

Energy Cooperation Among ASEAN + 3 Countries

▶ **ASEAN member countries:**



Brunei



Cambodia



Indonesia



Laos



Malaysia



Myanmar



Philippines



Singapore



Thailand



Vietnam

▶ **+3 countries:**



China



Japan



Korea-Secretariat

Dato' Ir. Pian bin Sukro
Chairman
Energy Commission of Malaysia

Theme

- ◆ “Expanded” Regional Cooperation in Energy and Power Projects in ASEAN
- ◆ “Expanded” = ASEAN + 3 Countries

ASEAN Profiles

◆ Population





- 600 million people - about 9% of the global population

◆ Economic Development

◆ Energy Demand Outlook

◆ Electricity Demand Outlook

◆ Energy Resources Availability in ASEAN

- Oil 
- Gas 
- Coal 
- Hydro 

What do we do to help develop
power / energy sector in ASEAN?

Exploit hydro-electric potential

or

Exploit fossil fuel resources

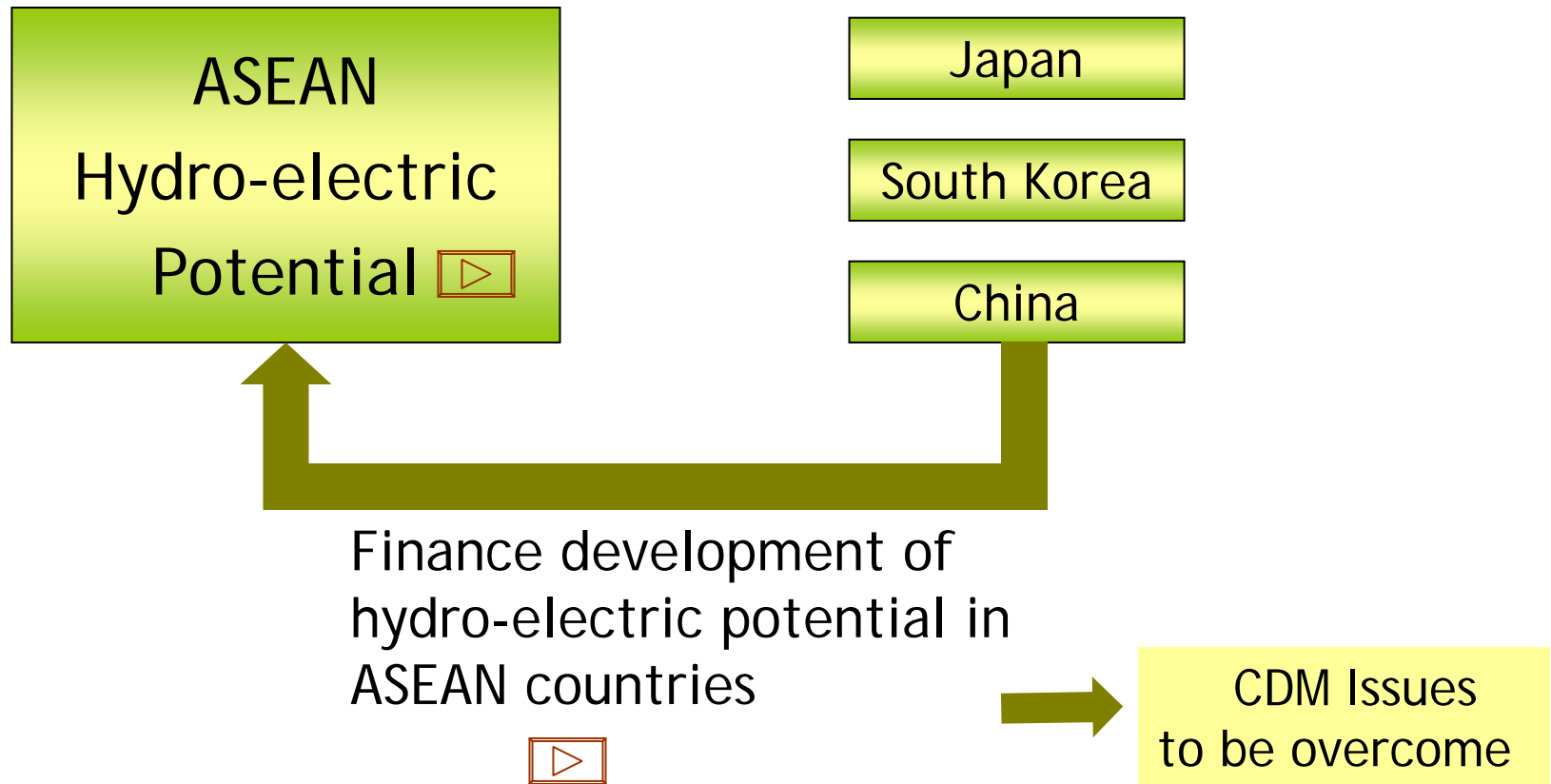
What happened if the fossil fuels are exploited to the maximum?

