

# **The Energy Challenge for Poverty Reduction and Economic Growth**

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# Outline of Presentation

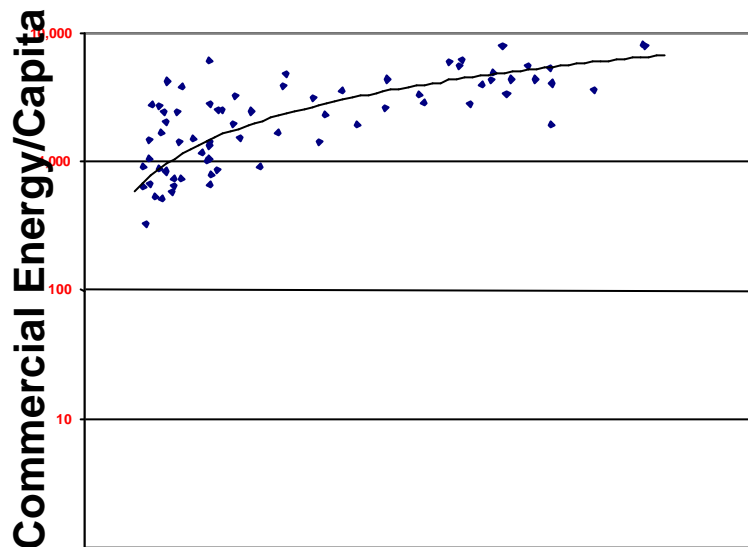
- Some Global Facts: the Energy Divide
- Energy and Development Objectives
- Opportunities
- What is the World Bank doing?

ESMAP.ORG

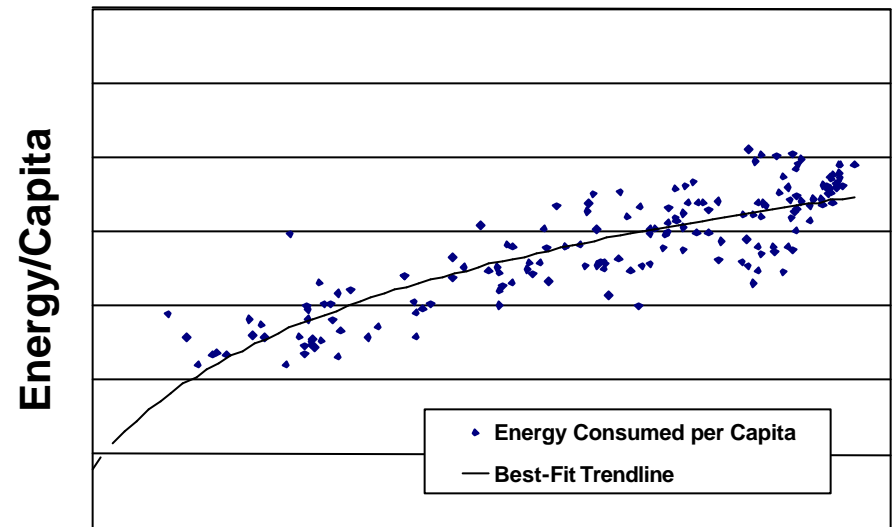
# The Energy Divide Energy is key for Growth and for Human Development

Energy is important for growth and energy-based innovation is central to productivity growth

Energy is Key to Human Development: safer health services, Higher quality education, Access to information



Per Capita Income



Human Development Index (HDI)

# How do the rich and the Poor Meet their energy needs?

## The rich

- Electricity
- Petroleum Products
- Natural gas
- Biomass for barbecues
- Low % of high productivity human energy

## The Poor

- Human energy: never spoken about, or accounted for in national accounts, yet single most important source for agriculture, transport, cooking etc., but low productivity
- Biomass: for cooking and heating
- LPG
- Petroleum products
- Electricity

Energy Rich –Energy Poor? Major Disparities & Inequities:  
is this sustainable?

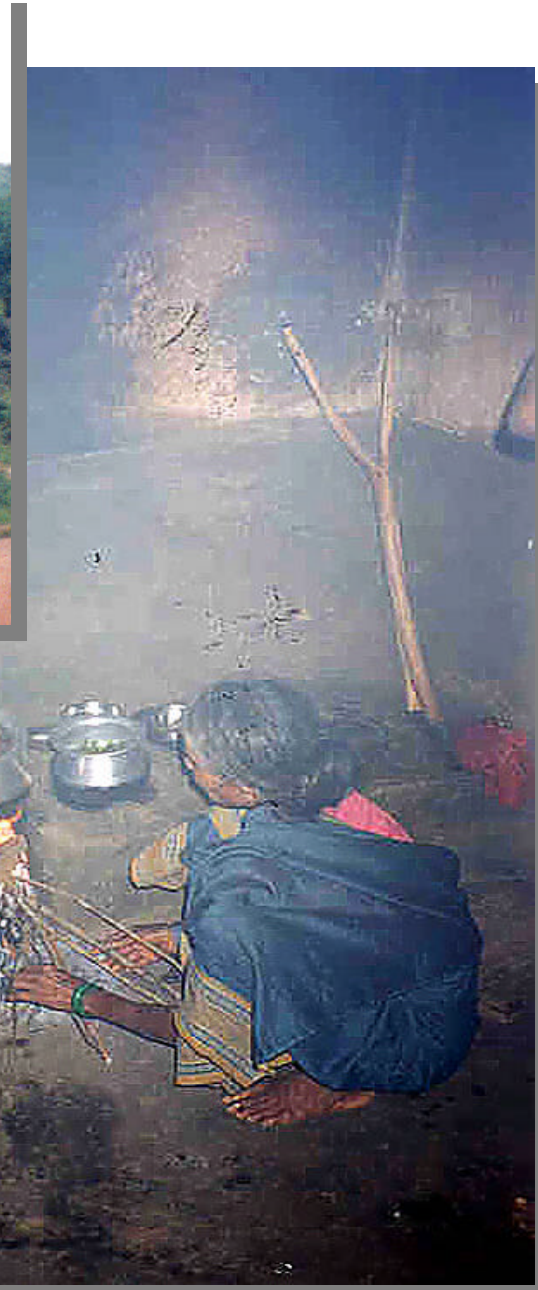


# GLOBAL Warming Outdoor Air Pollution

## Lessons from Bangladesh:

- 2/3 of the country may disappear from the rise of sea levels
- The poor suffer more
- Death of infirm people
- PM10 Particles Aggravate Health Problems such as Asthma, Bronchitis and contribute to premature Mortality and Hospital Admissions
- PM2.5 Particles contribute mainly to premature Mortality and Hospital Admissions





## **Indoor Air Pollution: Number one killer:.**

Indoor air Pollution kills 2.5 million women and children p.a, more than malaria and tuberculosis (WHO).

# Energy Security: A source of tension between the industrialized and developing world today?

## Industrialized Countries:

- Simple Motivation: maintain consumption & sustain growth

- Straightforward strategies:

Control underground wealth  
✍ geopolitics

Market Efficiency ✍  
regulatory framework

Secure Investors ✍ corporate  
restructurings

Environmental concerns  
✍ technology

## Developing Countries

- Complex motivations: meeting basic needs, creating effective demand for energy services, creating infrastructure etc.

- No clear strategies

Export the wealth import the  
products

Some geopolitics?

Create market structures?

Governance?

Secure funding?

Create enterprises?

Acquire technology?

