



The World Bank Group

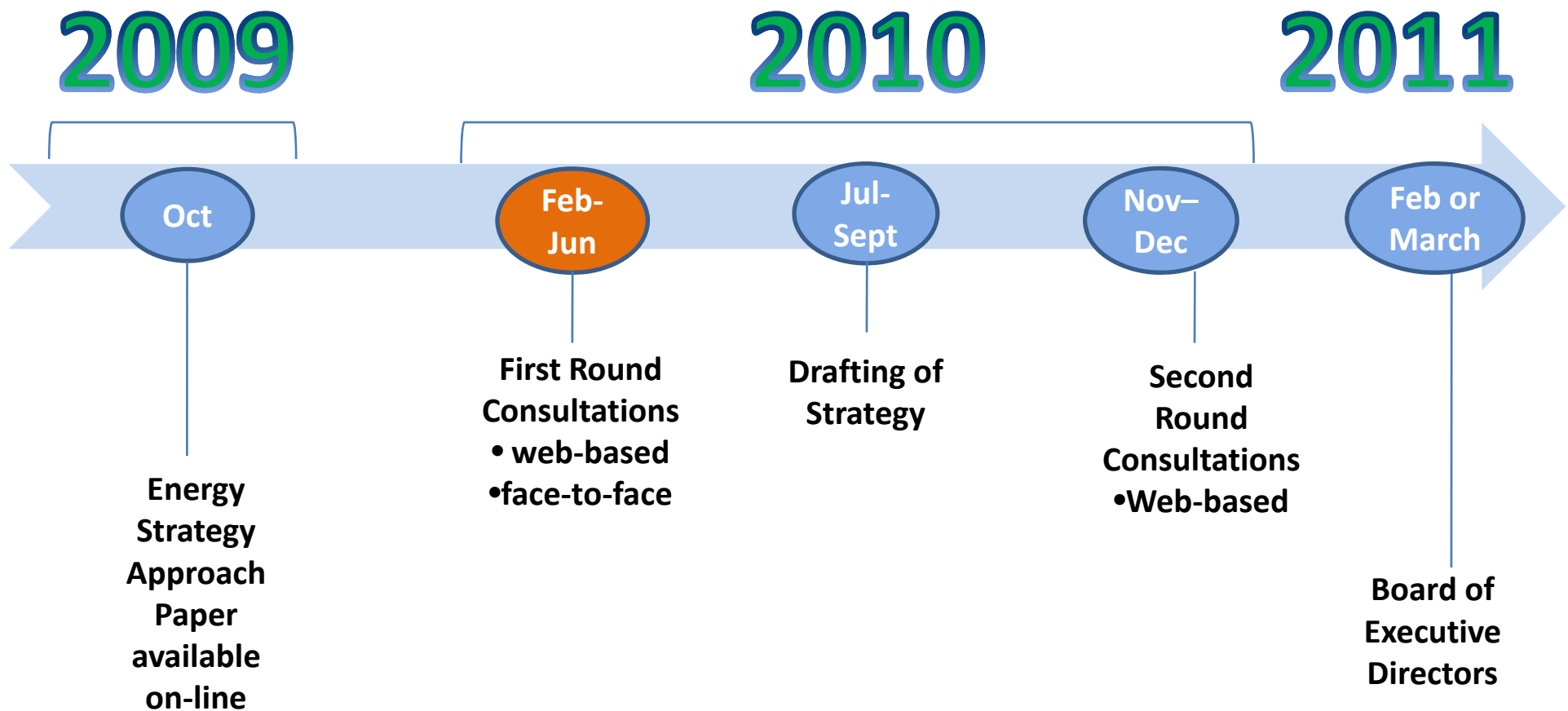


# World Bank Group Toward a New Energy Strategy

The World Bank Group

March 2010

## Timeline for Development of Strategy



## About This Consultative Meeting

- As a basis for discussion, the Energy Strategy Approach Paper, available online, outlines the proposed approach.
- Input from consultation meetings and from people who comment via the Web site will be documented and used as an input to the strategy.
- We will prepare a summary of the comments received today and post it on the web.
- We will then share a summary and accept additional written comments.
- By the end of July, we will prepare a summary of all of the feedback received during the consultation process with a response by the World Bank Group on how it is being considered.



