

APEC Energy Outlook and Security Issues

The 6th APEC Energy Ministers' Meeting

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Asia Pacific Energy Research Centre

APERC

Asia Pacific Energy Research Centre



About APERC

- **Background**

- Established in July 1996 in Tokyo pursuant to the Action Agenda adopted by APEC Economic Leaders at the Osaka Summit in November 1995

- **Purpose**

- To foster member economies' understanding of (1) long-term energy demand and supply trends and associated energy policy issues including (2) energy security, (3) energy infrastructure development, (4) energy sector regulatory reform, and (5) environment.

- **Operation**

- Managed under the auspices of APEC EWG through EGEDA
- Fully financed by the government of Japan (METI).

- **Staffing**

- Based on one researcher from one economy principle, currently 15 APEC economies are well represented.



Outline of APERC's Presentation

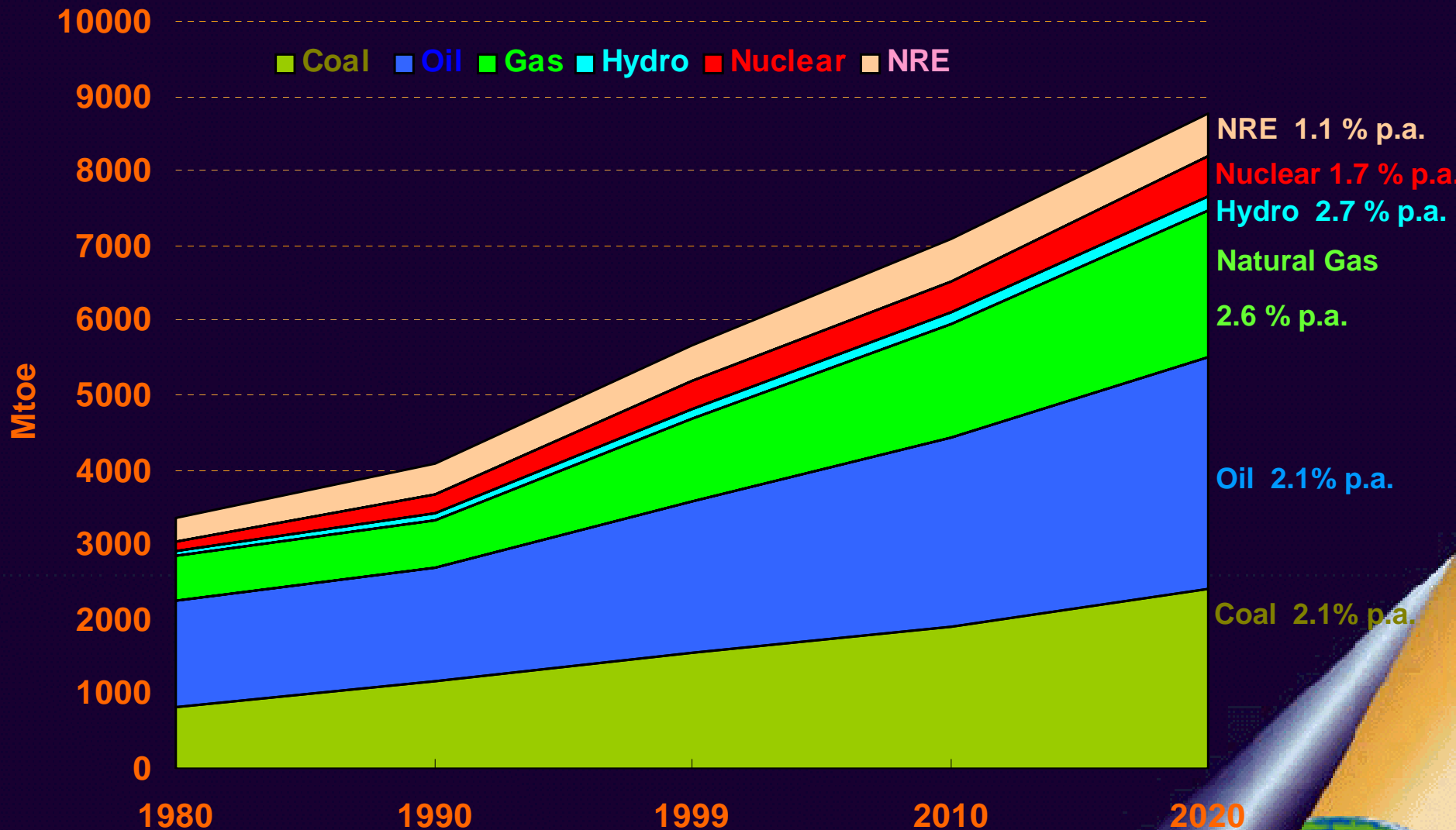
- APEC Energy Demand and Supply Outlook up to 2020
 - Primary Energy Demand
 - Oil Import Dependency
 - Electricity Demand of Selected Economies
- Rising Energy Prices and Options for Enhancing Security
 - Recent Oil, Gas and Coal Price Trends
 - Enhancement of Technological Innovation
 - Improvement of Allocation Efficiency
- Energy Investment Outlook for the APEC Region
 - Energy Investment Requirements by Infrastructure Type
 - Share of Energy Investments Relative to the Size of Economy
 - Hurdles for Financing Energy Infrastructure
- Key Challenges for Energy Security in APEC