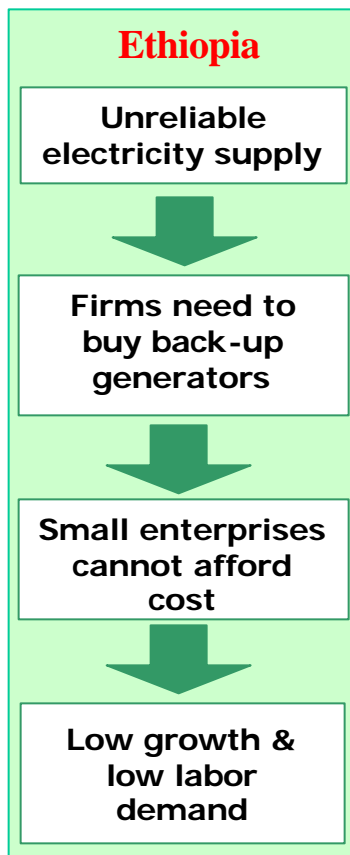


# Energy in the Poorest Countries – Where are we?

- ✍ Energy and the MDGs - clear on the What but not on the How
- ✍ Energy Prices - High prices are “taxing” low-income importers
- ✍ Investment - Huge and growing financing gap
- ✍ Financing – International public & private investors are few, domestic capital markets are weak
- ✍ Technology development - Take-up by developing countries lags

# Energy to meet the MDGs

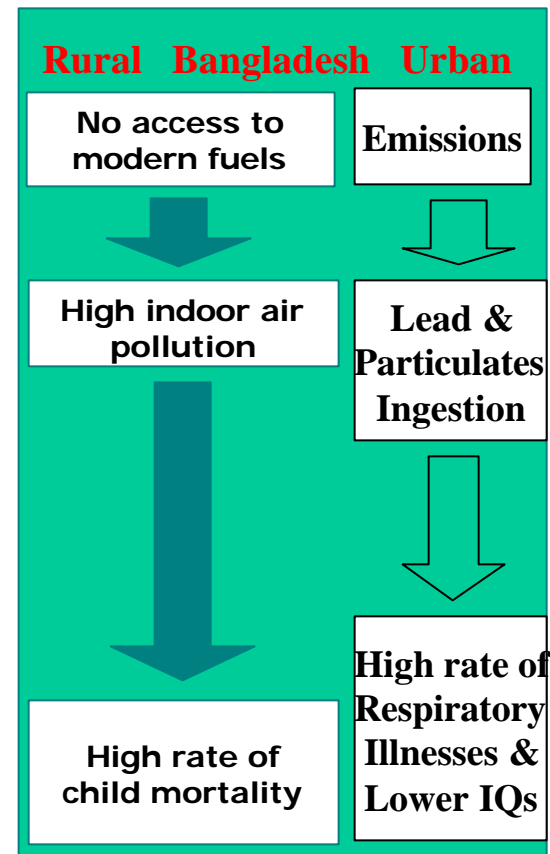
*Enterprise  
Productivity/  
Income Gen.*



