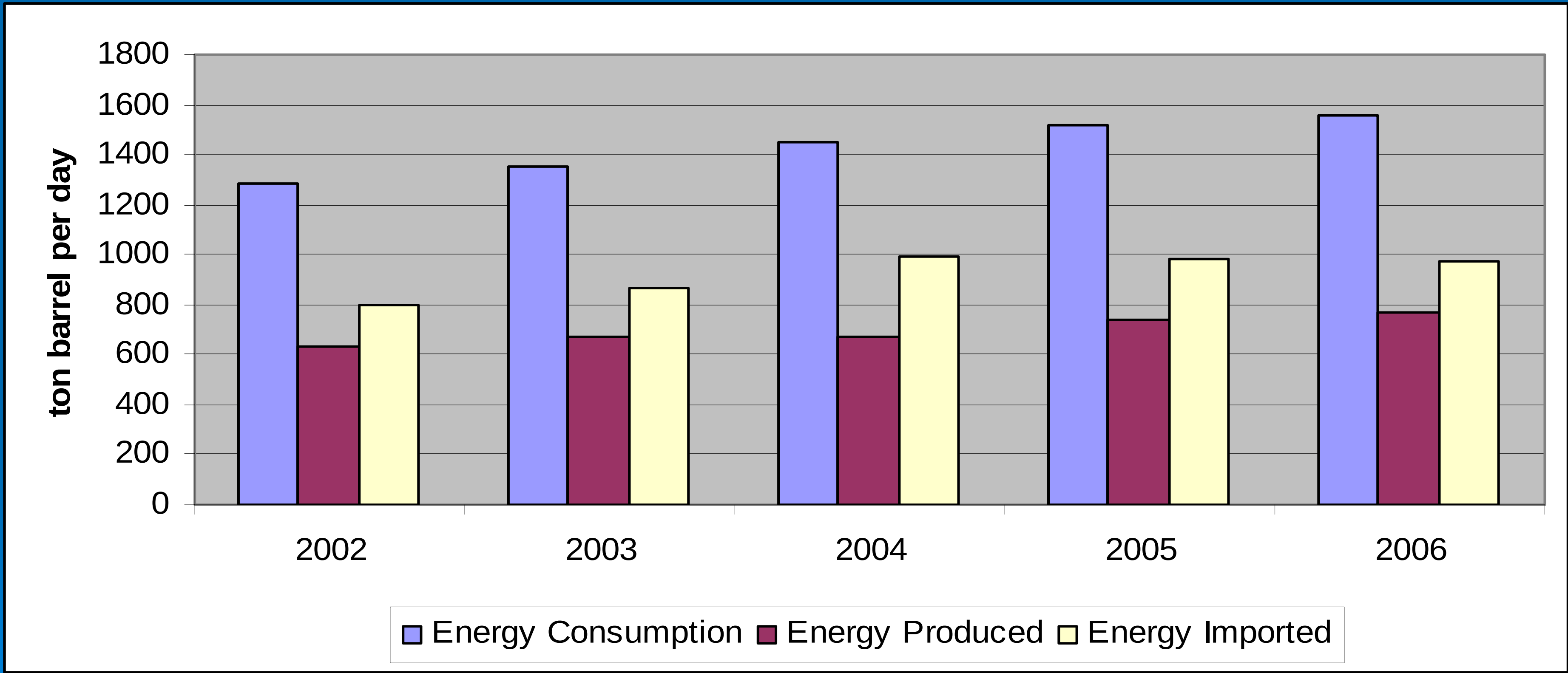
Renewable Energy Policy

RPS = Renewable Portfolio Standard



Thailand Overview

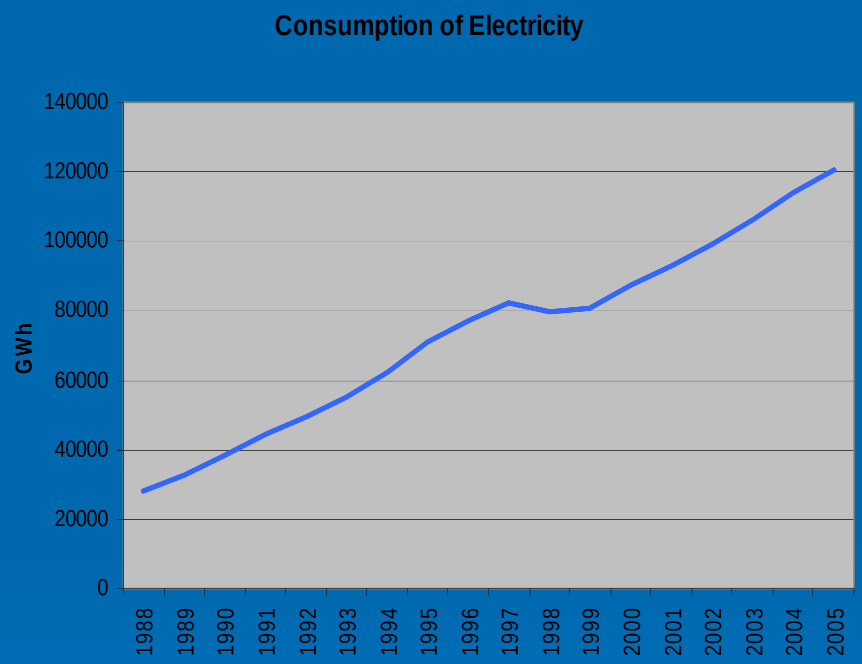