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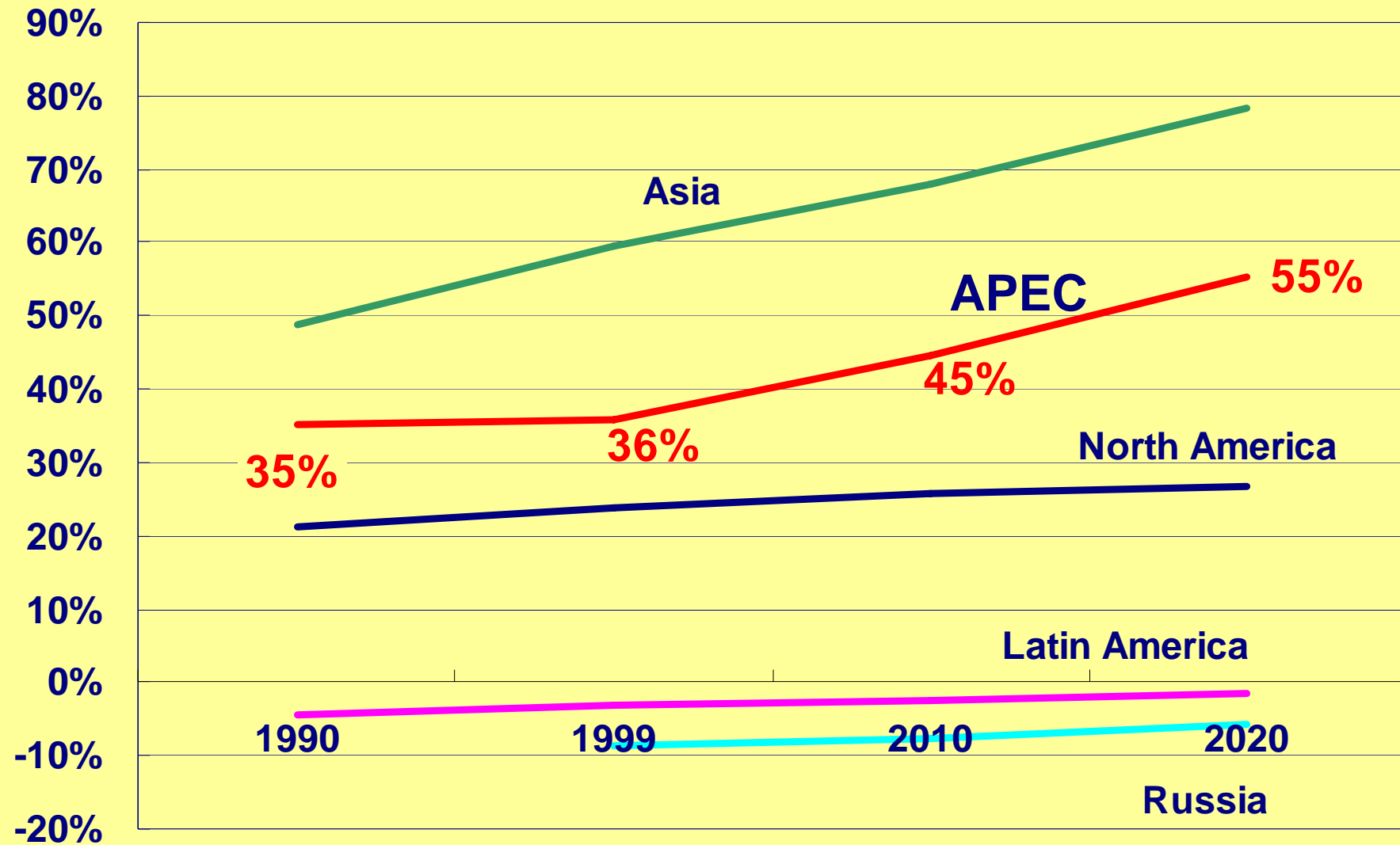
Total Primary Energy Demand in APEC