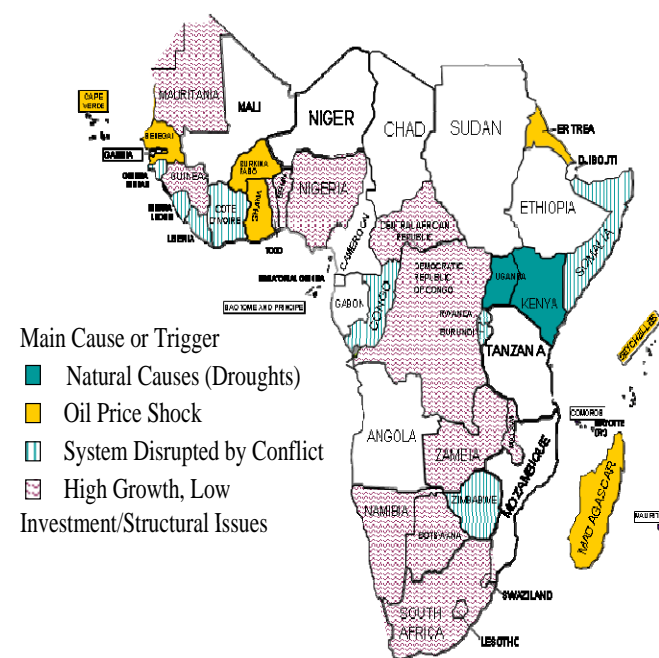
## New and old challenges

- **Energy access, energy poverty:** 1.5 billion are without access to electricity, and many more continue to use solid fuels for cooking and heating.
- **Climate change:** Meeting the energy needs of developing countries and arresting climate change will require global action and cooperation.
- **Managing uncertainties:** The recent oil price volatility demonstrated the importance of diversifying the energy portfolio, pursuing measures to conserve energy and improve energy efficiency, and being better prepared for high energy price volatility and possible future shocks. The global financial crisis has also increased uncertainty in investments, while reducing available resources for development assistance and investment flows



## Africa has exceptionally low energy access...

- In Sub-Saharan Africa, the number of people without access to electricity is projected to rise from 590 million in 2008 to 700 million in 2030
- Installed generation capacity is extremely low
  - At 39 MW per million population, about 1/10 levels in other low-income regions
  - Total in Sub-Saharan Africa: 70 GW (30 GW if South Africa is excluded)
  - 24 GW in Holland, 89 GW in Spain
- Cost of electricity shortages in Sub-Saharan Africa is estimated at more than 2% of GDP
- More than 30 countries face outages and load shedding
  - In half of SSA, demand for power grew at ~4.5% in 2001–05, but generation capacity grew at only 1.2%
  - Shocks such as volatile oil prices and conflict are also contributing to the power crisis

