

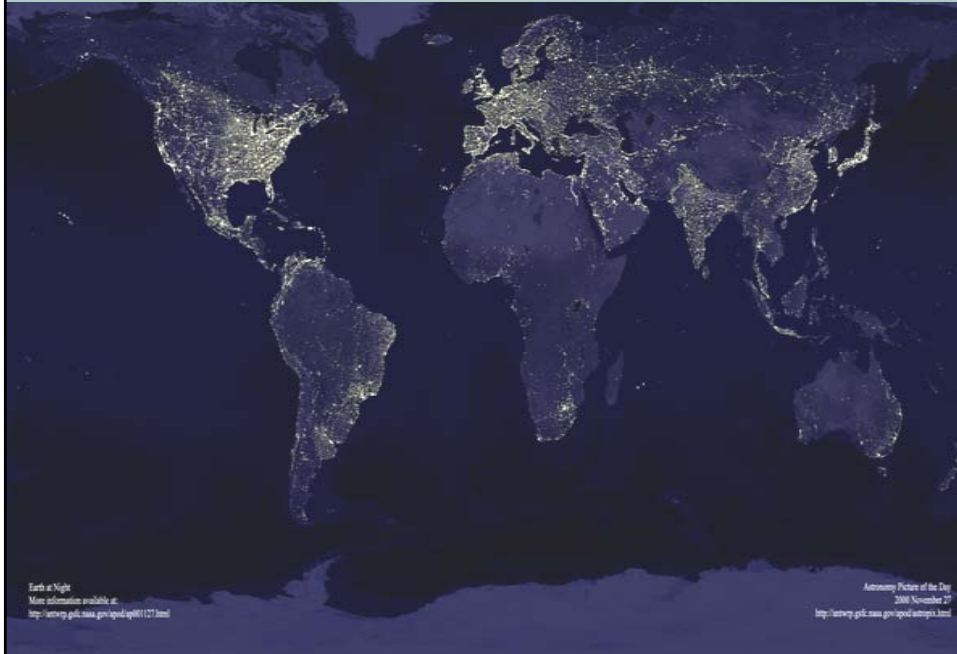
ENERGY DEVELOPMENT AND CLIMATE CHANGE



Warren Evans, Director of Environment Department, The World Bank

Washington D.C. – July 2, 2009

1.6 Billion Poor Are Without Access to Modern Energy



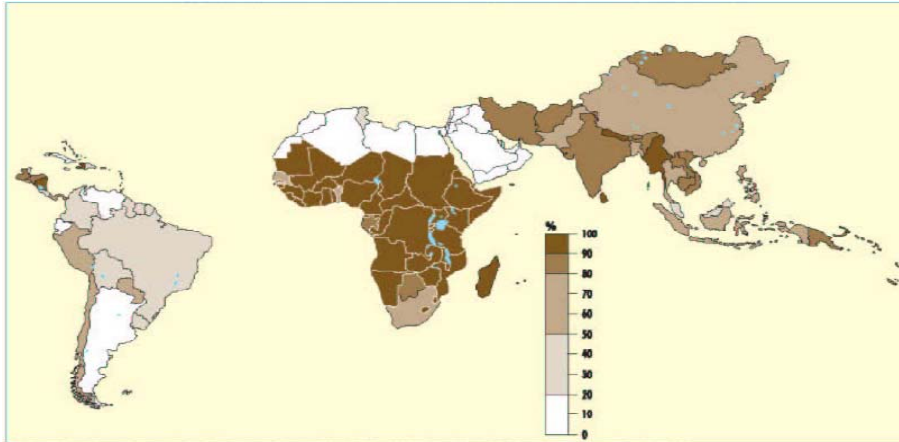
Earth at Night
More information available at:
<http://earthquake.usgs.gov/earthquake/127.html>

Astronomy Picture of the Day
2008 November 27
<http://astropics.gsfc.nasa.gov/apod/astropod.html>

One and half billion do not have access to electricity...
And two and half billion people rely on biomass...

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Share of Traditional Biomass in Residential Consumption

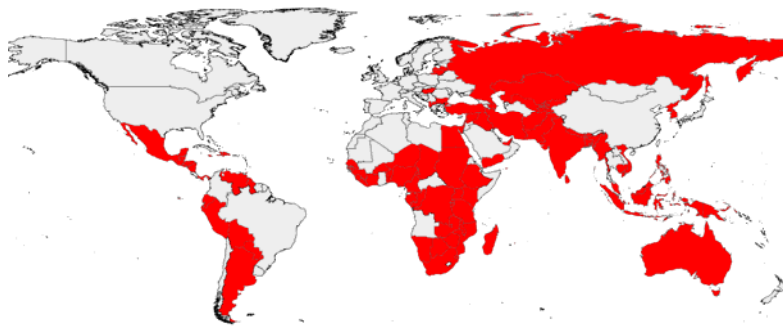


In 18 African countries more than 80% of the population use solid fuels
for cooking