(Source) APERC (2002), "APEC Energy Demand and Supply Outlook"



Oil Import Dependency is Rising.



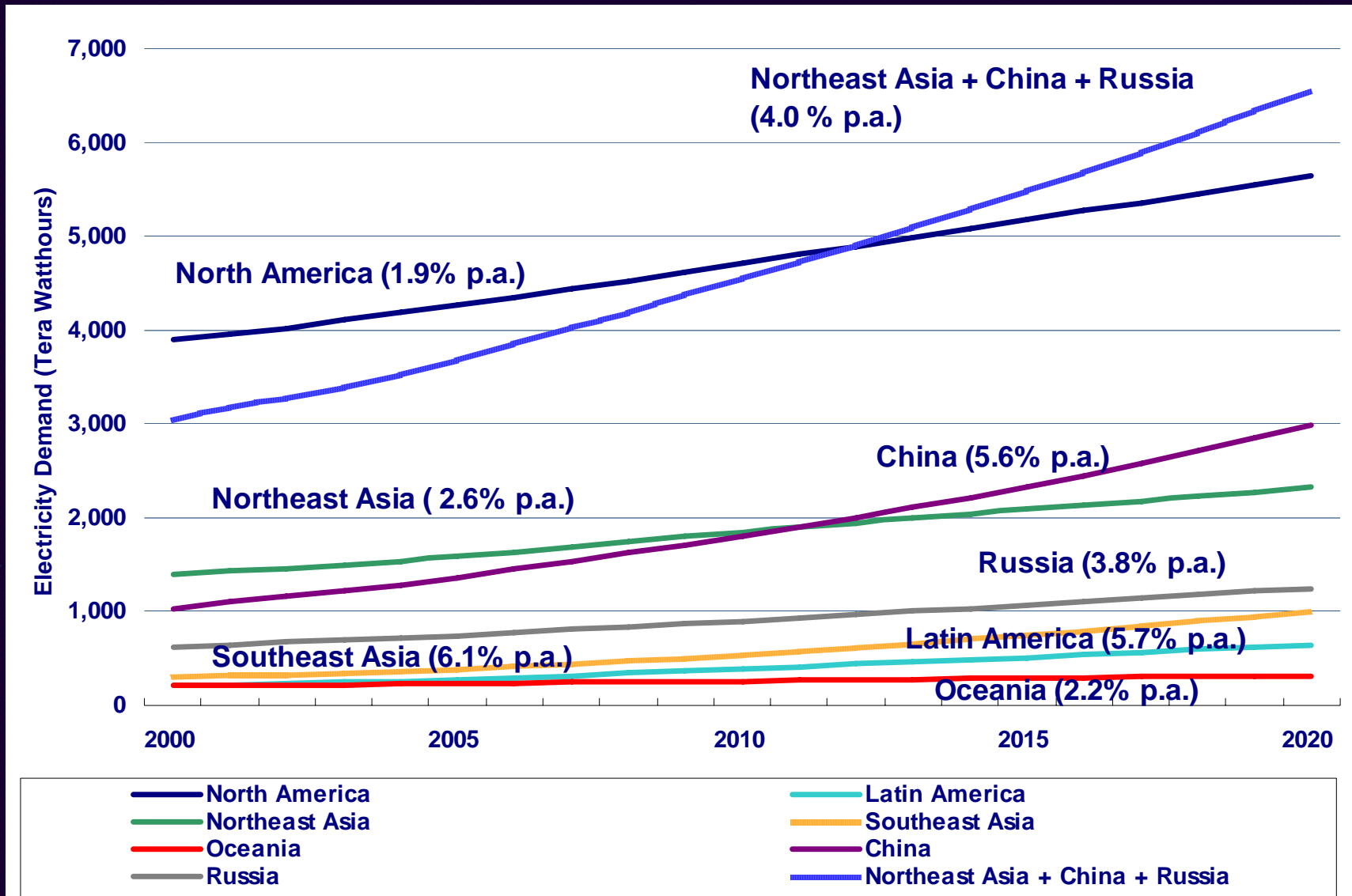
(Source) APERC (2002), "APEC Energy Demand and Supply Outlook"