- ◆ Issue of reserves depletion & inter-generational resource
- ◆ Issue of environment - especially climatic change
- ◆ Issue of sustainability

What I propose:

- ◆ Develop the vast hydro-electric potential within ASEAN
- ◆ Advantageous of hydro-electricity:
 - ◆ Lower electricity cost in the long run
 - ◆ Prolong fossil fuels depletion
 - ◆ Environmentally friendly - if managed properly

Develop Hydro-electric Potential Among ASEAN + 3 Countries



Possible outcome of major hydro projects development to fossil fuel resources

ASEAN Energy Resources



Oil
Natural Gas
Coal

Exportable
to + 3
countries

Japan

South Korea

China

Roadmap for “Expanded” Energy Cooperation

- ◆ If most major hydro-electricity potential can be developed to meet electricity demand, the existing fossil fuel reserves could be exported to / within ASEAN + 3 countries
- ◆ This would help in wealth creation and propel economic development / growth within ASEAN countries
- ◆ ASEAN Countries can benefit from cheaper electricity to meet domestic and industrial demands
- ◆ Creating a ‘sustainable win-win options’ among developed and developing countries within Asia through exploitation of hydro-electricity potential

Challenges

- ◆ To properly and systematically map out major hydro-electric resource potential and specify developmental plan;
- ◆ To identify sources of funds and develop financing / funding mechanisms; and
- ◆ To enhance electricity transmission systems and network interconnection within the ASEAN countries

Thank You

Gross Domestic Product in ASEAN, growth, real, annual as of 31st December 2005

(year-on-year growth rate; at constant market prices)

Country	Base year	2004
Brunei Darussalam	1990	4.0
Cambodia	2000	7.7
Indonesia	2000	5.1
Lao PDR	1990	5.5
Malaysia	1987	7.1
Myanmar ^{1/}	1990	5.0
Philippines	1985	6.0
Singapore	1995	8.4
Thailand	1988	6.1
Viet Nam	1994	7.7

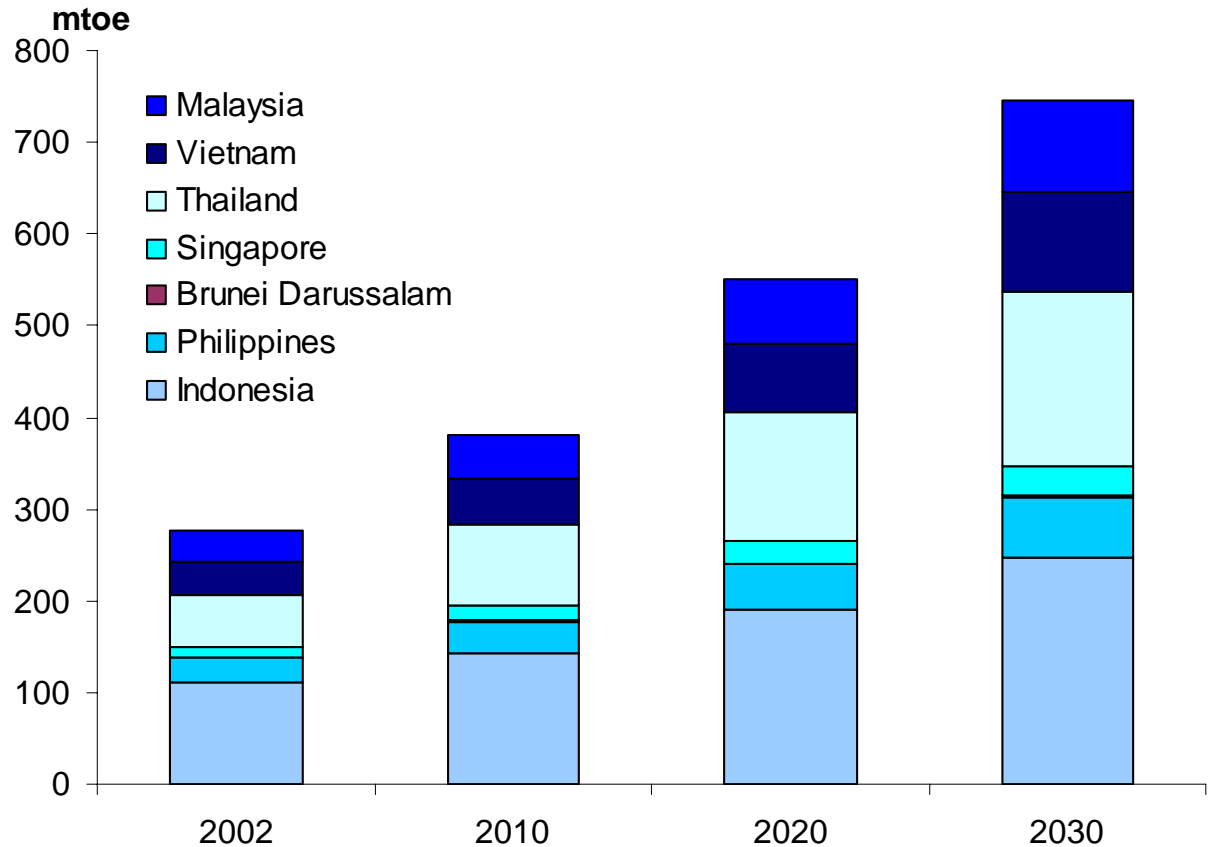
Note: 1/ covers the fiscal period April to March of the following year