- Thailand energy consumption

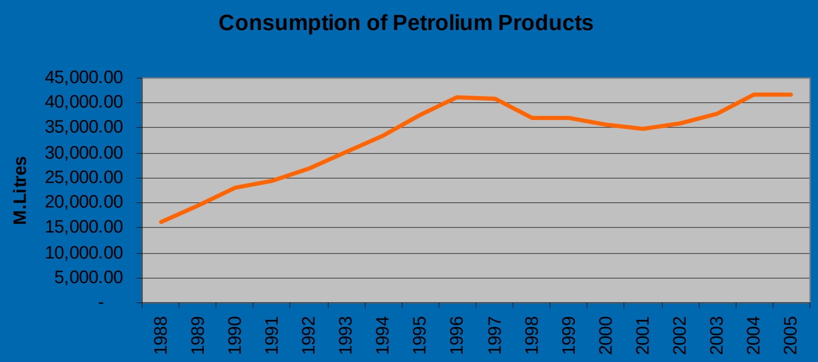


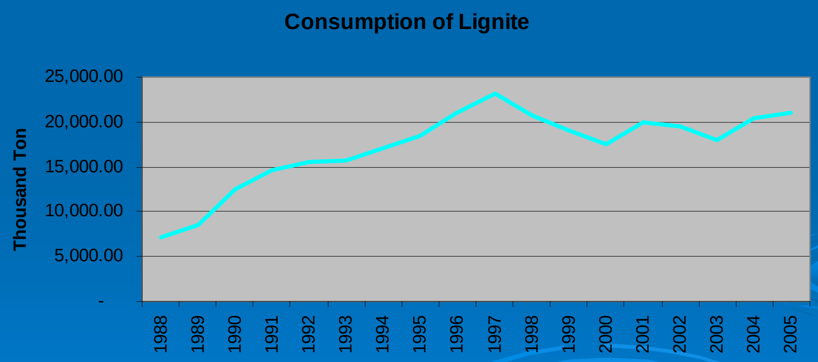
Source: ONEP, Energy Policy and Planning Office