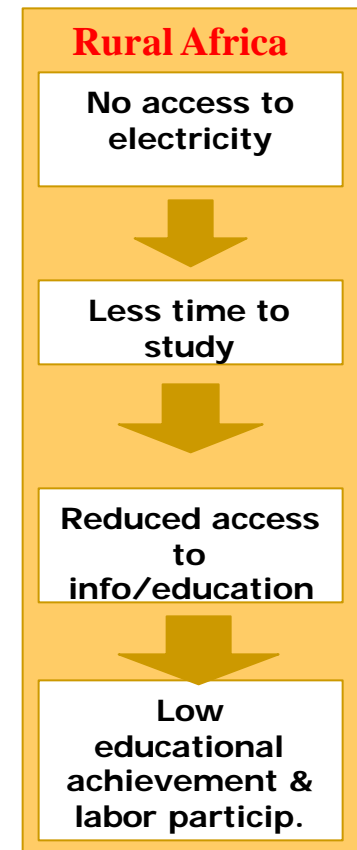
*Human  
Productivity*



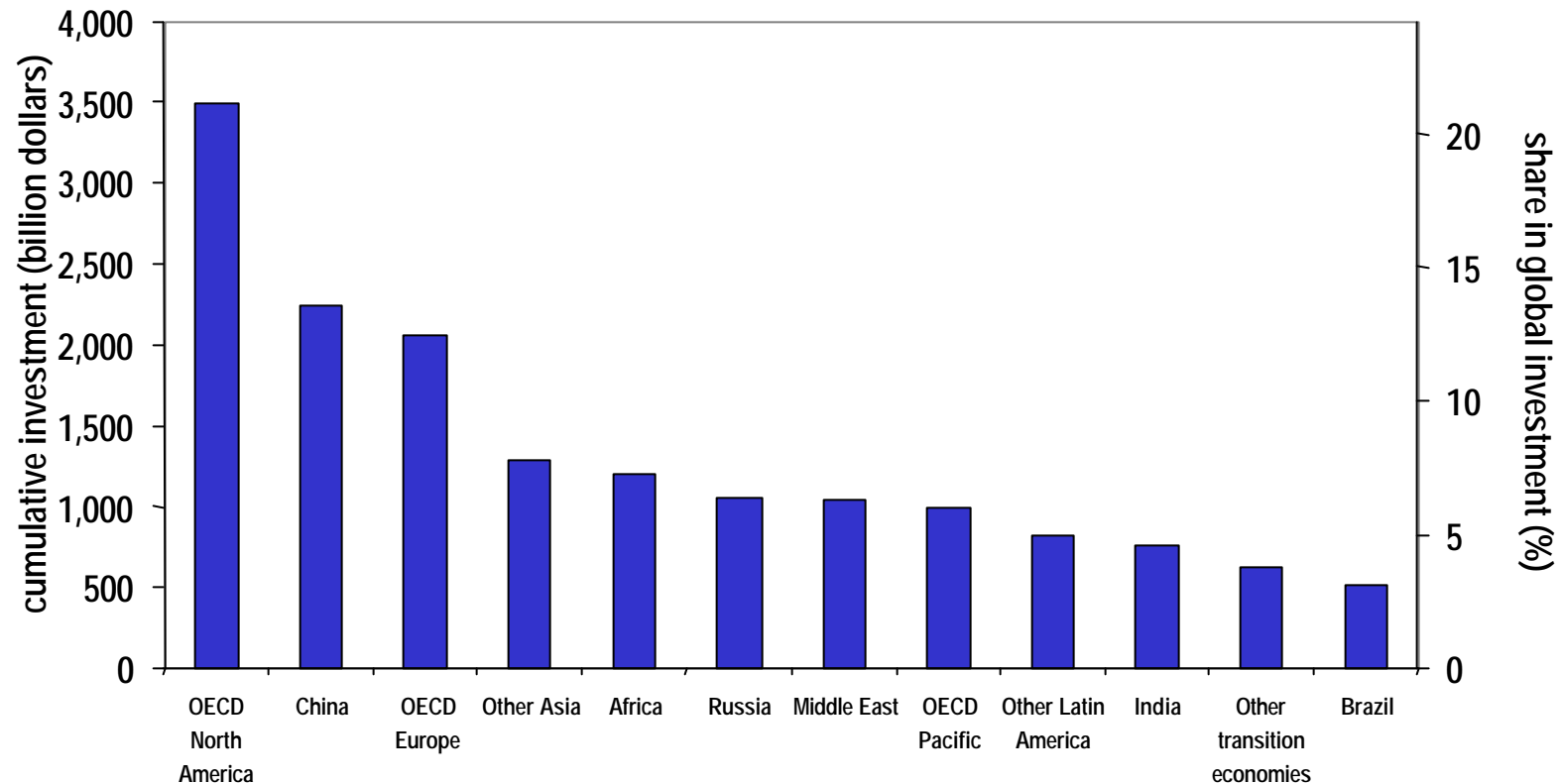
*Health*



*Education*

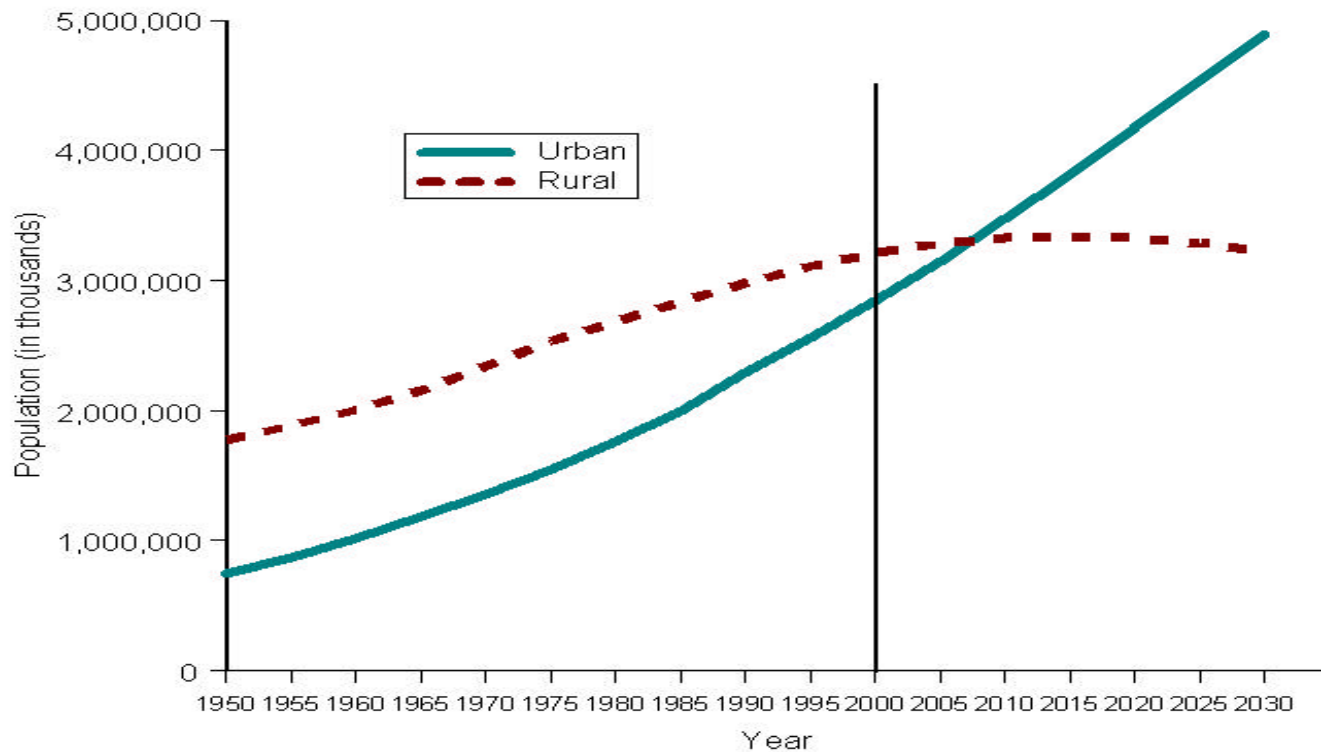


# Energy Investment Requirements by Region 2001-2030



*OECD Europe will account for around 15% of global energy investment needs of \$16 trillion*

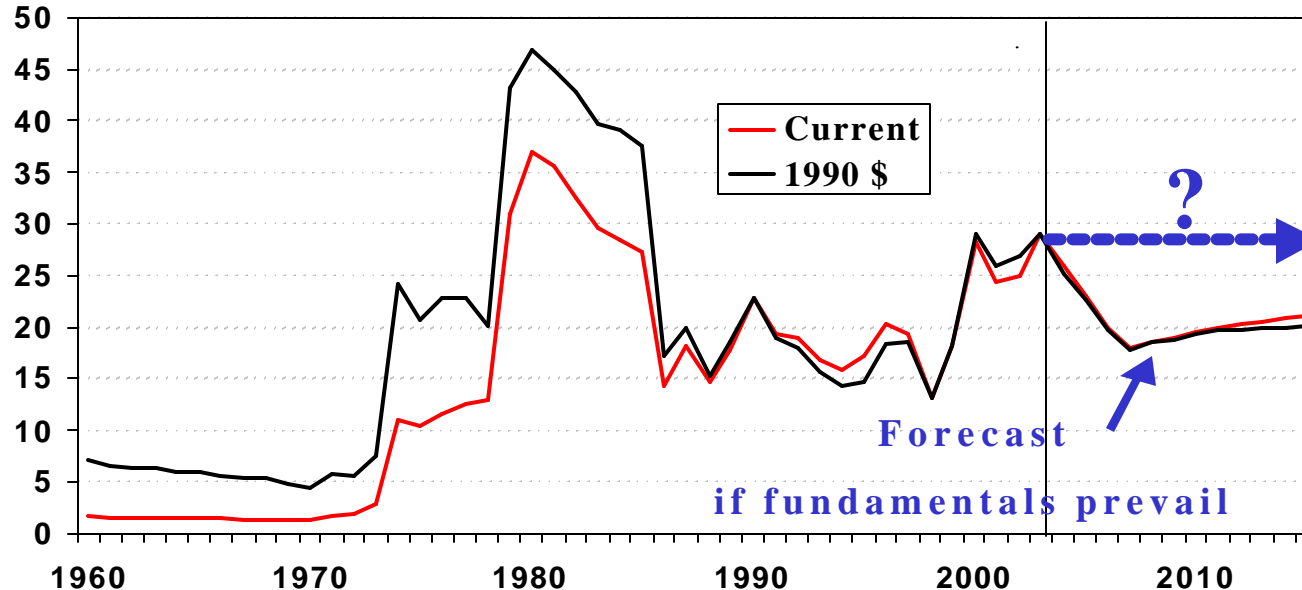
# Rapid Urbanization - huge energy infrastructure, investment and environmental mitigation needs



# Energy Prices - are persistently above trend

High prices - exacerbate the energy security crisis for low income importing countries