Source: ASEAN Finance and Macroeconomic Surveillance Unit (FMSU) Database (compiled/computed from data submission and/or websites of ASEAN Member Countries' national statistical offices, central banks, and other relevant government agencies)



Energy Demand Outlook (mtoe)

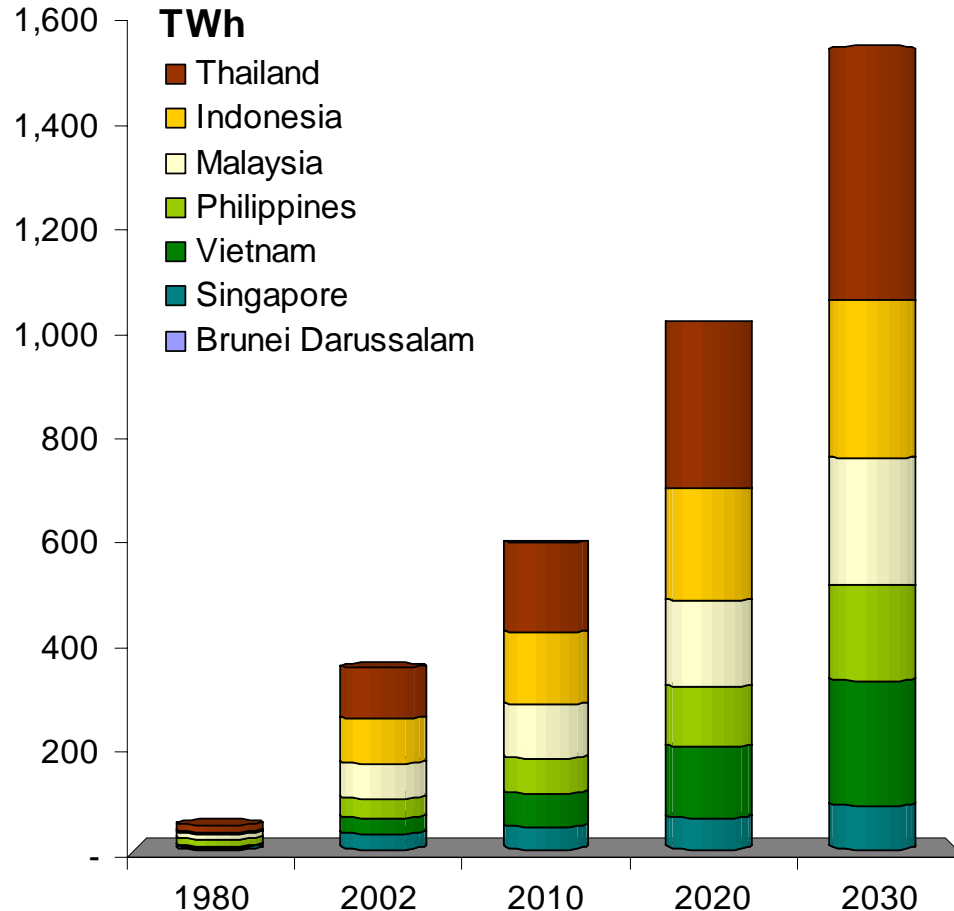
- ASEAN's energy demand will increase from 272 million tonnes of oil equivalent (mtoe) in year 2002 to 552 mtoe in year 2020, an increase of 100%
- By year 2020, net oil import dependency among ASEAN countries will increase to 60% (2002:26%)