Source: IEA

Current Energy Shortages

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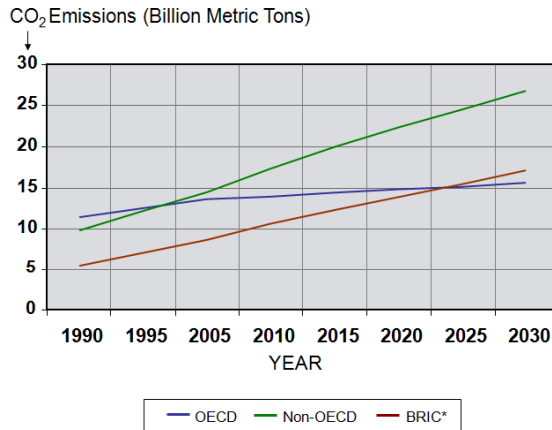


Source: energyshortage.org

Development is a Climate Change Challenge

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Emissions will grow substantially in rapidly industrializing countries



*BRIC projection comprises of Brazil, Russia, India and China

Sources: Energy Information Administration (EIA) International Energy Outlook 2008

Developing Countries are Already Taking Action...

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... drawing on a menu of instruments to match the diversity of needs

Brazil: Reducing deforestation in the Amazon by 70% by 2020; expanding biofuel programs, energy efficiency

Ethiopia: Integrating adaptation in sustainable land management, social protection, development of hydropower, and building capacity programs

Morocco: Integrated approach to tackling climate change in water, agriculture, and urban sectors; Mediterranean Solar Plan Initiative



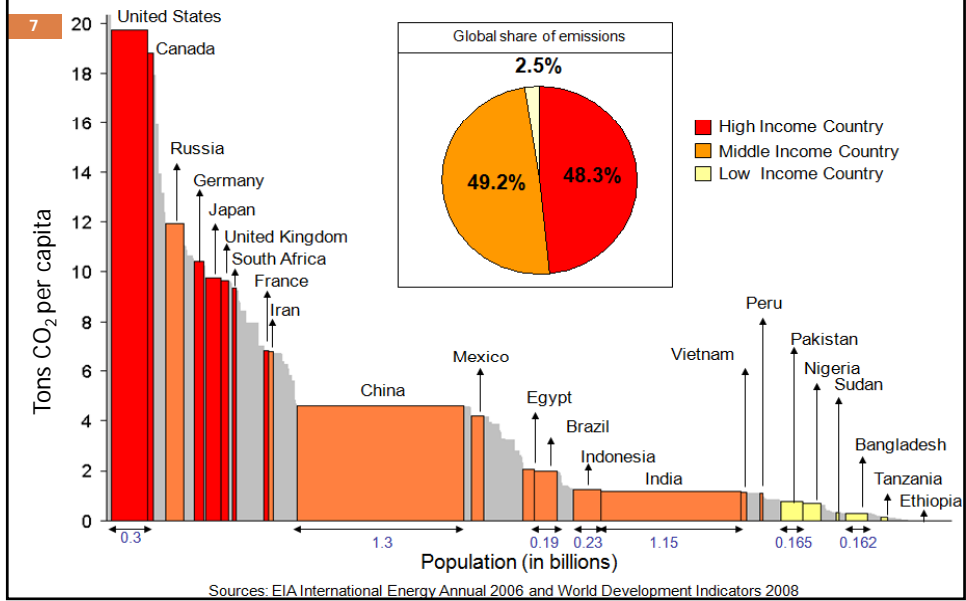
China: Energy efficiency, 20% reduction in energy intensity from 2005 to 2010; 15% renewable energy target by 2020; Clean technology R&D; sustainable transport

India: India energy planning includes energy efficiency, hydro, wind, biomass and solar energy, (target 183 GW by 2030)