## Oil Price 1960-2015 (\$/bbl)

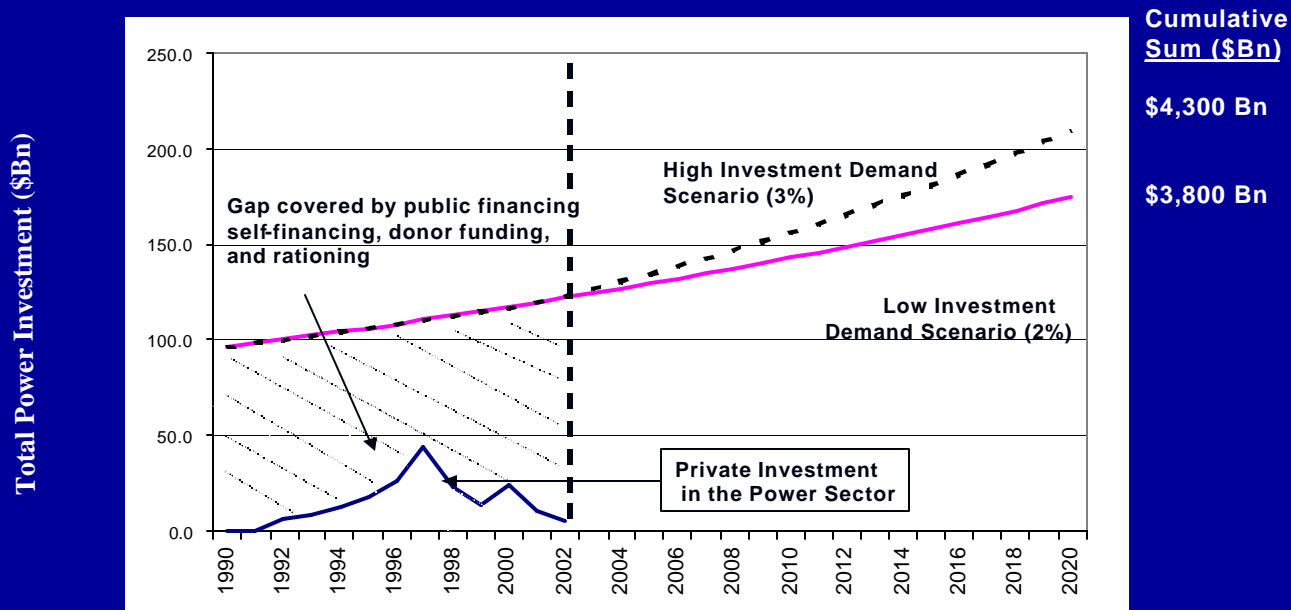


# Investment – Needs and Shortfall

- ✍ Electricity infrastructure in developing countries needs about \$120 billion of new investment p.a. until 2010 i.e. between 2 and 3% of GDP
- ✍ However investment lags resulting in shortages, system failure and slow system expansion
- ✍ Under investment in the sector slows economic growth
- ✍ **ENERGY SECURITY: Shortages, Poor System Reliability & Slow System Expansion**