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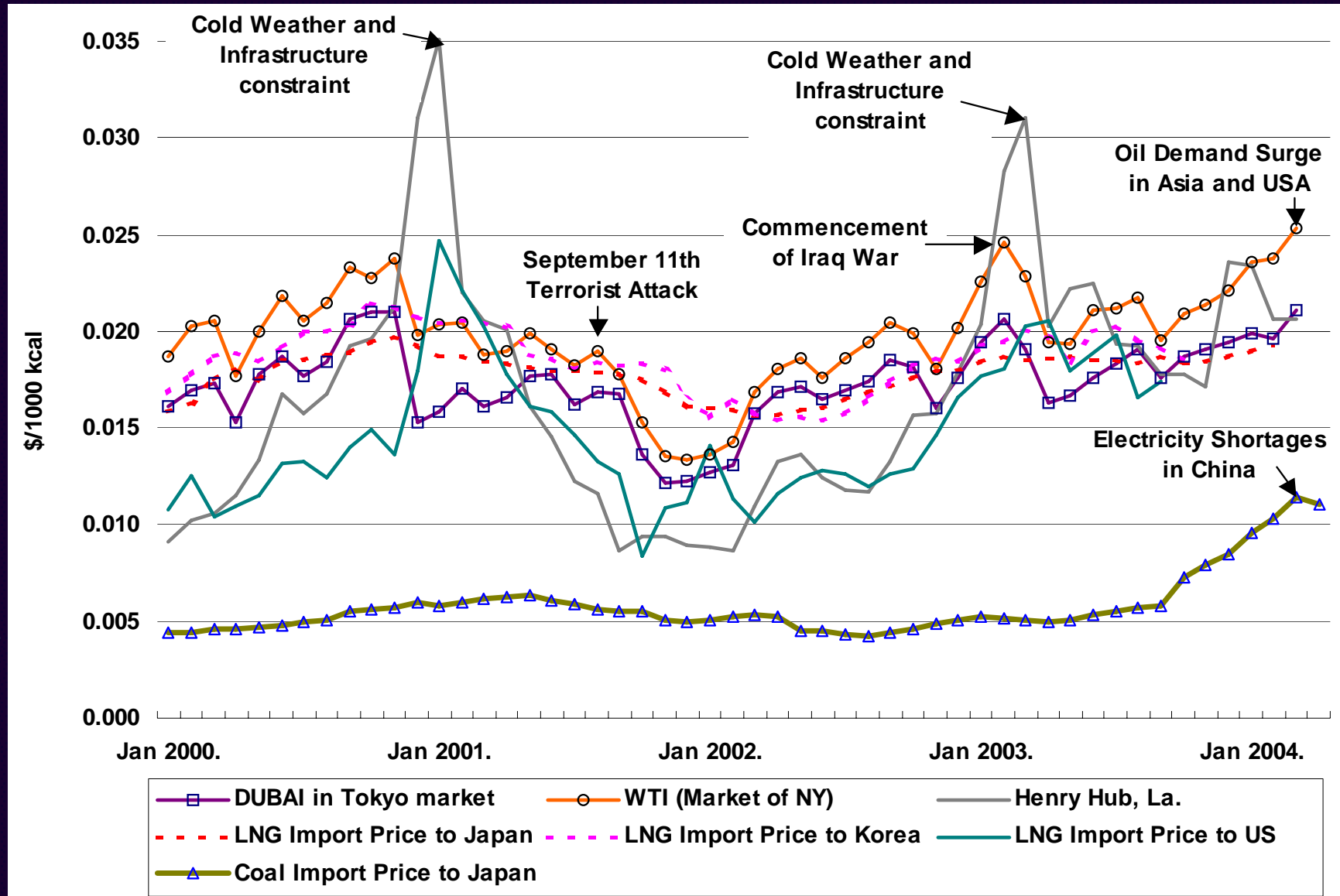
Electricity Demand is Growing Fastest in Southeast Asia, Latin America and China.