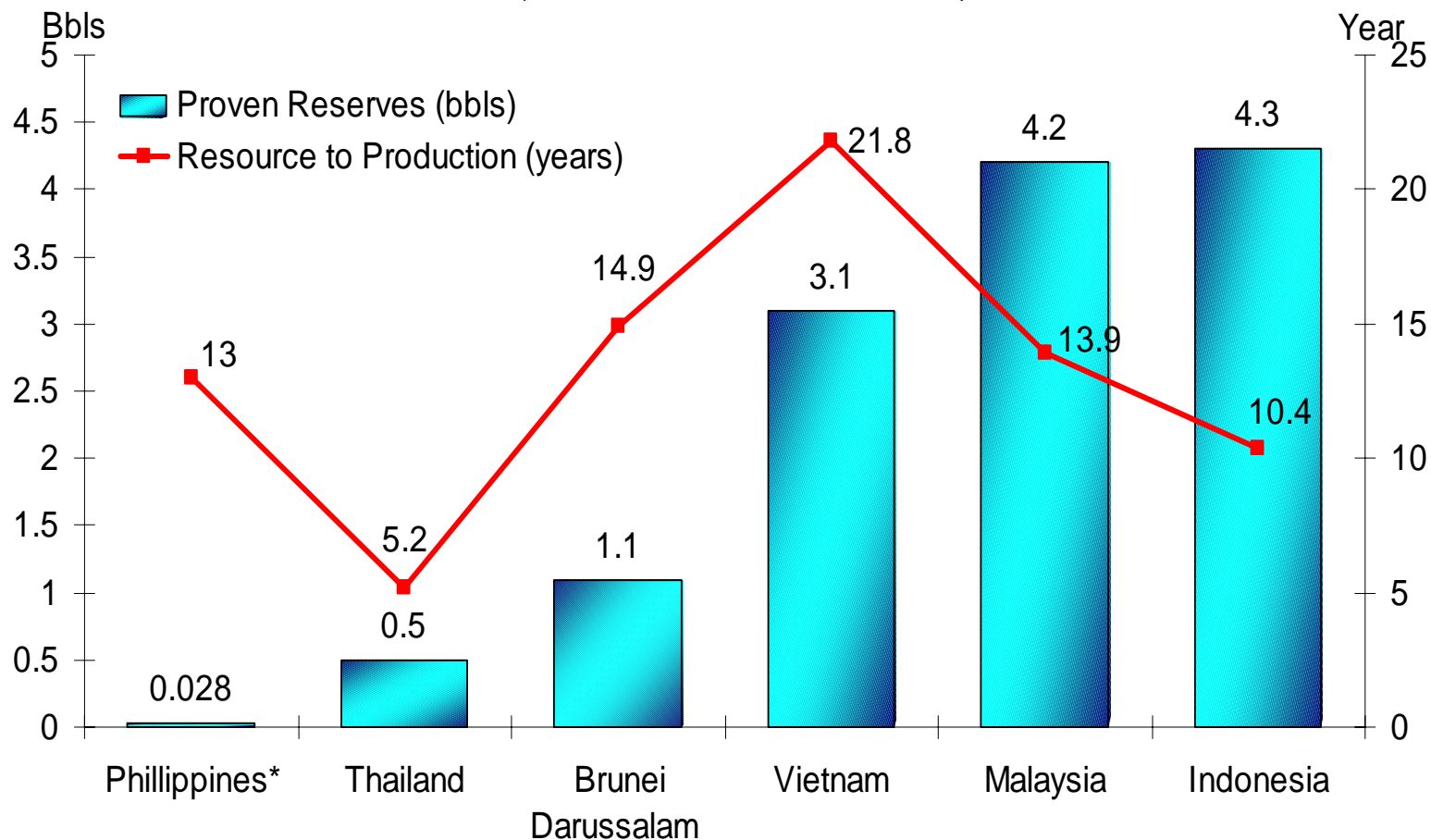
Electricity Demand Outlook in Selected ASEAN (TWh)

Annual average growth rate from year 2002-2030:

- ASEAN = 5.42%



ASEAN Oil Proved Reserves at end 2005 (billion barrels)