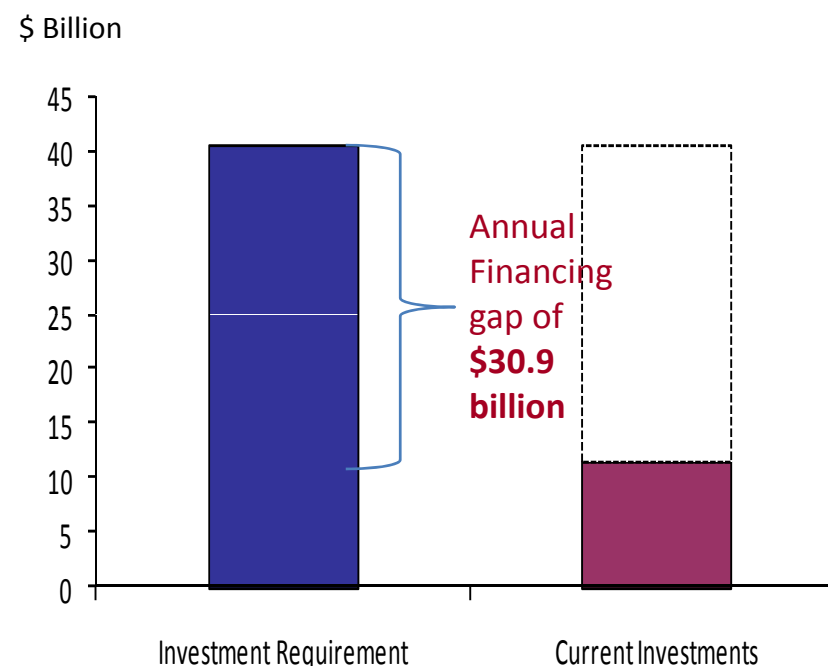


Causes of Africa's Power Supply Crisis

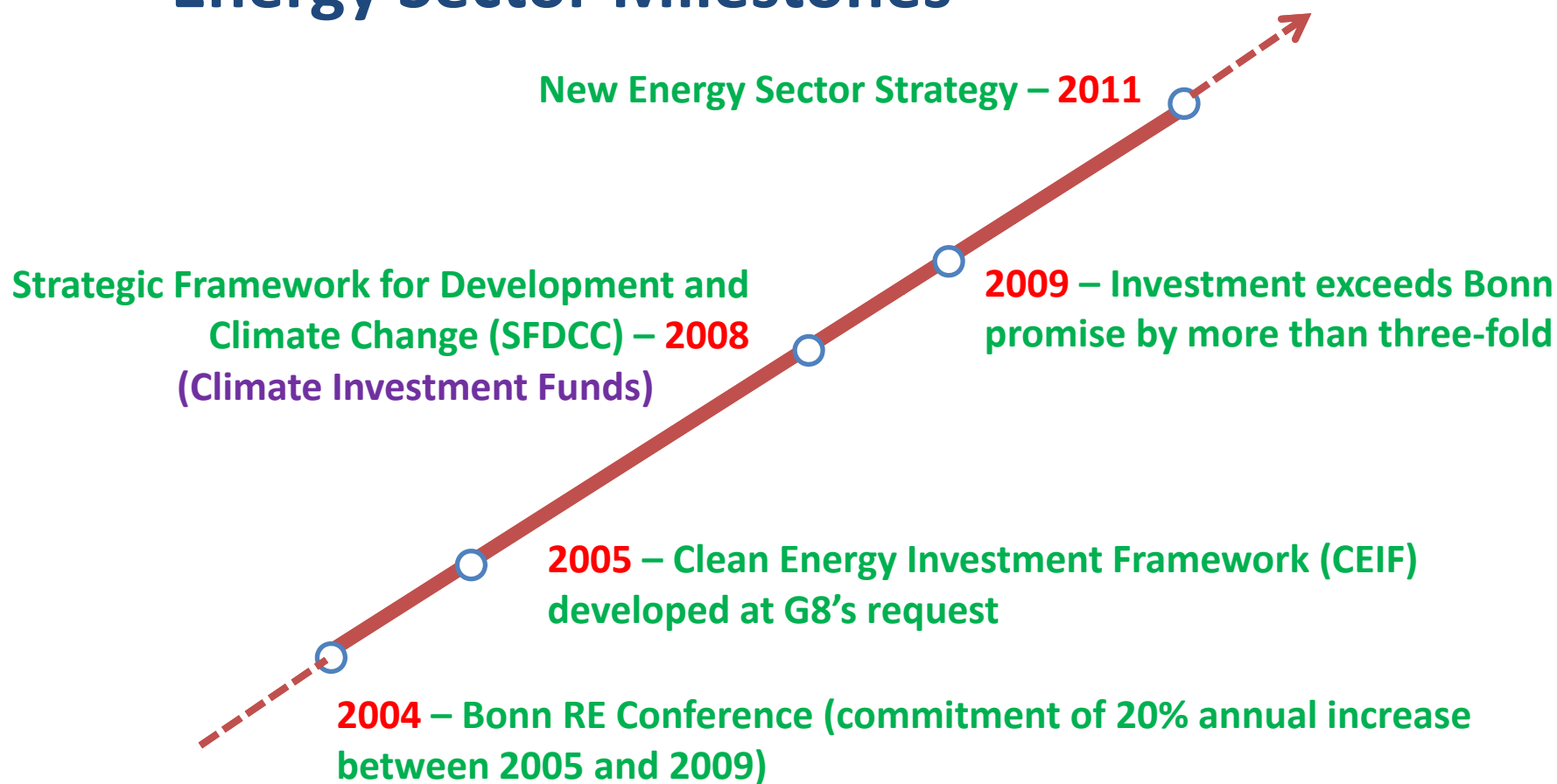


## Africa's power sector faces large financing gap...

- **Africa power infrastructure has huge refurbishment and expansion needs**
  - 7 GW of new generation capacity needed each year
  - 44.3 GW out of existing 70 GW needs to be refurbished
  - Distribution network needs to expand to reach 6 million additional households a year over next decade
- **Existing spending is just over a quarter of what is actually required**
  - Only \$4.6 billion is for meeting long-term investment needs
  - Private sector finance is growing but not sufficient to meet needs



