

# Energy security and sustainable development: Asian and Pacific perspectives

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# Backdrop

*Impressive economic growth, in terms of GDP, and rapid industrialization in Asia and the Pacific, with the emergence of China and India as rising economic powers, has heightened energy security as a major concern for the region*

## Overall policy shift

*A policy shift towards a sustainable energy path*

# Definition of Energy Security

There is no internationally agreed definition

*Energy security is a term that applies to the availability of energy at all times in various forms, in sufficient quantities, and at affordable prices, without unacceptable or irreversible impact on the environment.” WEA, 2004*

**APERC** defines energy security as the ability of an economy to guarantee the availability of energy resource supply in a sustainable and timely manner with the energy price being at a level that will not adversely affect the economic performance of the economy

The European Union's long-term strategy for energy supply security are geared to ensuring, for the well-being of its citizens and the proper functioning of the economy, the uninterrupted physical availability of energy products on the market, at a price which is affordable for all consumers



# Definition of Energy Security

**Energy security to cover all essential elements:**

**Accessibility,**

**Affordability,**

**Availability and**

**Sustainability**

***ES to encompass both security of supply and security of demand***



United Nations  
ESCAP

# Why energy security?

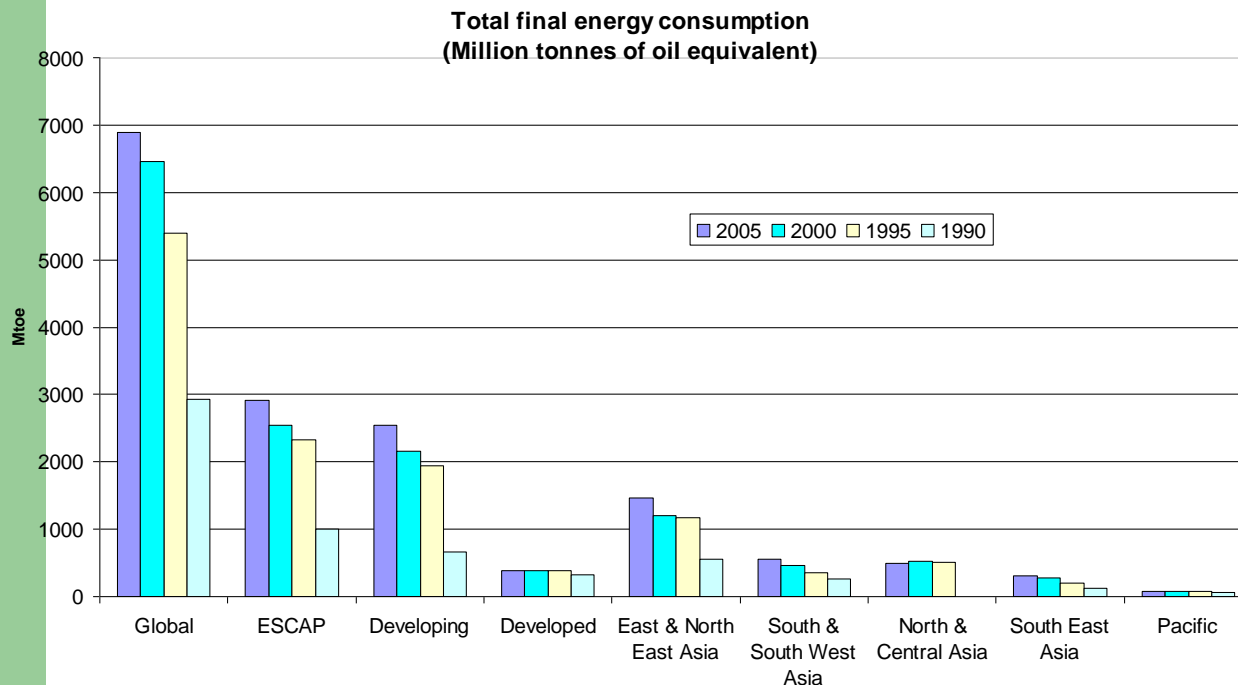
- To secure energy supplies for socio-economic development
- To ensure demand security (Market stability)
- To contributing (access) to the achievements of the MDGs
- To minimize the impact of oil/energy prices on the economy
- To reduce dependency on fossil fuels, particularly imported from outside the region
- To address sustainability concerns of and on the energy sector
- To promote regional and subregional energy cooperation