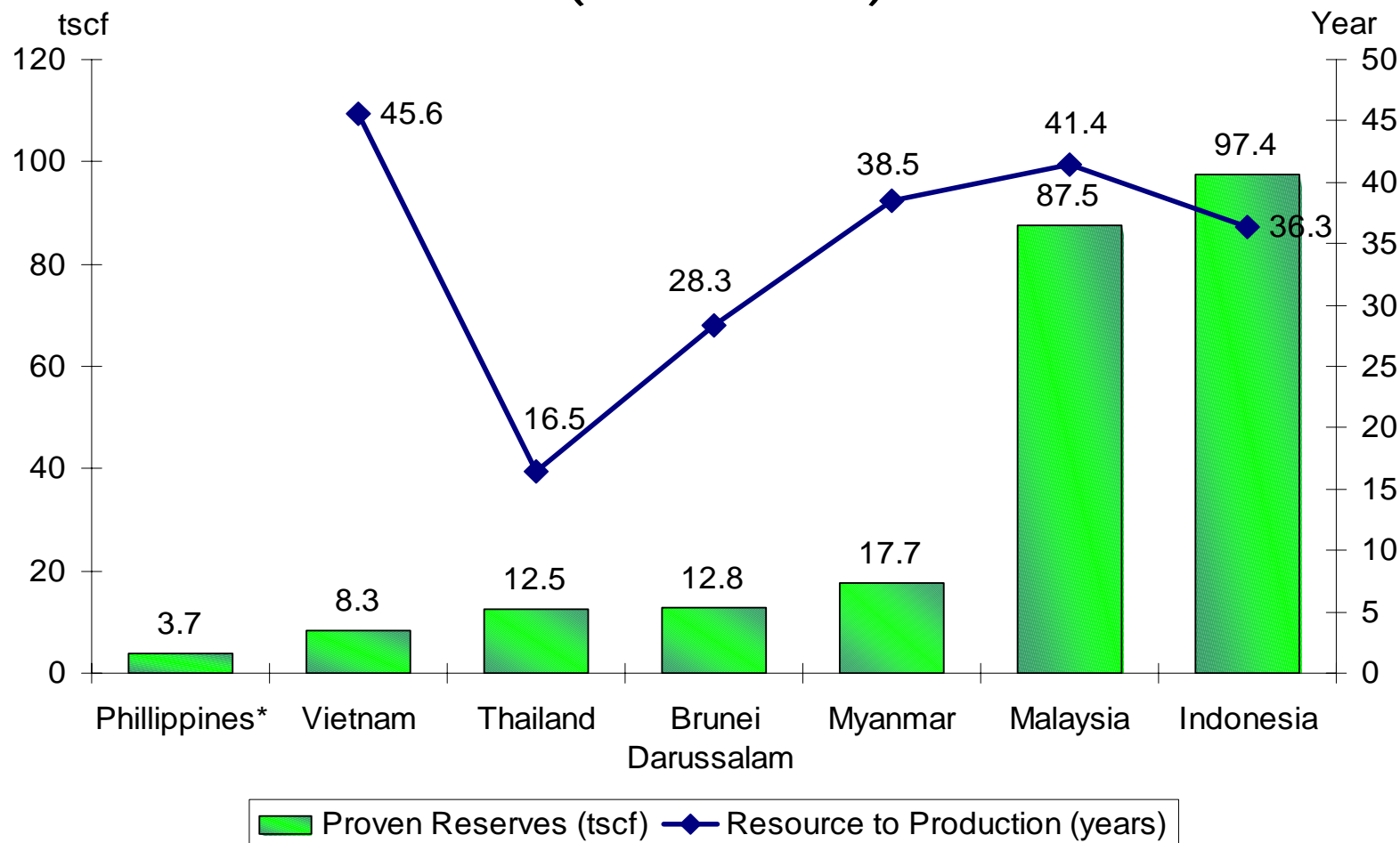
Note: * Data for Philippines is sourced from ASEAN Energy Centre (ACE) as of December 2003