## Energy Sector Milestones



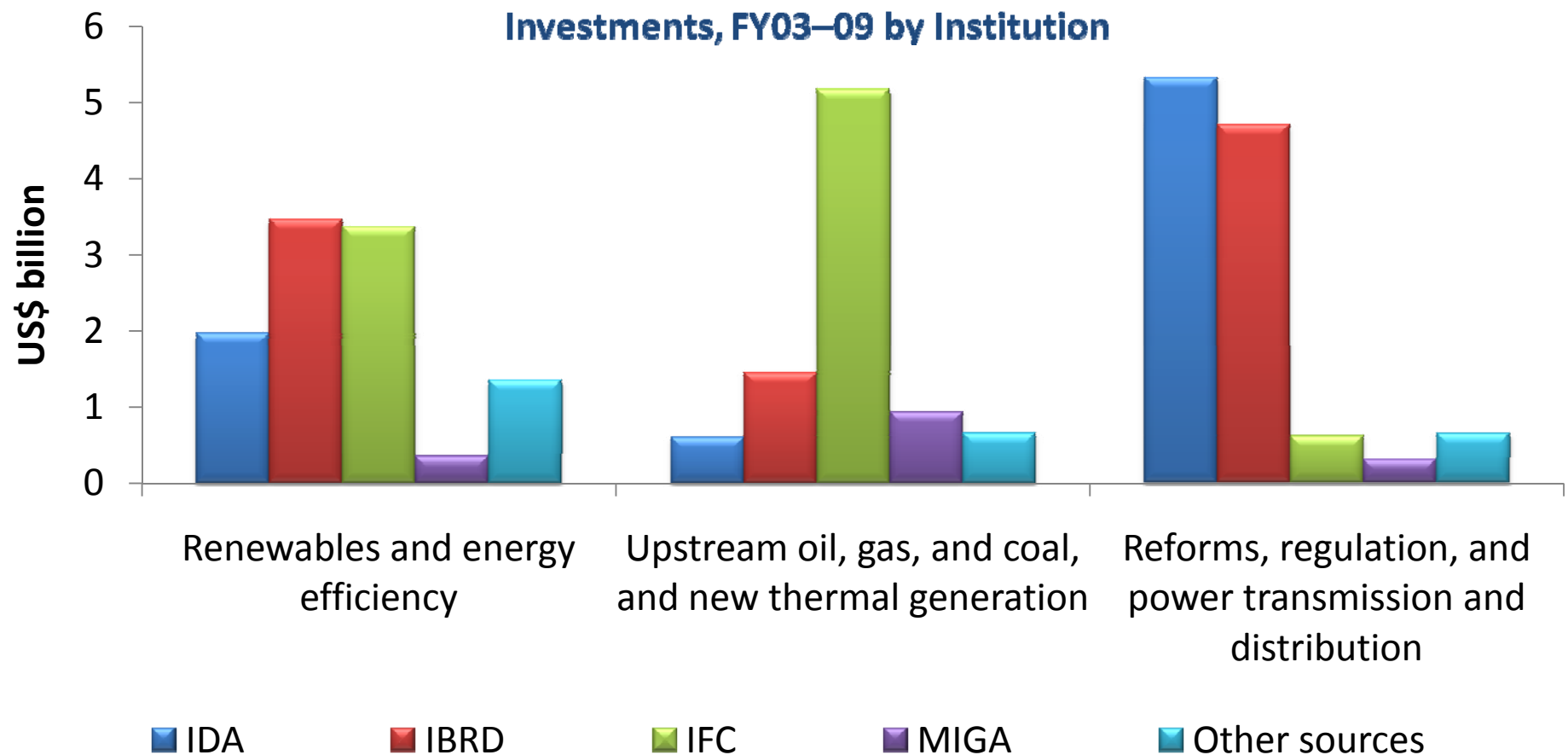
### Key Instruments

Project Investments  
Financial Intermediation

Development Policy Lending  
Technical Assistance

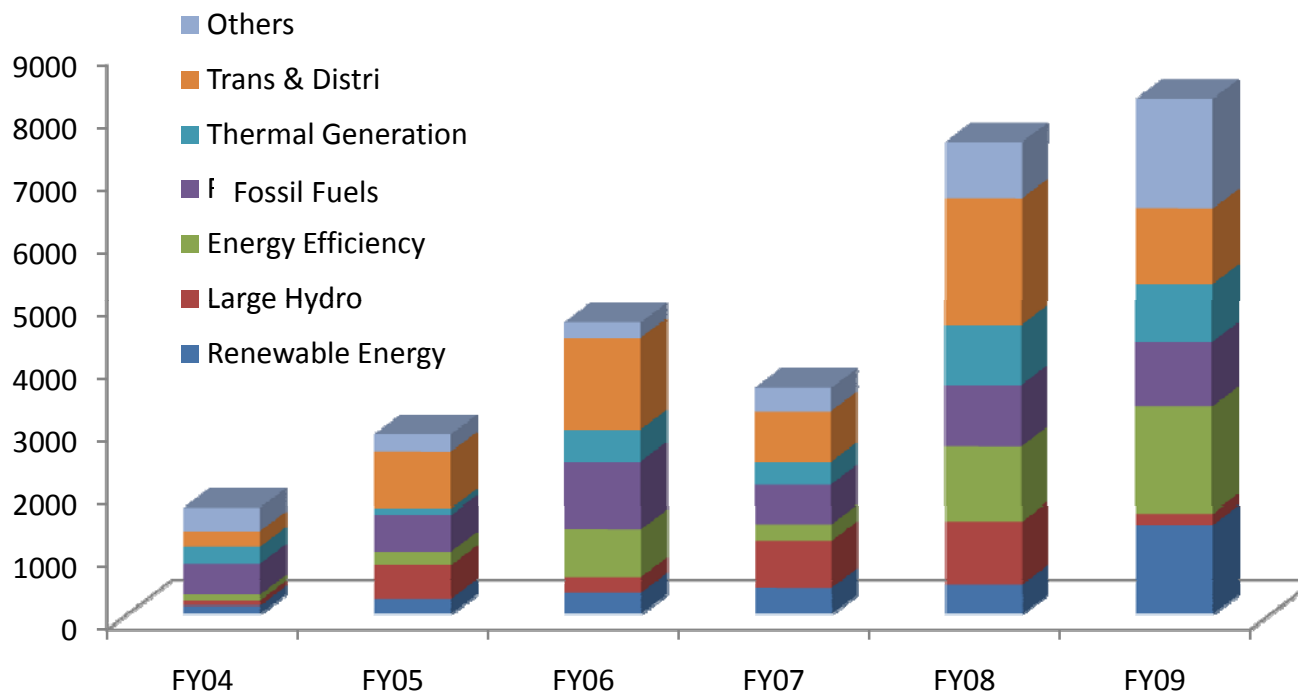


## Working in a Wide Range of Areas





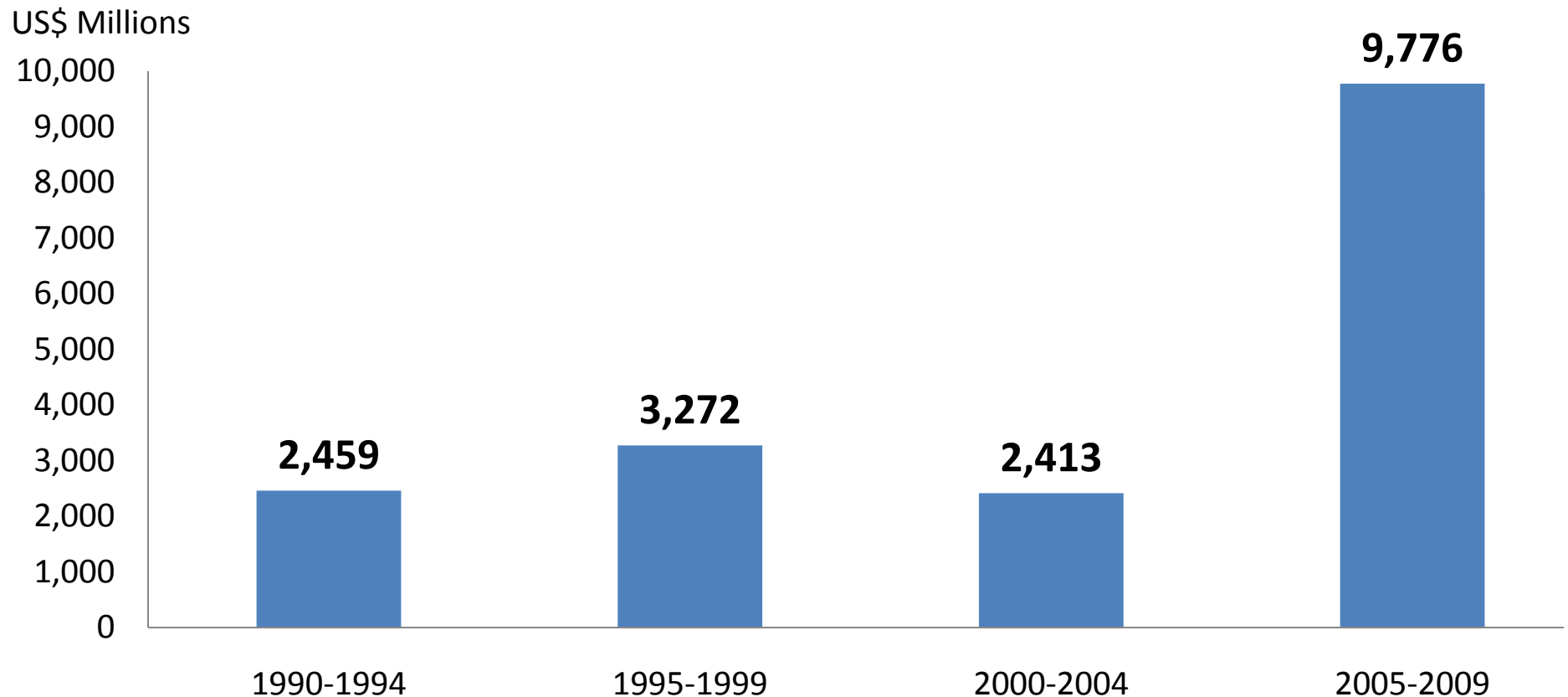
## Sectoral Distribution (FY2004–09)



- **40%** energy lending was for RE/EE in FY09—a **24%** increase from FY08
- Nearly \$4.5 billion invested in programs directly dealing with energy access
- Bonn commitment of 20% annual increase exceeded two-fold



## Increasing Lending for Renewable Energy and Energy Efficiency



World Bank Group Lending for Renewable Energy and Energy Efficiency, 1990-2009, including *new renewable energy, energy efficiency, and hydropower greater than 10 megawatts*



## Observations and Lessons Learned

- An efficient, reliable, and low-cost energy sector is critical for equitable economic development.
- Sound operational and financial performance is essential.
- Improved capacity and governance are needed for better sector performance and ability to address climate change.
- For the very poor, the most important determinant of access to and use of modern energy is their cash income.



## Key Lessons Learned on Renewable Energy

- **Good intentions alone are not sufficient, money alone will not bring change.**
- **Private sector engagement is necessary.**
- **Financial and economic viability is critically important.**
- **Governments must be market enablers.**
- **Capital investments must be linked to committing resources and capacity building to ensure sustainability.**
- **Innovation in technology, business model, and financing is necessary.**
- **Increased coordination is imperative for avoiding duplication of programs.**



## Energy Access in Mali

- Only 7% of Mali's rural population has access to electricity.
- WB Rural Access Project started in 2003 with support of GEF and Mali government (\$44.4 m)
- 2,350 solar home systems were installed in 40 communities
- 636 public institutions were powered by solar PV, including 40 schools and 48 health centers