# Investment - a large a growing gap

## Financing Required for the Power Sector In Emerging Markets 1990-2020



Source: World Bank, IEA, Deloitte Touche Tohmatsu Emerging Markets Group



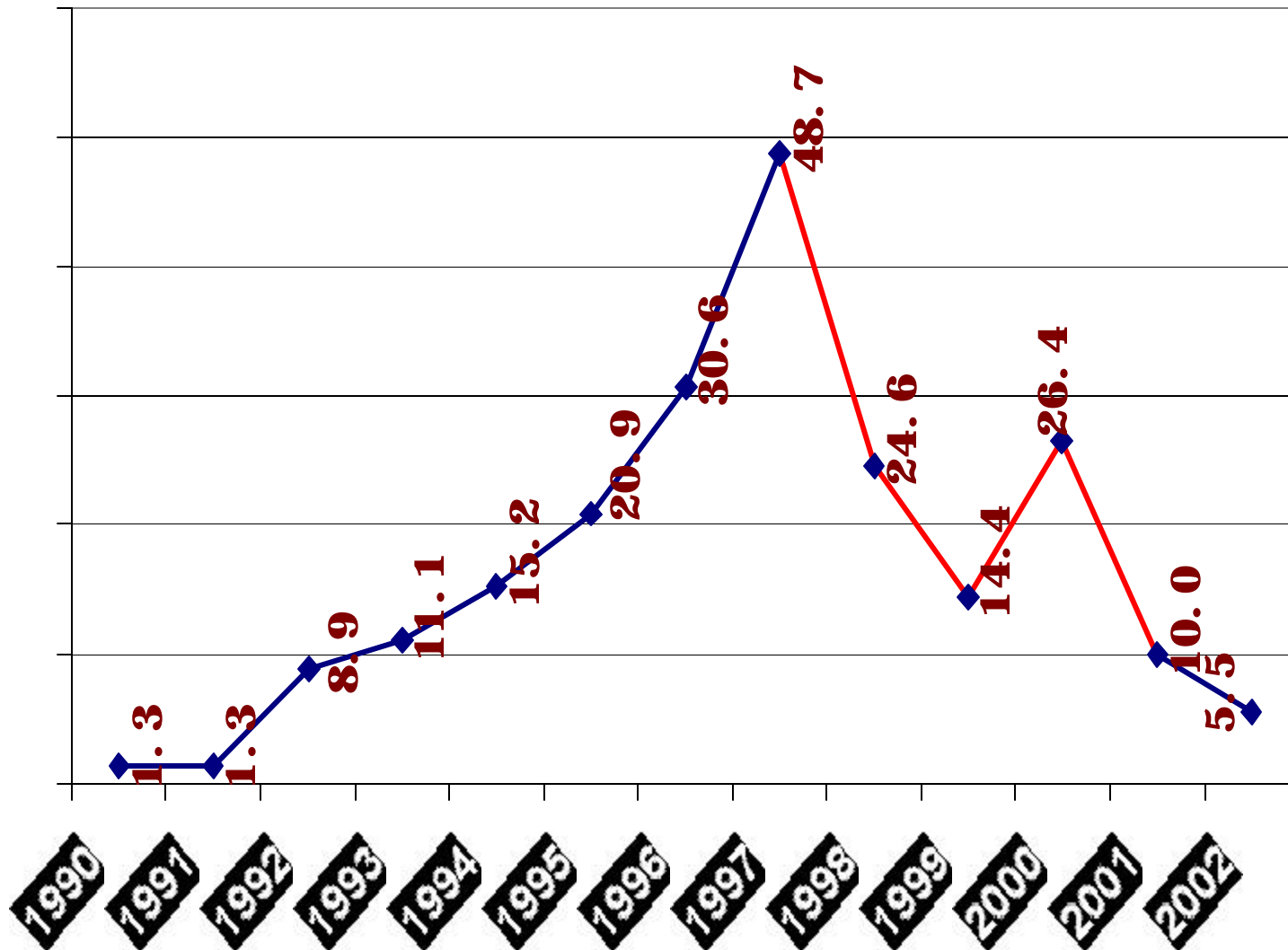
Historic

Future

Emerging Markets Group

# Decline in private investments in power in developing countries

Investment Flows in Electricity Projects w/ Private Participation (1990-2002) - US\$ billion