- **How the energy sector evolving in the Asian and Pacific region?**

# Current Regional Energy Scene in Asia and the Pacific

## ■ Relatively Low Energy Consumption Level



More than 60% of the World's population consumes just over 40% of the energy

Note: 1990 totals for ESCAP, developing and developed countries exclude Central Asia

•Source of data:

– UN Statistics Energy Database, 2007

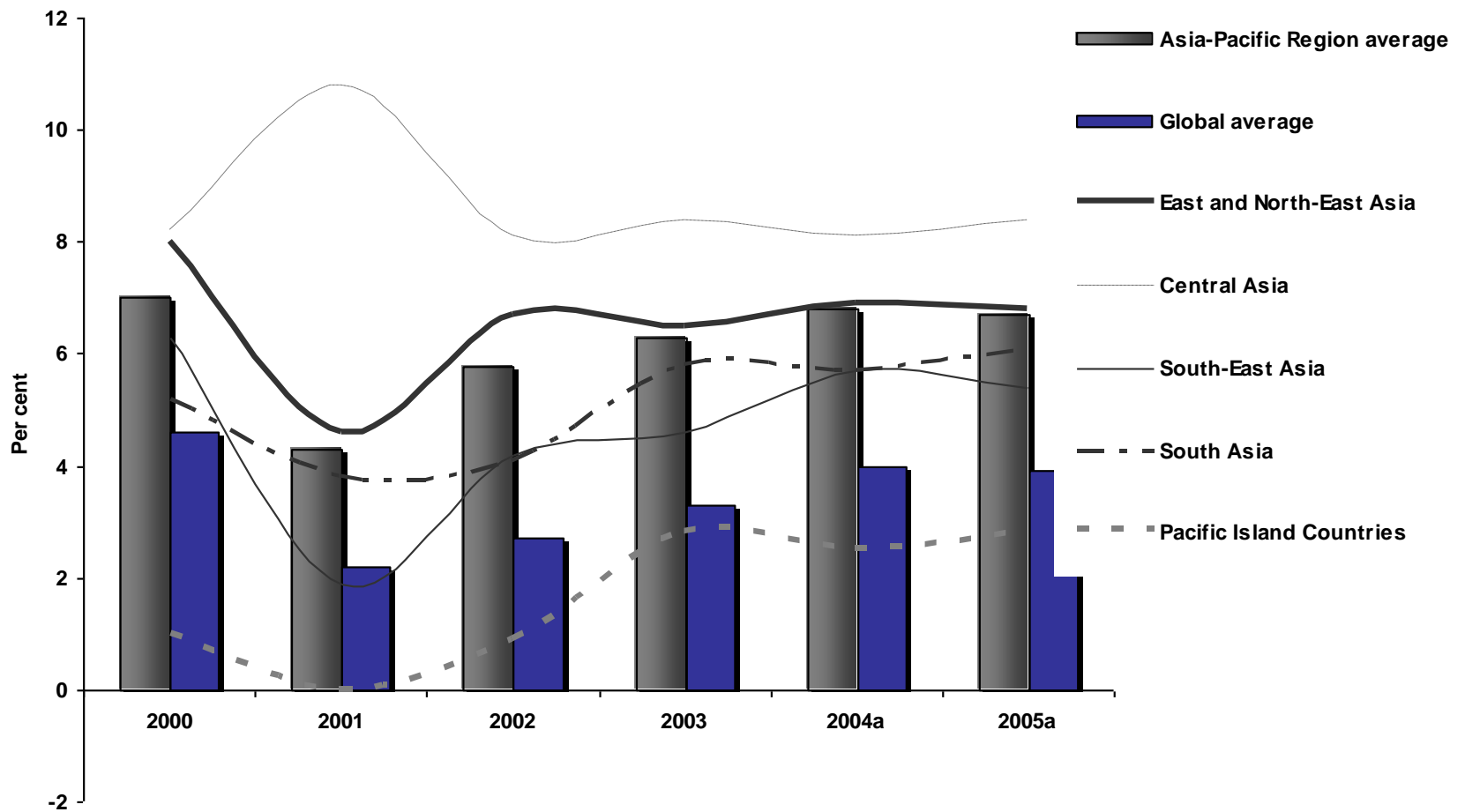
# Factors driving the energy sector

- Growing energy demand spurred by rapid economic growth and unmet demand
- **Worsening energy security, aggravated by high and volatile energy market**
- Increasing concern about environmental sustainability
- **Changing energy sector governance**
- Inadequate infrastructure
- **Lack of access to financing**