**Solar energy provides access to remote rural communities far away from the grid**



## Lighting Africa

- WB-IFC joint initiative to mobilize the private sector to develop and disseminate modern lighting solutions using LED and other technologies
- Program target is to facilitate sales of 500,000 off-grid lighting products by 2012, serving more than 2.5 million people
- Technical assistance and seed funding is made available to entrepreneurs to develop low-cost, high-quality lighting products



**Lighting Africa's vision is to build a commercial platform for the lighting sector that can serve 250 million people in Sub-Saharan Africa by 2030**



## Large-scale Solar Power

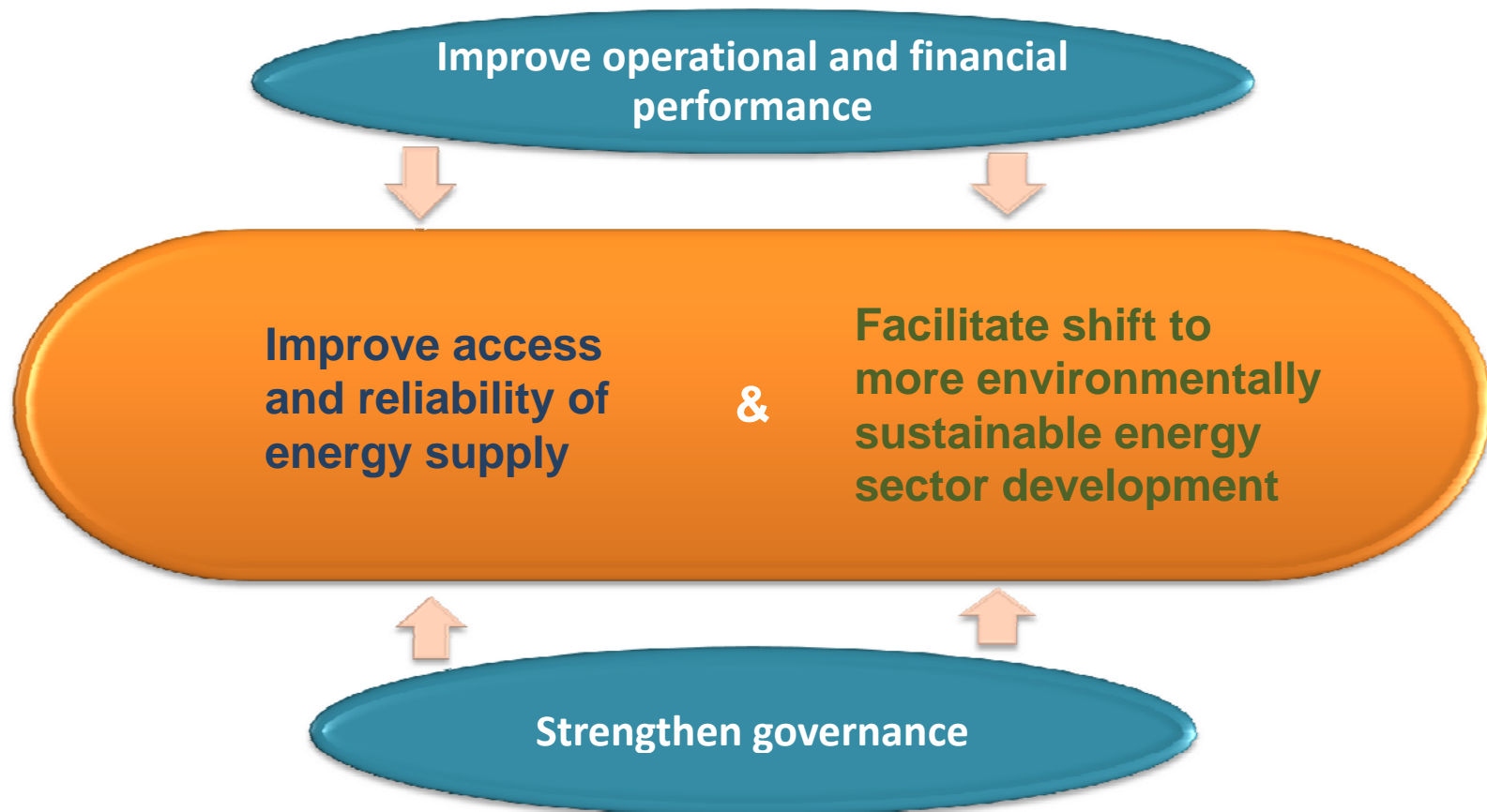
- The World Bank is scaling up support for large-scale solar thermal and PV systems in a number of countries.
- In Egypt and Morocco, WB is supporting demonstration projects on integrated solar combined cycle (ISCC) power generation technology.
- WB is mainstreaming PV deployment for off-grid rural electrification (e.g. project in Bangladesh deploying more than one million solar home systems)



**The World Bank is developing a large-scale program in the Middle East and North Africa region for concentrating solar power technology using CTF and other instruments.**