(Source) APERC (2002), "APEC Energy Demand and Supply Outlook"

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Oil, Gas and Coal Prices are Rising.



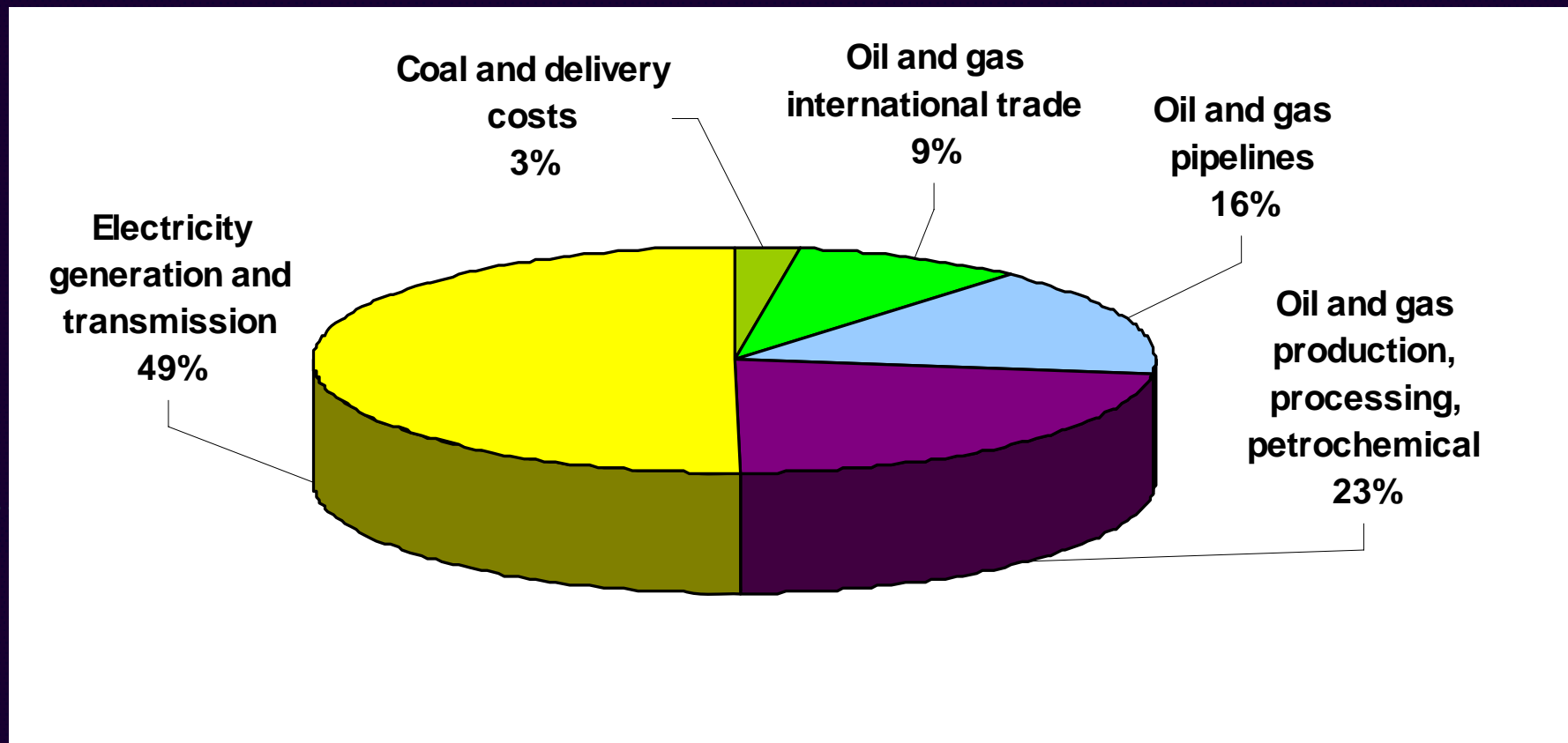
Source: APERC Analysis (2004)

Note: Original data is from EDMC (2004) on oil, Platts (2004) on coal, Energy Intelligence Group (2004) on Henry Hub Price and IEA (2004) on LNG import price.