# GDP Growth

Average GDP Growth rates in Asia and the Pacific



# Challenges in the Energy Sector Infrastructure Development

- **Energy infrastructure development lags energy demand growth**
- **Lack of access to financing: region will require 9 trillion USD between 2006 and 2030 – Sustainable energy scenario (USD 8.3 trillion) and innovative financing**
- **High dependency on imported fossil fuel: Finding alternative energy supply options, including new and renewable energy**
- **High energy intensity: Adoption of more aggressive energy conservation and efficiency policies**

## High vulnerability to oil price

- Oil price remains consistently high (Touching \$US100/bbl)
- Higher oil prices hit the low income countries the most
- Many countries depend heavily on imported oil/energy
- Many of these countries do not have much options for substitution

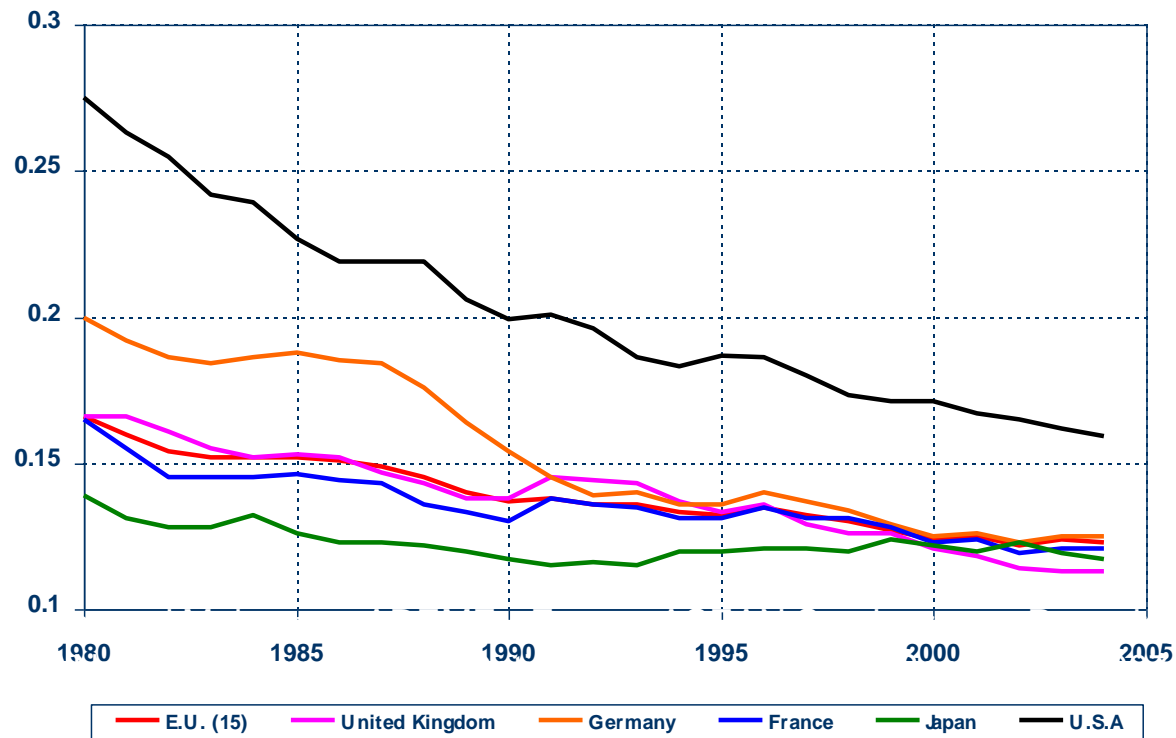
# **Demand (end-use) side management**

- **AP facing severe energy security and sustainability challenges**
  - **Fossil fuel to 90 per cent of the current and future demand**
  - **Growing GHGs and other pollutants**
- **A comprehensive and set of policy options need**
  - **EE measures are available now and at low or no cost**