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





## Renewed Focus

- **Access always one of top priorities, but access without reliability is not meaningful**
  - **No universally applicable institutional model – centralized, decentralized, public, private, public/private**
  - **Financial sustainability key**
- **Importance of mitigating emissions from fuel combustion widely recognized to be crucial**
  - **Increasing shift to technology transfer, innovation**
  - **Even greater emphasis on supply- and demand-side energy efficiency improvement and renewable energy**

### Four Pillars of 2001 Strategy:

1. Direct poverty reduction
2. Macro/fiscal stabilization
3. Governance/private sector development
4. Environmental sustainability



## Across All Countries

- **Energy efficiency improvement**
  - **Supply side: reducing technical and non-technical losses, higher efficiency of production, combined heat and power**
  - **Demand side: equipment, appliances, reform of pricing, billing, and payment collection**
- **Increased investment renewable energy including large hydro projects**
- **Building institutional capacity to identify and implement affordable low-carbon projects**
- **Accelerating technology transfer**
- **Transmission and distribution**



## Across All Countries (continued)

- Thermal generation in accordance with the criteria outlined in SFDCC
- Cross-border energy trade
- Policy and institutional reforms
  - *Market reforms aiming at improving the operational and financial performance of the sector*
  - *Improving transparency, separating the roles of regulation and policy making, public and private roles, bringing accountability and introducing competition through restructuring utilities and markets, regulation*
- Selective investments in extractive industries in accordance with WBG management response to EI Review.



## **Across All Countries (continued)**

### **Six criteria for financing coal-fired power plants**

- 1. There is a demonstrated development impact, including reducing power shortage or increasing access for the poor.**
- 2. Assistance is being provided to identify and prepare low carbon projects in the country.**
- 3. Steps are being taken to optimize energy sources through energy efficiency (both supply and demand) and conservation.**
- 4. Additional financing from donors for incremental cost relative to lowest-cost option with higher GHG emissions is not available.**
- 5. The best appropriate available technology that minimizes GHG emissions will be used.**
- 6. An approach to incorporate environmental externalities in project analysis will be developed.**



### Low-Income, Fragile, Post-Conflict, and Middle-Income Countries with Low Access

- Access to reliable modern energy services will remain the top priority: expand supply capacity, enhance reliability, and increase access
- Explore all options: off-grid, cooperatives, pro-poor financing methods, affordable lifeline rates, sharply targeted subsidies
- Hydropower with focus on integrated water resources management
- Cross-border trade particularly important for small countries



### Low-Income, Fragile, Post-Conflict, and Middle-Income Countries with Low Access (cont.)

- Continue focus on areas with low access in middle-income countries
- Improve affordability by increasing supply efficiency and passing efficiency gains to consumers
- Help build capacity to access financing to make low-carbon alternatives affordable, including working with local private sector



## Middle-Income Countries

- Help address local and emerging global challenges and increase support to innovation and transformation
- Support commercial-scale renewable energy, supply- and demand-side energy efficiency, and emerging clean technologies and related infrastructure facilities
- Help leverage climate finance, private sector financing, and other financing opportunities



## Climate Investment Funds

Jointly run by MDBs to provide grants and concessional financing to developing countries to address urgent climate change challenges

Clean Technology Fund (CTF) ~ \$5.2 b

Strategic Climate Fund ~ \$1 b  
— Scaling up RE in Low Income Countries  
~ \$0.3 b

➔ SREP — Access Issues

Carbon Finance

10 Carbon Funds ~ \$2.2 b (200 projects)

Carbon Partnership Facility (CPF)





# Informing Energy Strategy Formulation

## Posted on the Web:

- Reducing technical and nontechnical losses in the power sector
- Regional energy projects: Experience and approaches of the World Bank Group
- Liquid biofuels: A background brief for the World Bank Group energy strategy

## Under preparation and supported by ESMAP:

- Addressing the energy access gap
- Subsidies in the energy sector: Measurement, impact, and design
- Promotion of new clean energy technologies and the World Bank Group
- Gender and energy
- Private and public sector roles in the power sector: Toward a new policy



### Questions for Your Consideration

- 1. Where do you think the help of the World Bank Group in the energy sector in developing countries is most needed?**
- 2. Does the proposed approach adequately address the needs of the poor and marginalized? If not, how could it be strengthened?**
- 3. Does the proposed approach strike the right balance between meeting the needs and priorities of low-income countries and those of middle-income countries?**



### Questions for Your Consideration (continued)

4. **Where there are trade-offs between meeting the local energy needs of individual countries and reducing global greenhouse gas emissions, what principles should the World Bank Group follow in resolving the trade-offs?**
5. **What should be the role of the World Bank Group in promoting new technology and/or helping to transfer existing technologies to new markets, and how much weight should the Bank Group give to each?**
6. **What other suggestions or comments do you have?**



Visit the World Bank's website  
to share your views,  
stay updated,  
and get more information.

<http://www.worldbank.org/energyconsultations>

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Thank you for participating.





## Informing Energy Strategy Formulation

- They are intended to inform the energy strategy consultations and formulation of the strategy.
- They are not intended to be incorporated directly into the energy strategy, viz., background papers are not writing sections of the energy strategy.
- Choice of papers determined by twin objectives and supporting pillars of the energy strategy.
- They are posted on the energy consultation Web site as they become available.