More Flexibility in Supply Infrastructure is Required.

- Enhance Technological Innovation
 - Development of Efficient Technologies
 - CCGT, Mini-hydro, Advanced Nuclear, Clean Coal Technology
 - Development of Alternative Energy Sources
 - New and Renewable Sources, Non-conventional Oil, LNG
- Improve Allocation Efficiency
 - Cross border cooperation will expand choice of energy and reduce capacity requirements due to seasonal differences.
 - Power Interconnection
 - Oil Pipeline
 - Natural Gas Pipeline
 - Joint Stockpiling: Oil and Natural Gas

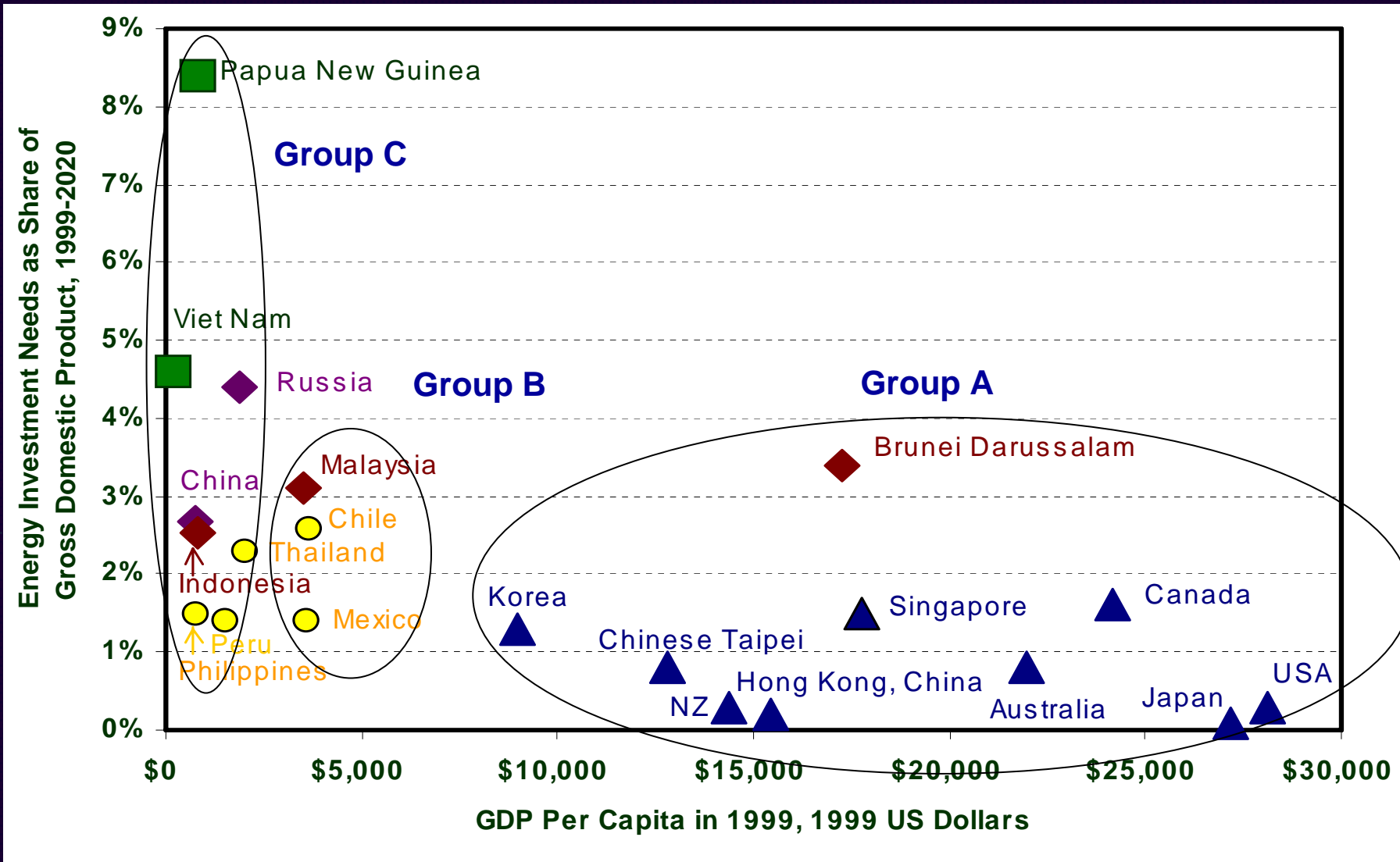
Energy Investment Needs in APEC will Total US\$3.4 Trillion to \$4.4 Trillion (2000-2020)