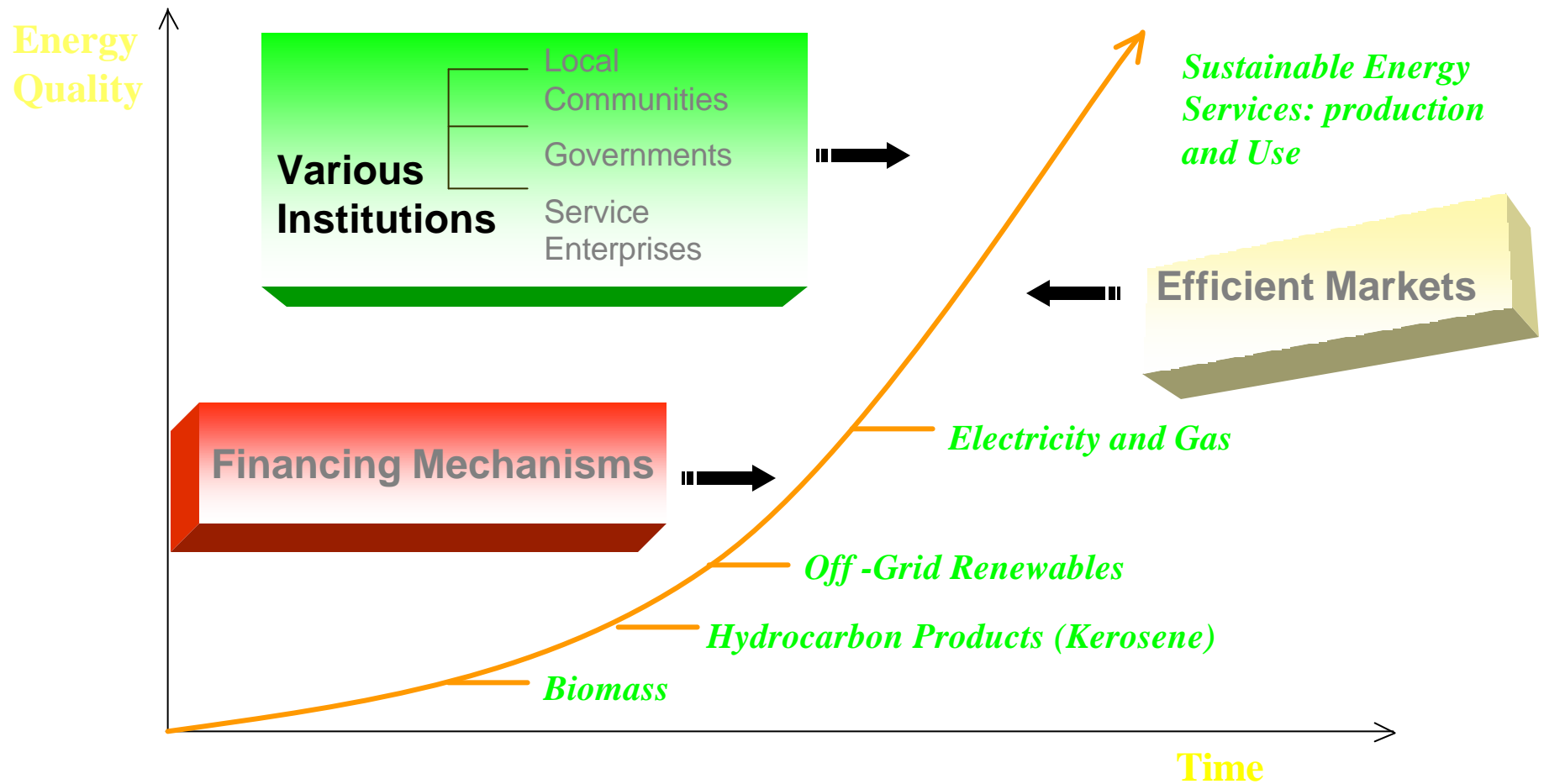
# Private Sector investors are few



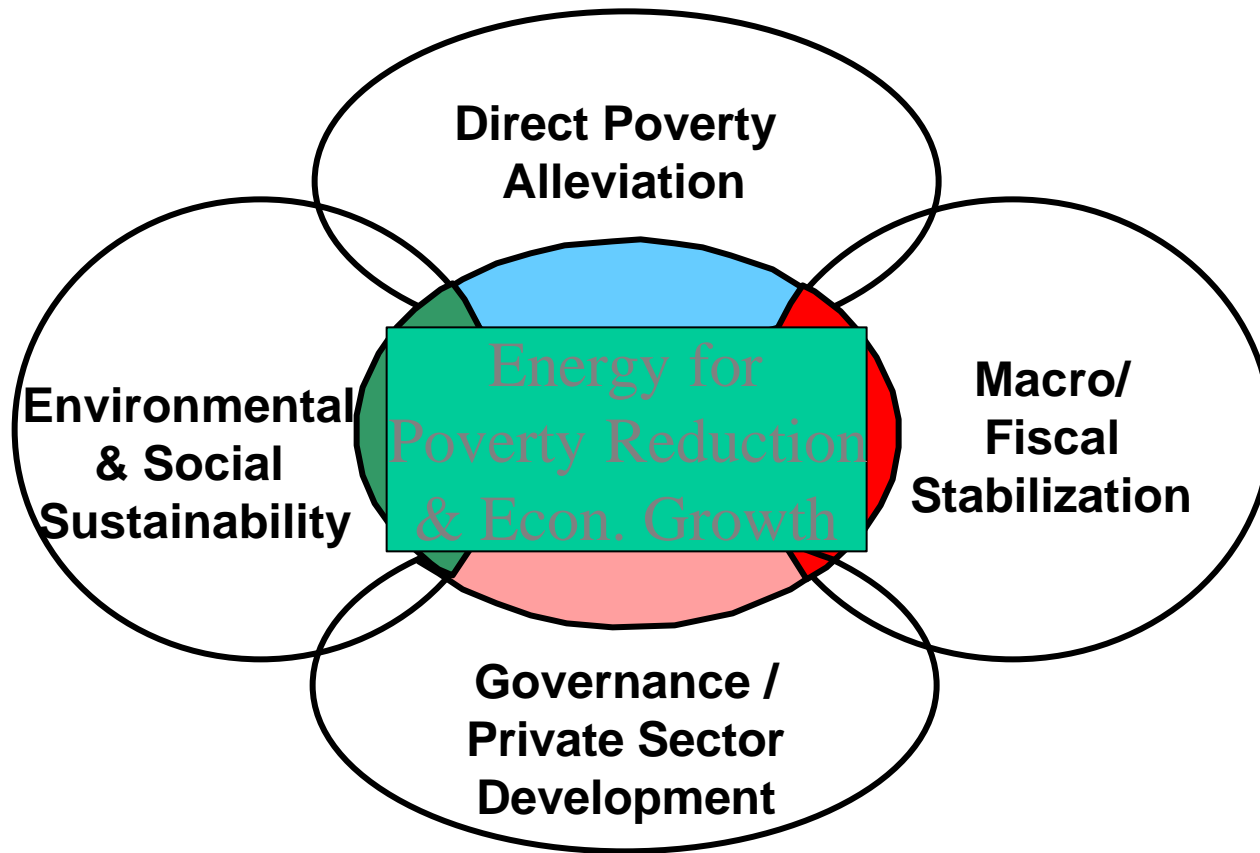
- ✍ International Private Investors
  - ✍ US investors have somehow retrenched
  - ✍ EU investors are preoccupied with EU legislation
  - ✍ opening each member's electricity market- offering huge opportunities and enormous threats to firms which do not position themselves in the new market context.
- ✍ Domestic capital participation
  - ✍ only in (some) middle income countries and for small deals in less developed countries
- ✍ But also a problem of effective demand

**WHAT DOES THE WORLD  
BANK GROUP PROPOSE TO  
DO?**

# The Global Challenge of delivering sustainable energy services to the poor

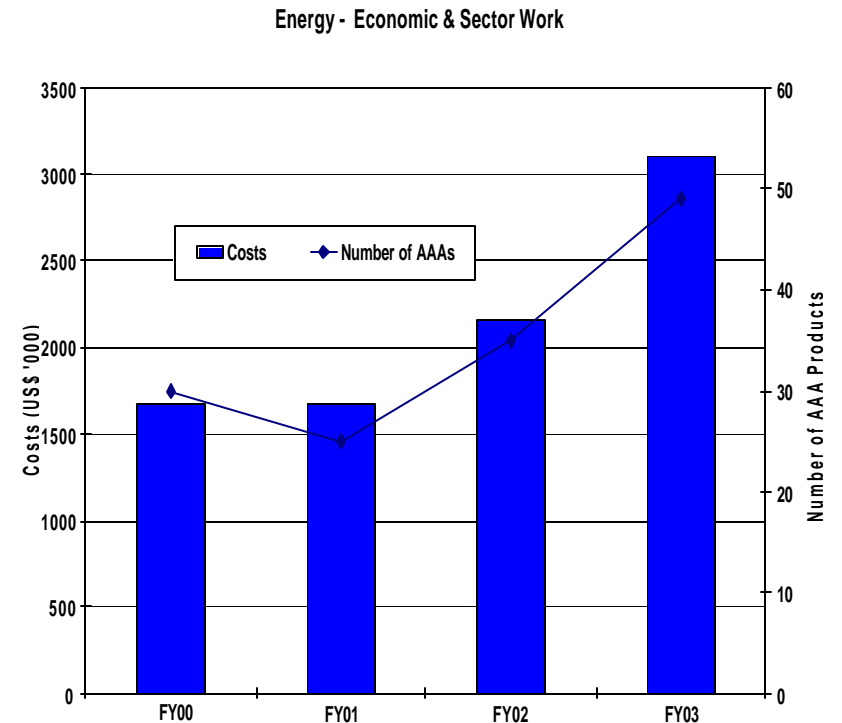
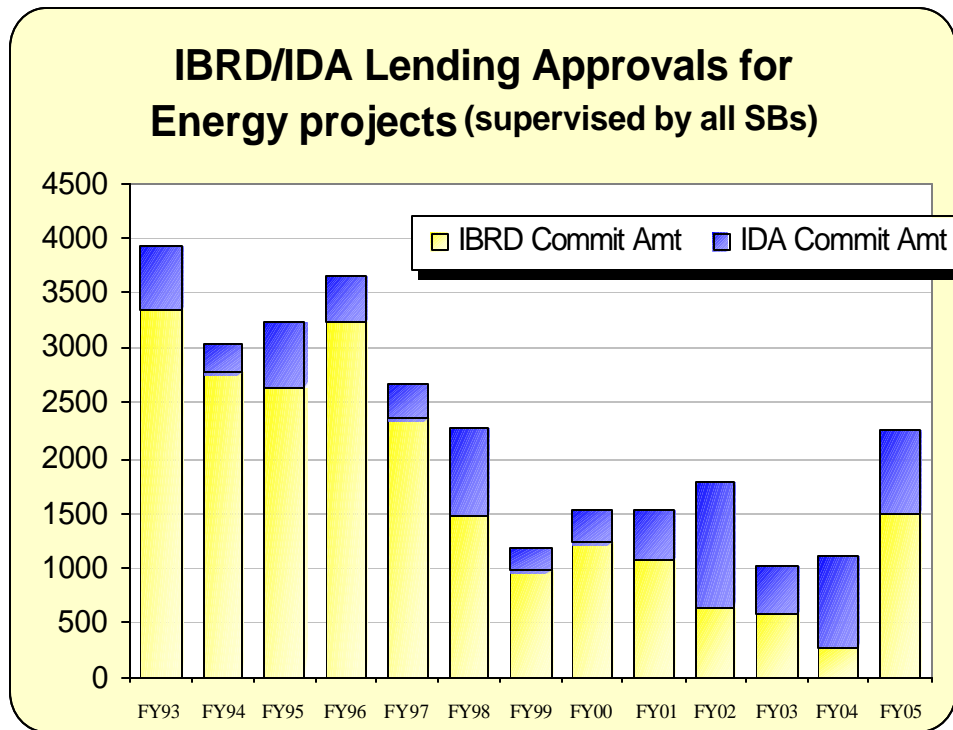