## Bridging the Electricity Access Gap

- **Objectives:** Distill lessons learned and suggest useful leads for the WBG's future operations
  - Identify main contributing factors enabling enhancement of access and sustainability of service
  - Identify the key elements to be considered in the design and implementation of access projects in different circumstances
- **Link to the energy strategy:** Improve energy access and reliability
- **Key issues addressed:**
  - Barriers to rural and urban electrification
  - Institutional options, regulation, economics (incl. comparative costs of rural grid and off-grid technologies), pricing and subsidy policies
  - Review of relevant experience –
    - Case studies: Peru, Vietnam, rural electrification authorities/funds in Sub-Saharan Africa
    - Other countries: Bangladesh, Chile, Ethiopia, Guatemala, Guinea, Morocco, Nepal, Senegal, Thailand, Tunisia



## Bridging the Electricity Access Gap (continued)

- **Emerging messages:**
  - Business case for providing a service to those who cannot pay is weak. Sustained government commitment for 20–30 years is critical. Government must provide the right policy environment and funds.
  - There is no universally applicable institutional model. Centralized, single-supplier, decentralized, REA/REFs have all been successful in different circumstances.
  - There must be funds to compensate suppliers for the full costs of efficient operation. Pricing and subsidy policy is critical.
  - In SSA, revenue-raising and cost-saving options include removing highly regressive subsidies and avoiding expensive technical designs.
- **Current schedule:** Draft ready for peer review by early April, posted on the consultation Web site by end-April





## Subsidies in the Energy Sector

### ▪ Objectives:

- Provide an overview of the concept of a subsidy, where they arise, how they are financed and whom they impact
- Review existing work on energy subsidy measurement
- Review the channels through which subsidy reform affects the macro-economy and climate change
- Review the literature on the incidence of subsidies and of their reduction or removal on households at various income levels
- Discuss arguments for and against creating, retaining, reducing, or removing subsidies and replacing universal subsidies with targeted subsidies



## Subsidies in the Energy Sector (continued)

- **Link to the energy strategy:** Financial sustainability while protecting the poor, links to extending access and climate change agenda
- **Emerging messages:** Better subsidy design for sustainability; the need to get a sustainable model of energy pricing in place before any future price shocks occur; and couple pricing policy with EE/RE policy
- **Current schedule:** Peer review in mid-April, posted on the Web in end-April or early May



# Promotion of New Clean Energy Technologies and the World Bank Group

## ▪ Objectives:

- Review literature on the role of new energy technologies
- Identify main existing bilateral and international initiatives to promote the development and diffusion of new energy technologies in WBG target regions
- Review past and ongoing WBG efforts to promote new energy technologies and discuss comparative advantage of WBG
- Discuss proposals for additional actions by the WBG, including implications for use of resources and adjustment of mandates and procedural protocols



## Promotion of New Clean Energy Technologies and the World Bank Group (continued)

- **Link to the energy strategy:** Facilitate shift to environmentally sustainable energy sector and extending access
- **Key issues addressed:**
  - Defining new technologies, categorization
  - Barriers to technology commercialization and deployment: transaction costs, intellectual property rights, energy price volatility, policy framework, picking winners
  - Strengths and limitations of WBG's existing instruments
- **Current schedule:** Peer review in late April, workshop with external experts thereafter



## Gender and Energy

### ▪ Objectives:

- Identify and document the importance of gender based solutions within the energy sector
- Provide clear entry points for gender integrated solutions within analytical work and operations that will enhance the access and sustainability of the energy programs

### ▪ Link to the energy strategy:

- Energy access: Access to affordable, clean and sustainable energy – identifying the gender dimension of access to modern household energy, including cooking fuels and electricity
- Governance: gender integration within energy sector governance and policy-making



# Gender and Energy (continued)

- **Emerging messages:** Positive impact on poverty reduction of energy projects and sector policies with gender focus (e.g., Lao PDR, Bangladesh). Systematically identify women's and men's energy needs, respective barriers to access, and risks and vulnerabilities. Fund gender-targeted components. Continue capacity building. Need to document and disseminate results, impacts, and best practices.
- **Current schedule:** Peer review end-April, posted on the Web in May



# Private and Public Sector Roles in the Power Sector

## ▪ Objectives:

- Revisit the private and public roles in financing and operating the power sector within the broader institutional framework
- Review global and regional estimates of investment needs
- Explore the links between alternative ownership arrangements and performance
- Assess short- and medium-term implications in terms of priorities to address climate change issues and mitigate the impact of the global financial crisis



## Private and Public Sector Roles in the Power Sector (continued)

- **Link to the energy strategy:** Part of a broader work program on power sector reforms and climate change, exploring the link between governance and performance
- **Emerging messages:**
  - Both public and private financing needed to close the financing gap
  - Important to achieve minimal internal and external governance and regulatory pre-requisites to improve performance (regardless of ownership)
  - Need to adjust standard policy recommendations to overcome climate change uncertainty and protect the poor
- **Schedule:** Peer review in end-April, posted on the Web in May