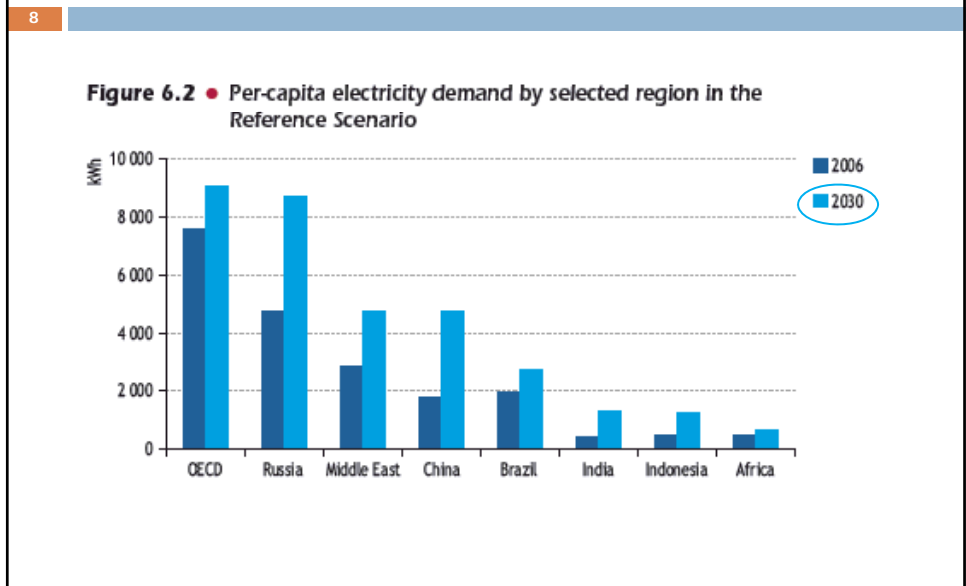
Indonesia: Adaptation (coastal flooding), forest conservation programs, scaling-up renewable energy, low carbon development fund

Caribbean Islands: Adaptation to increasing hurricanes and storms, catastrophic risk bond

Per Capita Emissions Vary Greatly



Per Capita Emissions Gaps Will Persist



There Is a New Dimension to World Bank Goal of “Sustainable Development”

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Until Recently

- ✓ Poverty Reduction and Economic Growth
- ✓ Environmental Sustainability
- ✓ Social Sustainability

Now: *Transformational shift* needed to include

- Climate Sustainability
 - ▣ Adaptation - climate resilient development
 - ▣ Mitigation - transition to low carbon development

The challenge is to balance the twin objectives of greater access and sustainability...

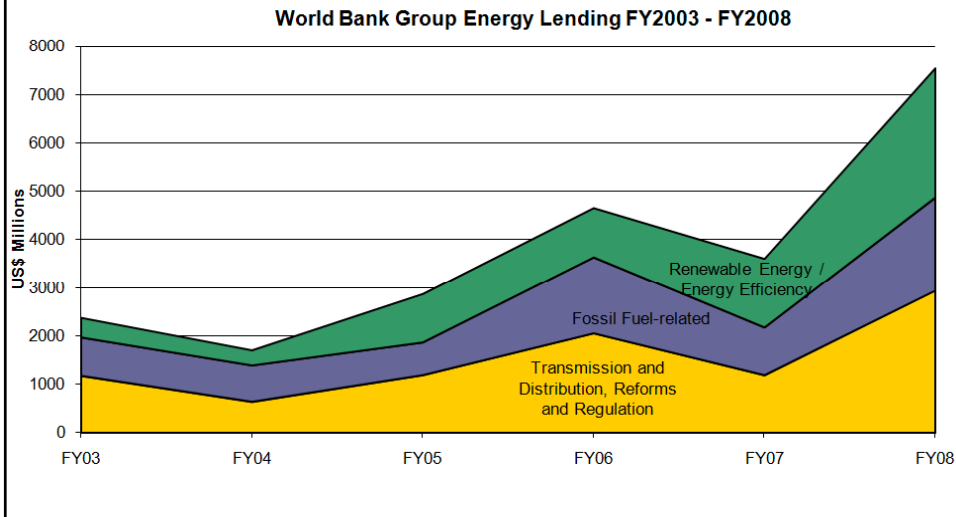
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**Improve
access and
reliability**

**Facilitate
shift to
sustainable
(low-carbon)
energy
development**

Our Energy Portfolio Is Growing Fast, But Our Low Carbon Lending Is Growing Faster

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WBG Criteria for Considering Financing of Coal-Fired Power Projects

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- There is a demonstrated developmental impact of the project including improving overall energy security, reducing power shortage, or increasing access for the poor;
- Assistance is being provided to identify and prepare low-carbon projects;
- Energy sources are optimized, looking at the possibility of meeting the country's needs through energy efficiency (both supply and demand) and conservation;
- After full consideration of viable alternatives to the least-cost (including environmental externalities) options and when the additional financing from donors for their incremental cost is not available;
- Coal projects will be designed to use the best appropriate available technology to allow for high efficiency and, therefore, lower GHG emissions intensity; and
- An approach to incorporate environmental externalities in project analysis will be developed.