# The WBG Energy Business Renewal Strategy Framework

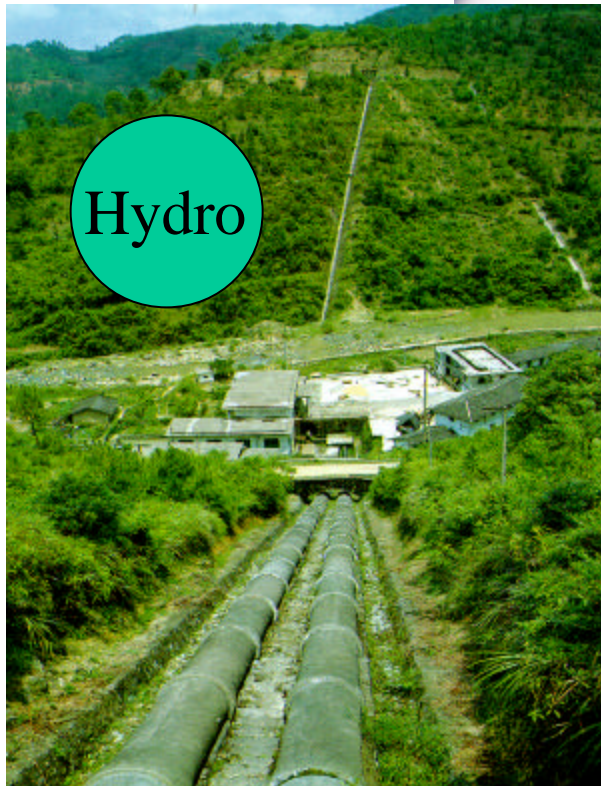


# Energy is back on the Bank agenda

Lending has recovered but WBG can do more in middle-income countries

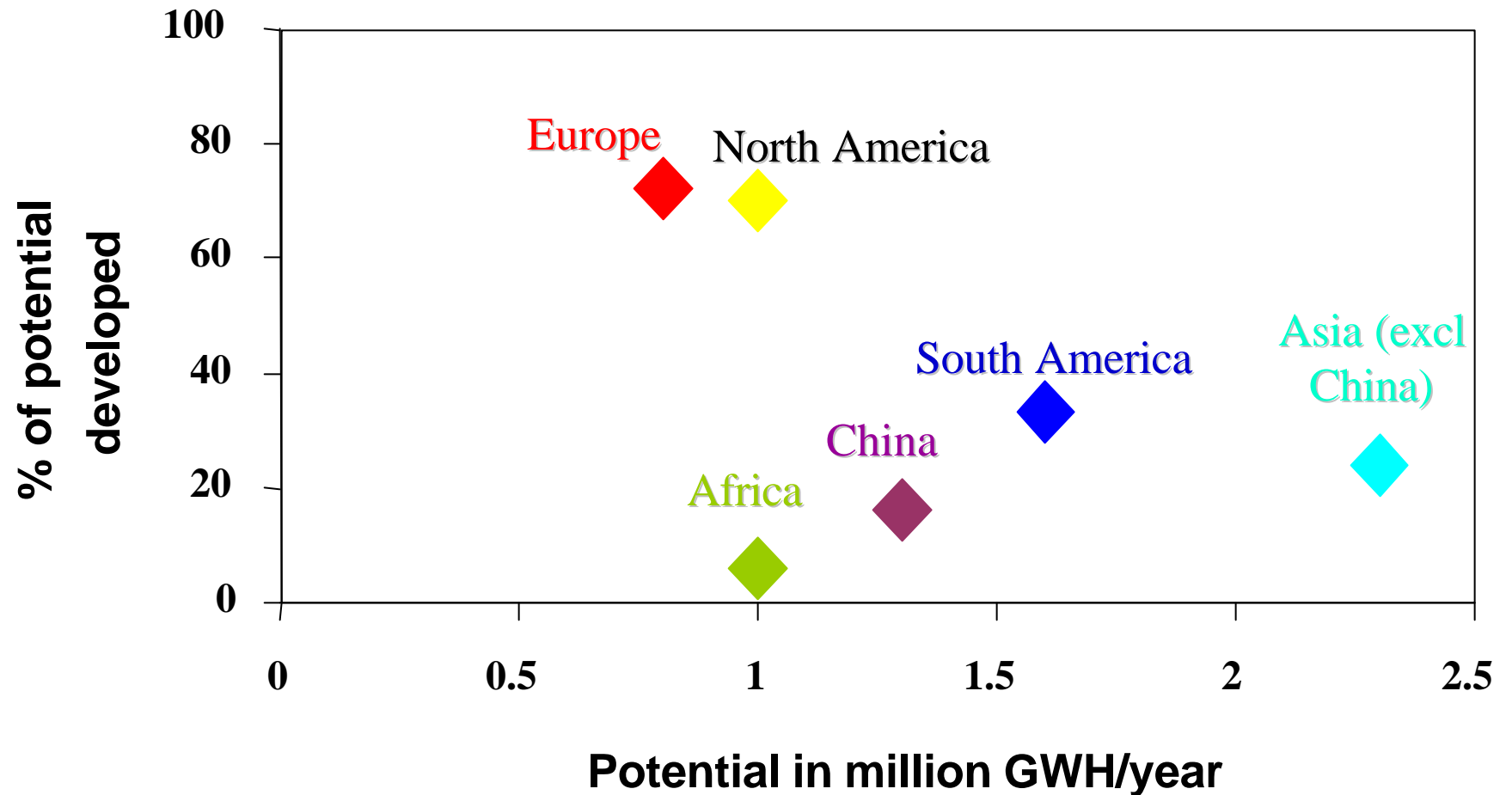


# Many Technological Options: renewable mini-grids and Hybrid Systems, Small to Big

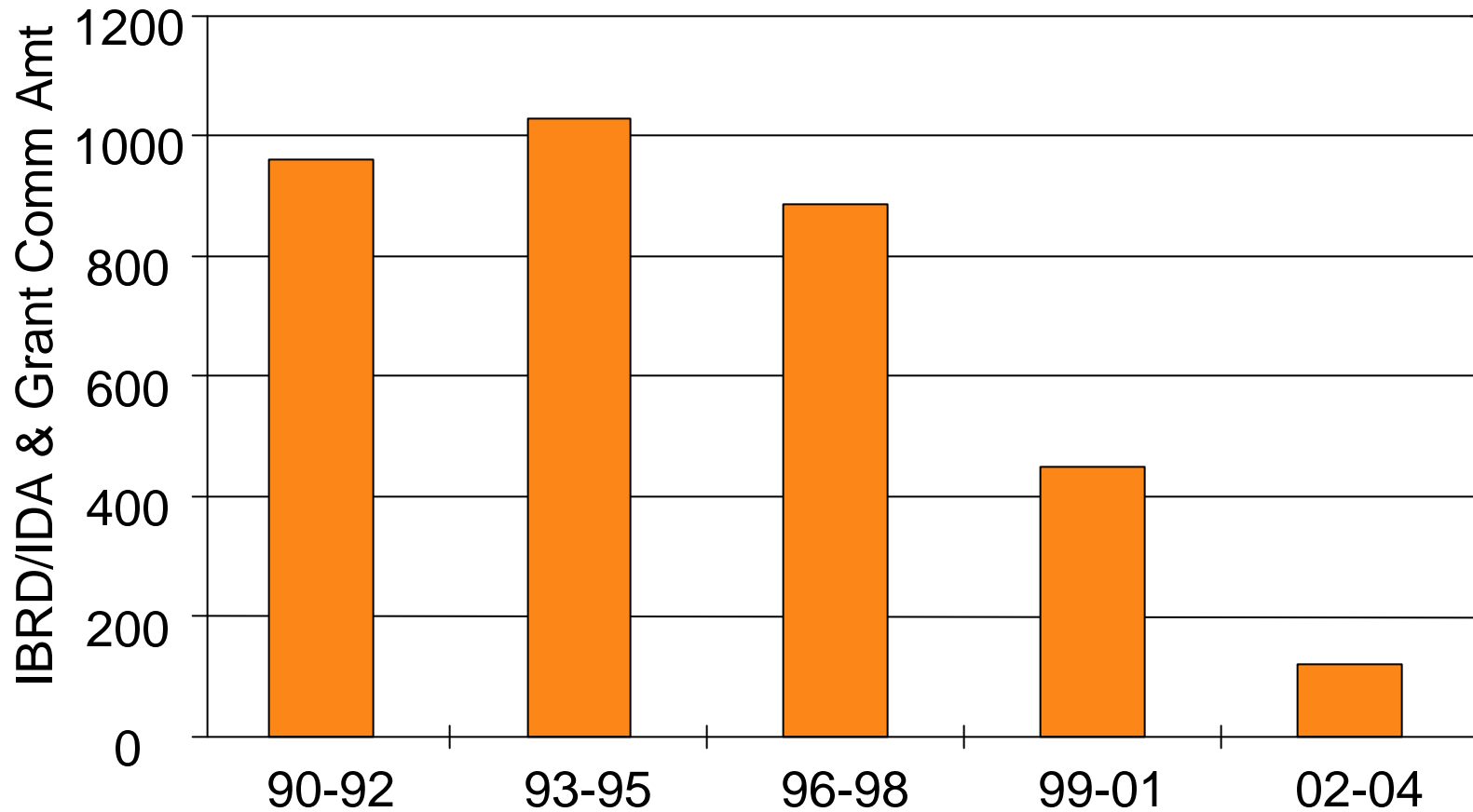


Grid extension, Distributed,  