Ministry of Energy, Royal Thai Government

Thailand Overview







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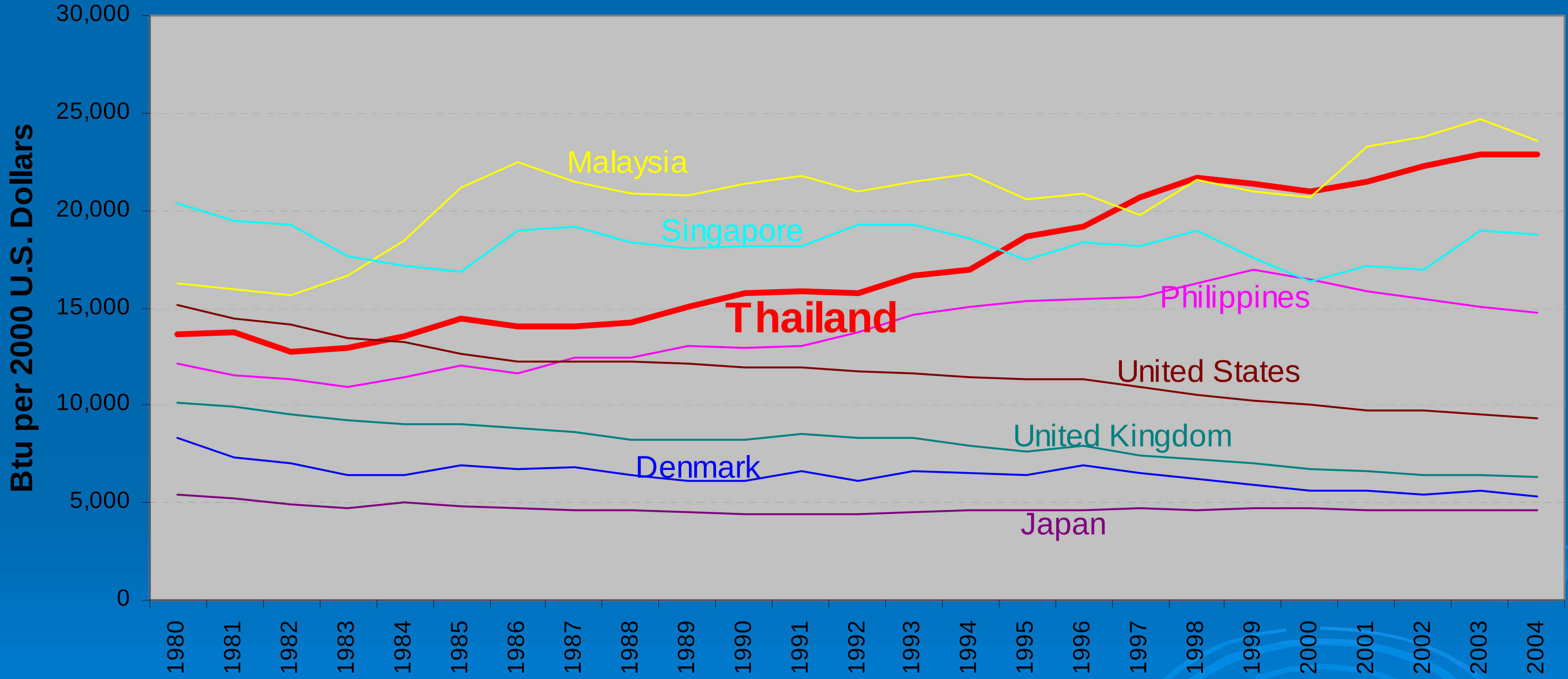
Thailand Overview

WORLD ENERGY INTENSITY



Source: International Energy Outlook, June 2006, Energy Information Administration,

Office of Integrated Analysis and Forecasting,
www.eia.doe.gov/pub/international/iealf/tablee1g.xls

Next update: JULY 2007

Restructuring Industrial Sector

$$\text{Energy Intensity} \downarrow \;=\; \frac{\text{Energy} \downarrow}{\text{GDP} \uparrow}$$

➢ **Existing Industry**

(Efficiency Improvement)

- Tax incentive
  - Energy Audit (enforcement)
- BOI Privilege for ESCO
- Revolving Fund
- Grant for T/A
- Etc.

➢ **Future Industry**

(High Value Added Industry, Non Energy Intensive Industry)

- SMEs
- Tourism, Service and Related Industry
- Agriculture and Value chain Industry
- Business Industry Economy
- Information Economy
- Molecular Economy

How to develop projects (FI views)

Project Cycle

PI : Project Identification (financial & technical screening)

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PD : Project Development (feasibility & engineering design)

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PA : Project Approval (FI + Shareholders)

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PR : Procurement

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OM : Operation + Maintenance (Repayment)

Typical Barriers

- High transaction
- Relatively small size
- Low marginal return
- Perceived weak credit worthiness of companies
- Resource availability and supply risk
- Country risk (political & economy instability)
- Other priority investment
- Unfamiliarity with technologies
- Collateral problem
- Lack of expertise in company
- FI lack of knowledge
- Benefit sharing

Key Barrier to EE & RE projects

- Financial Barrier
  - Access ability to financial resources
  - Low priority projects
- Technical Barrier
  - Unfamiliarity with technologies
  - Lack of capacity to develop projects
  - Bad experience with consultants/suppliers
- Management Barrier
  - Lack of Time
  - No policy to invest

Risk Management Instruments

- Contracts (gov., suppliers, consultant, ESCO)
- Insurance / Reinsurance
- Credit enhancement products
- Alternative risk transfer instruments
- Guarantee fund
- Private sector risk management
- Risk pooling
- Securitization structure
- Bundling small projects (reduce transaction cost)

THANK YOU

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