## Energy intensity trend (1990 \$)

	1980	1990	1995	2000	2005
Global	0.18	0.13	0.22	0.23	0.22
Asia-Pacific	0.19	0.17	0.35	0.33	0.32
AP DCs	0.26	0.28	0.67	0.59	0.47
South-East	0.42	0.35	0.41	0.50	0.41

## *Benchmarking: Final energy intensity in OECD countries*



# What is the future prospect for energy intensity?

- Enormous potential for improving EE (sustainable energy development scenario)
- It's a cheaper option (\$1 may save \$3 in investment in energy infrastructure)
- Increasing contribution to eco-efficiency improvement
- Role in influencing energy consumption pattern
- Contributing to encourage competitiveness
- An emerging business opportunity

# Changing consumption pattern needs participation of many?

- **3 major actors**
  - Individual consumer
  - Private sector
  - Public sector
- **Current debate focuses on**
  - individual consumer choice and private sector products
- **Limited focus on the role of public sector**



## Strategies and policies to improve energy security and sustainable development in AP

- Concerted and collective efforts (including public-private partnership) to contain market volatilities for a win-win solution
- Vigorous actions to use oil and other conventional energy resources as efficiently as possible
- Step up efforts to
  - (a) improve eco-efficiency of economic growth by changing consumption and production patterns, and
  - (b) increase investment in research and development to promote wider use of alternative sources of energy mainly RE
- Cooperation among countries of the region and beyond (TAES)
- Consideration should be given to establish a regular forum on energy policy in Asia-Pacific



# **Infrastructure development and investment need?**

## Infrastructure needs (Mtoe)

		BAU (ref)	SE	BAU (ref)	SE
	2006	2020	2020	2030	2020
AP	4, 777	6,693	6,178	7,971	7,185
AP (Incl. RF)	5,482	7,522	6,925	8,894	7,976
World	12,243	15,444	14,094	17,507	15,799

## Financing needs (US\$ billion) 2006-2030

	BAU (ref)	SE
AP	8,114	7,352
AP (incl. RF)	9,022	8,256

# Possible policy options/actions?

*The region needs a paradigm shift in policies and strategies*

**A range of actions to improve energy security through**

the creation of an all inclusive and strategic energy policy

**Overall thrust - to reduce dependency on fossil fuel through**

diversification of energy supply, including new and renewable sources of energy and efficient use of energy



# Areas of focus

1. **Sustainable Energy Infrastructure Development**
  - a) **Energy supply mix dominated by fossil fuels**
  - b) **Enhanced role of renewable energy**
  - c) **Demand side (end-use) energy management**
  - d) **Energy and climate change**
2. **INVESTMENT AND FINANCING**
3. **ACCESS TO MODERN ENERGY SERVICES**

# Areas of focus

4. **INNOVATION AND COMPETITIVENESS**
5. **GREATER REGIONAL AND SUBREGIONAL ENERGY COOPERATION (From independency to inter-dependency)**
  - a) **Safeguard against energy market volatility**
  - b) **Regional energy trade, transit and exchange**
  - c) **South-South cooperation**

# Way forward

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1. *The region needs a **paradigm shift** in policies and strategies to enhance energy security not only at the national level but also at the regional level.*



# Way forward

2. In paradigm shift, an integrated policy framework needed that could comprise:
  - a) **Sustainable energy infrastructure development** taking into account economic, social and environmental dimensions
  - b) **Investment and financing**
  - c) **Access to modern energy services by all**
  - d) **Innovation and competitiveness**
  - e) **Greater regional and subregional energy cooperation:**
    - i. **Safeguard against energy market volatility**
    - ii. **Regional energy trade, transit and exchange through a mechanism such as a well coordinated Trans-Asian Energy System**
    - iii. **South-south cooperation**



# Thank you

Further information

<http://www.unescap.org/esd/energy/>