Data for Laos, Cambodia, Myanmar and Singapore are not available

Source: BP Statistical Review 2006



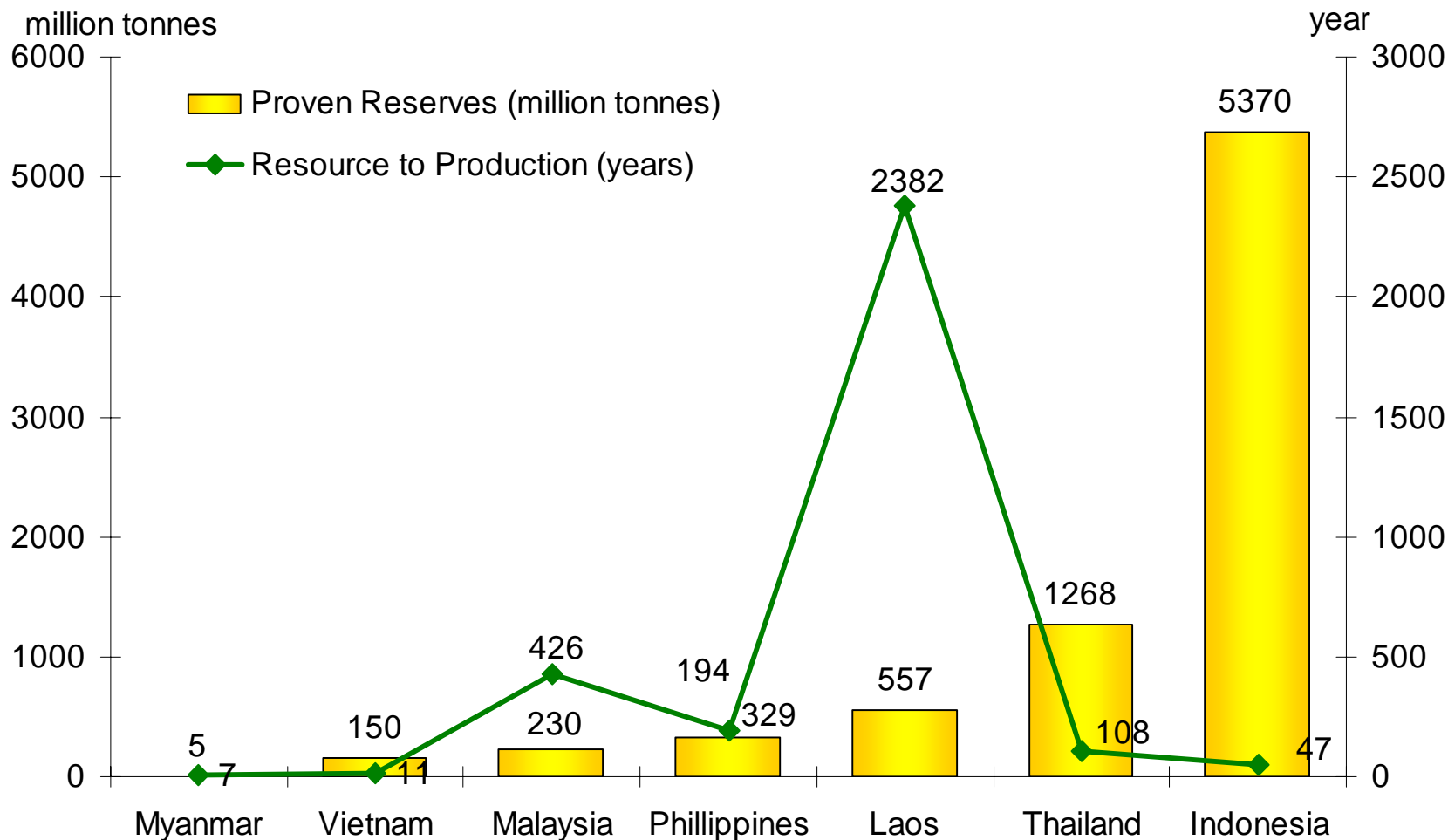
ASEAN Natural Gas Proved Reserves at end 2005 (trillion scf)



Note: * Data for Philippines is sourced from ASEAN Energy Centre (ACE) as of December 2003
 Data for Laos, Cambodia and Singapore are not available
 Source: BP Statistical Review 2006