The World Bank Is Helping Developing Countries Move to Low Carbon Development Paths

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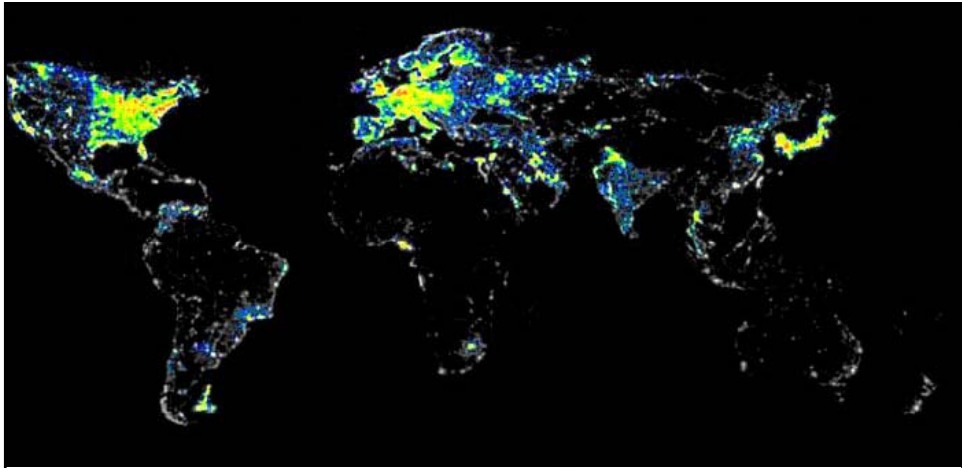
- **Policy Lending**
 - Regulatory reform
 - Strengthening institutions
- **Low carbon* energy project finance**
 - FY03 \$400 million (17% of energy portfolio)
 - FY08 \$3 billion (40% of energy portfolio)
- **Clean transport program finance**
- **Carbon Finance - over \$2 billion**

*Renewables, energy efficiency, hydro, gas flaring reduction, switching from oil/coal to gas

Concessional Finance is Critical for Scaling Up Low Carbon Investments in Developing Countries - Examples from Clean Technology Fund

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- **First investment plans endorsed in January**
 - **Egypt**
 - Wind Power – From <1,000 MW to 2,500 MW of electricity from wind
 - Urban Transport - Six bus rapid transit corridors and five light rail route
 - Proposed CTF \$300 million » » » \$1.9 billion
 - **Mexico**
 - Renewable Energy - Program to replace inefficient lighting and appliances expected emissions reductions of 4 million tons of CO₂ per year
 - Urban Transport - 20 bus rapid transit corridors with low-carbon bus technologies
 - Proposed CTF \$500 million » » » \$6.2 billion
 - **Turkey**
 - Renewable Energy - Implementing "intelligent" grid management and control systems to support large-scale integration of wind power
 - Renewable Energy and Energy Efficiency - Promoting private sector development through credit lines to local development banks
 - Proposed CTF \$250 million » » » 2.1 billion

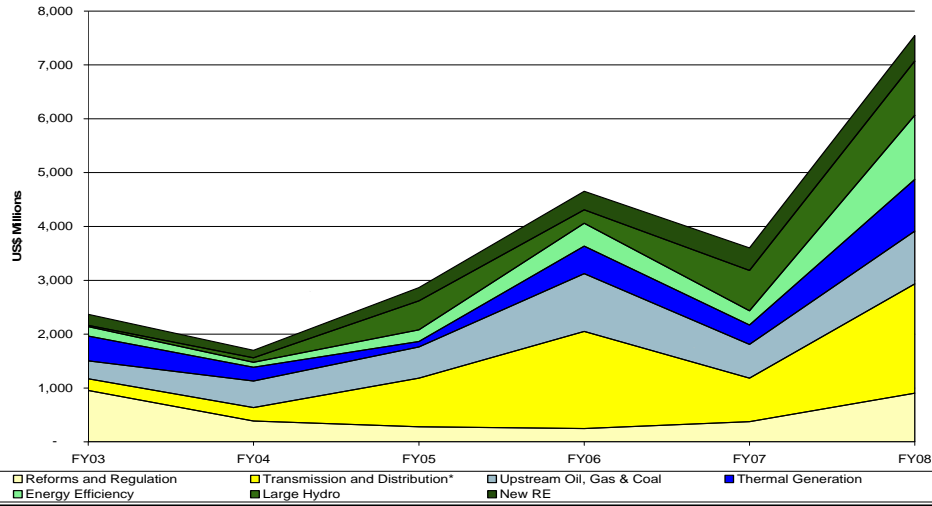


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Our Energy Portfolio is Growing Fast, But Our Low Carbon Lending is Growing Faster

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Energy Portfolio: \$3 billion in FY03 to \$8 billion in FY08 World Bank Group Energy Lending FY2003 - FY2008



WBG lending commitments for energy

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World Bank Group Energy Lending FY 2003 - FY 2008 US\$ Millions