Regional Interconnections

# Economically-feasible hydropower potential

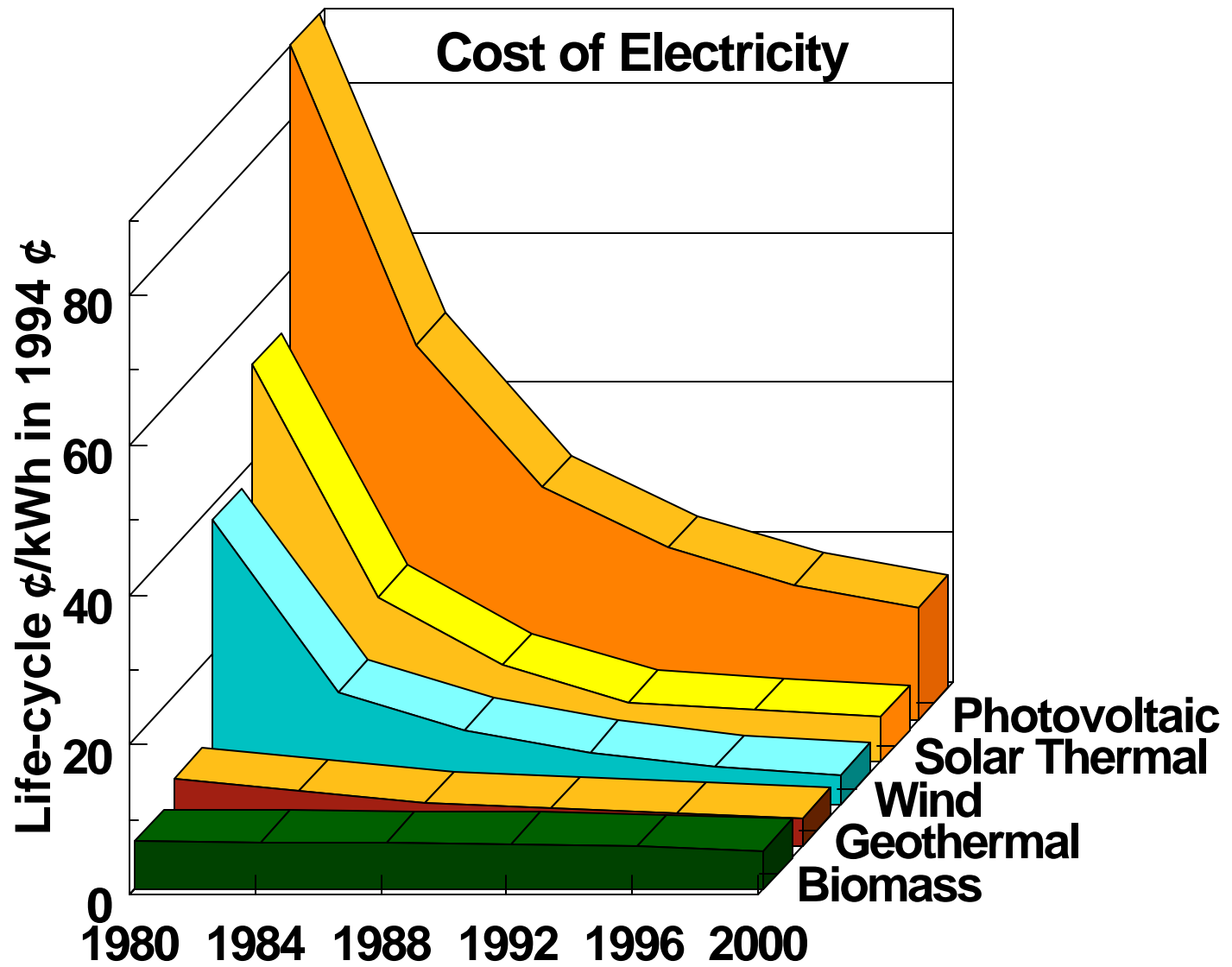


# The Bank and Hydro: Recent History

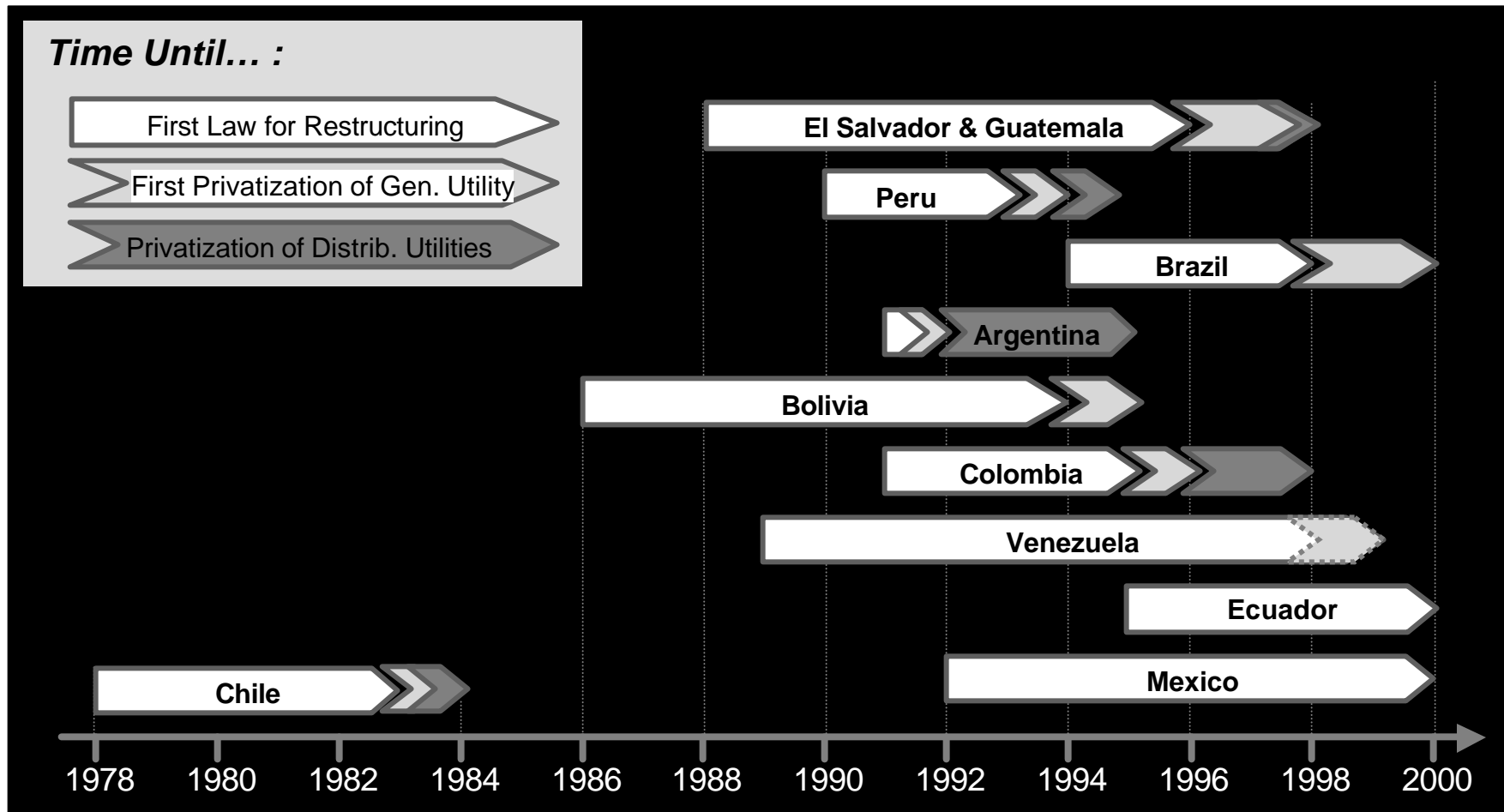




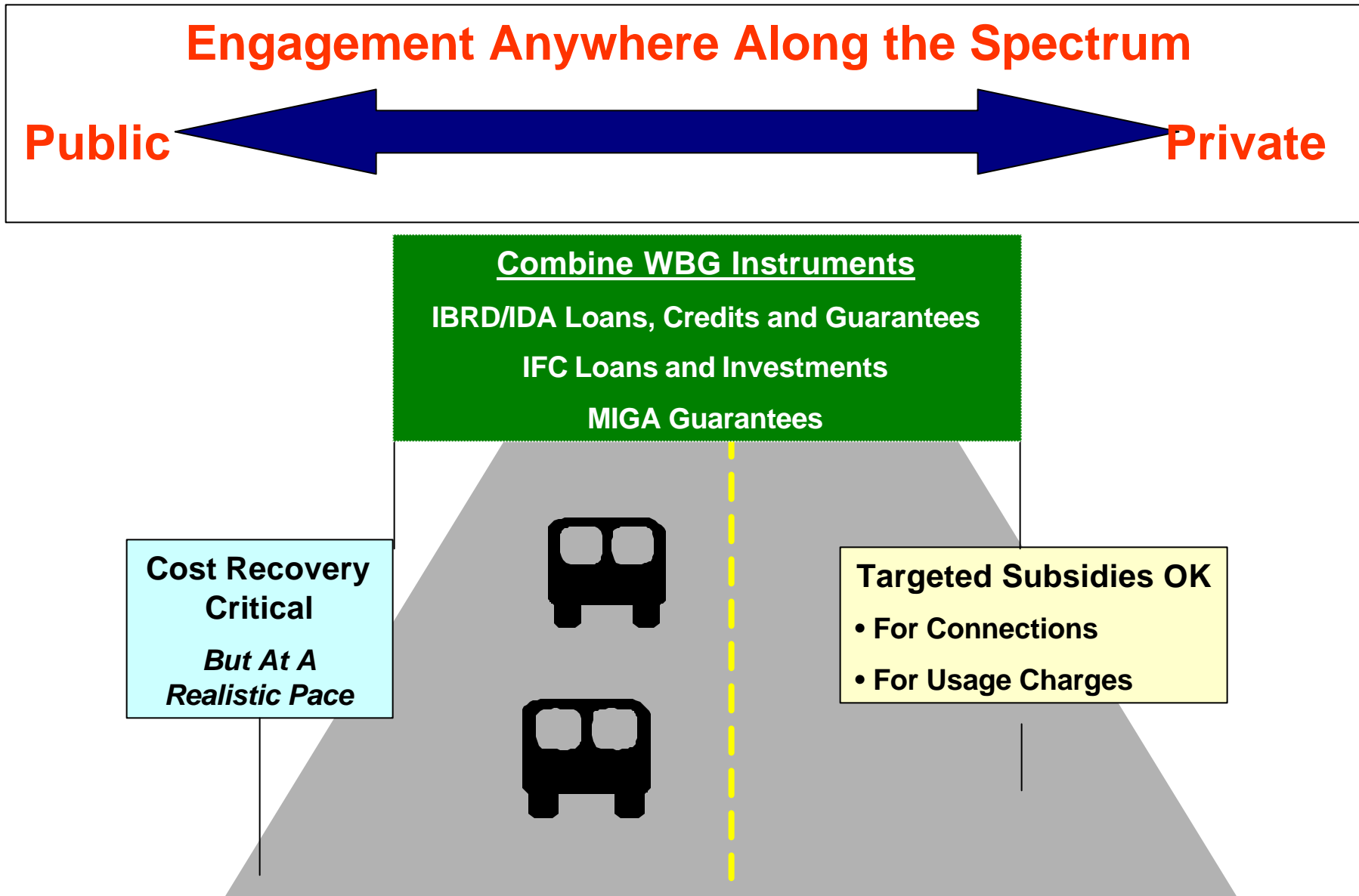
# *Opportunities.... Scaling up Renewables*



# Going back to pre-reform ways is not the answer



# Infrastructure Action Plan – Main Messages



# The World Bank Group