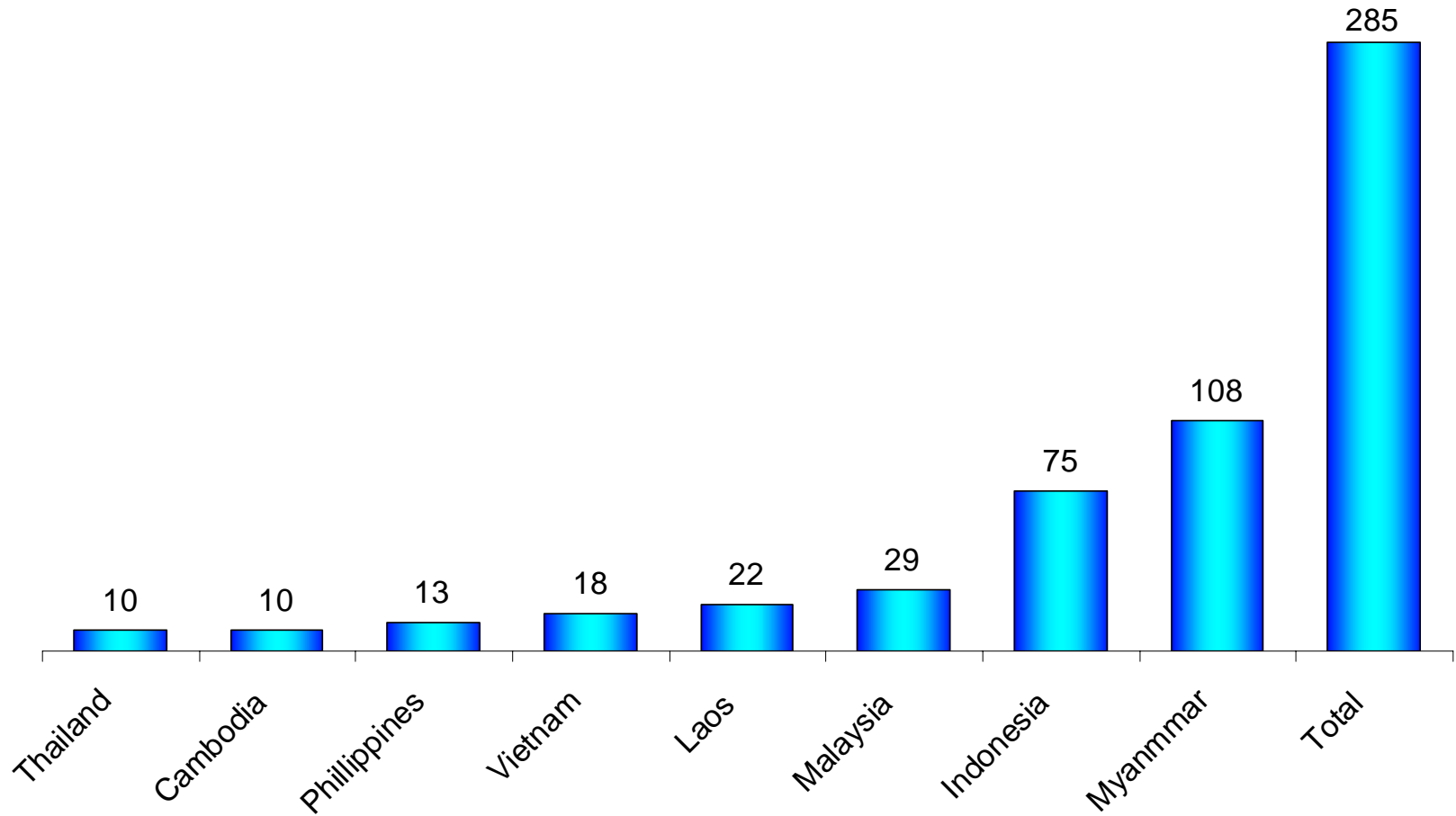
ASEAN Coal Proved Reserves at end 2003 (million tonnes)



Source: ASEAN Energy Centre (ACE)



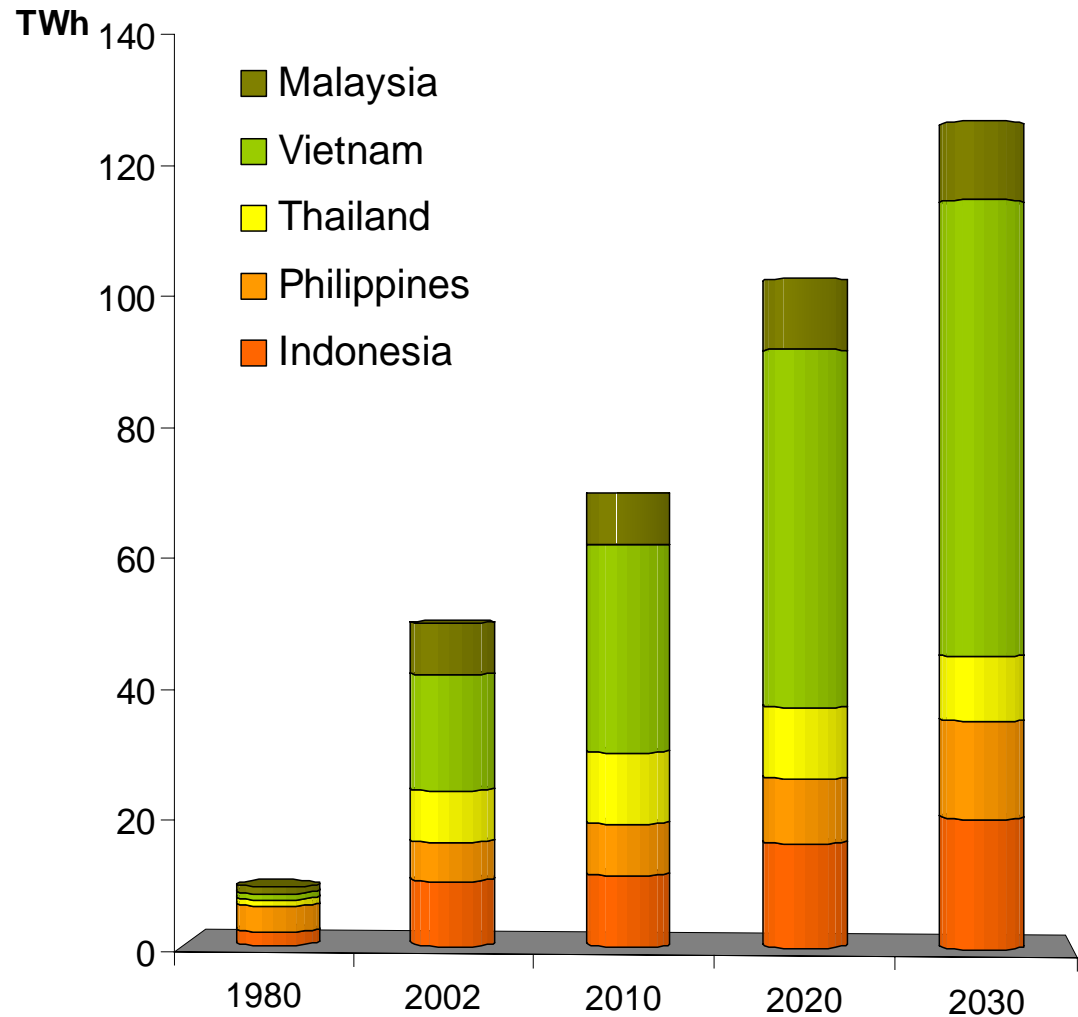
Hydro-Electric Potential in the ASEAN Countries in GW