(Source) APERC (2003), "Energy Investment Outlook for the APEC Region"



Energy Investment Needs as a Share of GDP will be Greatest for Developing Economies.



(Source) APERC (2003), "Energy Investment Outlook for the APEC Region" Asia Pacific Energy Research Centre

Hurdles for Financing Energy Projects

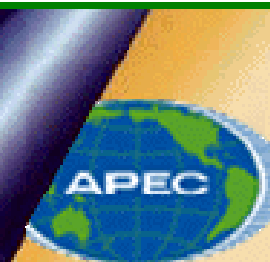
- Declining financial resources flow to developing economies after the recent Asian financial crisis
 - Large-scale projects become difficult to carry out.
- Underdeveloped financial markets in most developing APEC economies.
 - Creation of efficient financial market would help mobilise available capital to the needed area.
- Regulatory uncertainty may make it harder to attract energy investment in developed APEC economies.
- Energy efficiency and renewable energy projects are still hard to finance commercially.

Increasing Financing Costs in Developed Economies

Maintaining sound balance sheet is important to attract equity investors.

	2001 May		2002 September	
	Rating	Outlook	Rating	Outlook
AES Corp.	BB	Positive	BB-	Negative
Allegheny Energy Inc.	A	Negative	BBB	Negative
Aquila Inc.	BBB	Stable	BBB-	Negative
Calpine Corp.	BB+	Stable	BB	Stable
Dynegy Inc.	BBB+	Watch Negative	B+	Watch Negative
Enron Corp.	BBB+	Stable	D	
NRG Energy	BBB+	Stable	CCC	Watch Negative
Ecel Energy Inc.	A-	Stable	BBB	Watch Developing
Reliant Resources Inc.	BBB+	Stable	BBB-	Watch Negative
The Williams Companies Inc.	BBB+	Stable	B+	Negative

(Source) Standard & Poor's (2002), "Project & Infrastructure Finance"



Challenges for Enhancing Energy Security in APEC

- Robust Energy Demand Growth
 - Energy demand will grow faster in APEC than the rest of the world.
- Rising Energy Prices
 - Strong demand is exerting long-term pressure on energy prices.
- Greater Oil Import Dependency
 - APEC oil import dependency will reach 55% in 2020 from 36% today.
- Large-scale Investment Requirements
 - US\$3.4 trillion to \$4.4 trillion needed in the next two decades.



APERC Activities to Address Energy Security

- Dissemination of Energy Data
 - **APEC Energy Database** – Data on APEC Energy and Economy
 - **Joint Oil Data Initiative** – Monthly Oil Data and Analysis
- Dissemination of Information and Analysis
 - **APEC Energy Demand and Supply Outlook** – Biannual Publication
 - **Oil Supply Security** – Oil Stockpile and Emergency Preparedness
 - **Energy Market Reform** – Electricity Market Reform and Gas Market Reform
 - **Energy Infrastructure** – Natural Gas Pipeline, Power Interconnection and Energy Investment Outlook
 - **Energy Efficiency** – Industry, Residential, Commercial and Transportation Sectors
 - **Environment** – New and Renewable Sources, Climate Change
 - **APEC Energy Overview** – Annual publication on updates of notable development in the energy sector of APEC

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