Potential Hydro-Electricity Generation in ASEAN

Growth rate (% p.a)
from 2002-2030:

Malaysia	2.8%
Vietnam	7.4%
Thailand	0.9%
Philippines	3.3%
Indonesia	2.6%



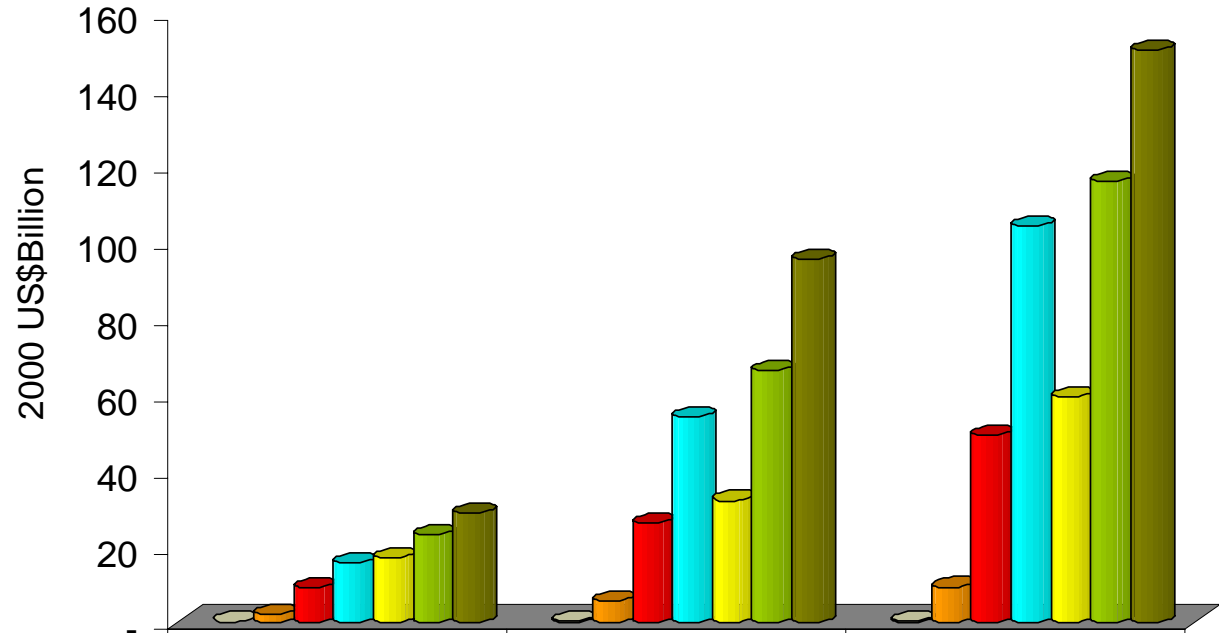
Minimum Energy Investment Requirements in Electricity Generation & Transmission in ASEAN

Total Energy Investment Requirements:

2010 : US\$ 95.67b

2020 : US\$278.90b

2030 : US\$487.58b



	2010	2020	2030
■ Brunei Darussalam	0.16	0.28	0.29
■ Singapore	2.14	5.55	9.28
■ Philippines	9.05	25.94	49.26
■ Thailand	15.70	54.00	104.00
■ Malaysia	16.82	31.93	59.15
■ Vietnam	23.00	66.10	115.60
■ Indonesia	28.80	95.10	150.00

