WORLD BANK GROUP ROLE IN SUPPORTING SOLAR POWER

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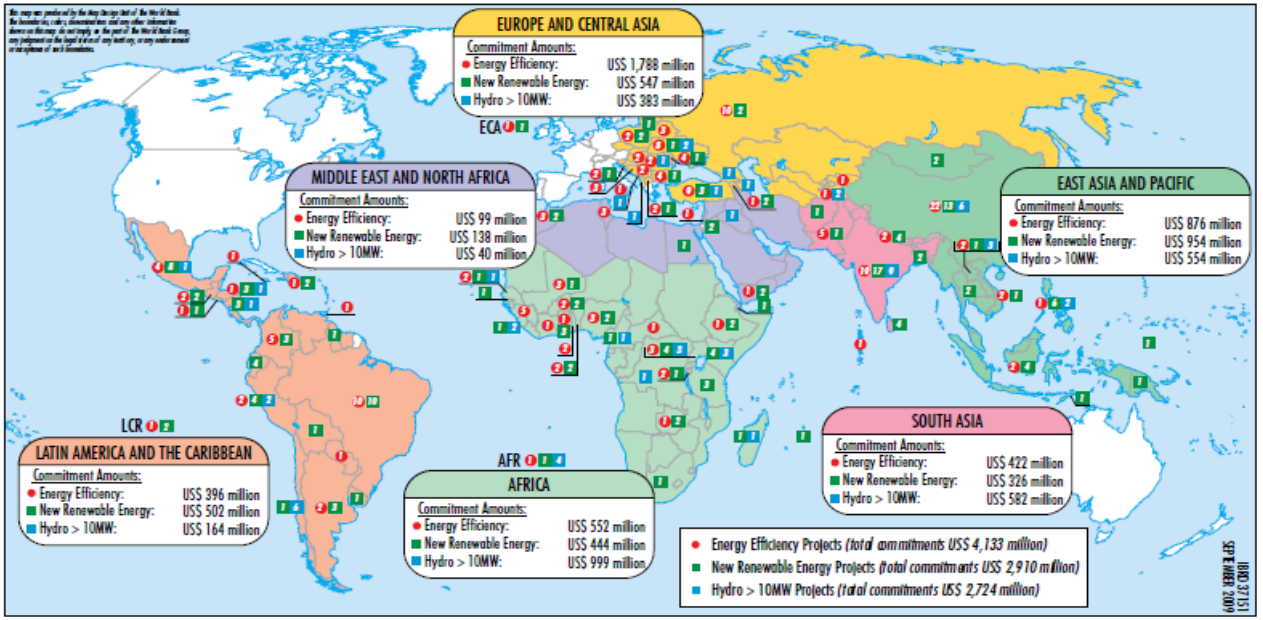
The World Bank Group

- The WBG mandate is to reduce poverty and promote sustainable economic growth
- Role in climate change:
  - Mitigation: assist countries in transition to a low carbon economy
  - Adaptation: assist countries to adapt to unavoidable climate change

- The World Bank Group is composed of:
  - **International Bank for Reconstruction and Development (IBRD) and International Development Agency (IDA) – World Bank** – policy development support, institutional capacity building, government-backed project finance and risk mitigation for new entrants
  - **International Finance Corporation (IFC)** – private sector arm of WBG: Investment support for private sector project developers and manufacturers in development-focused projects
  - **Multilateral Insurance Guarantee Agency (MIGA)** – political, investment and credit guarantees

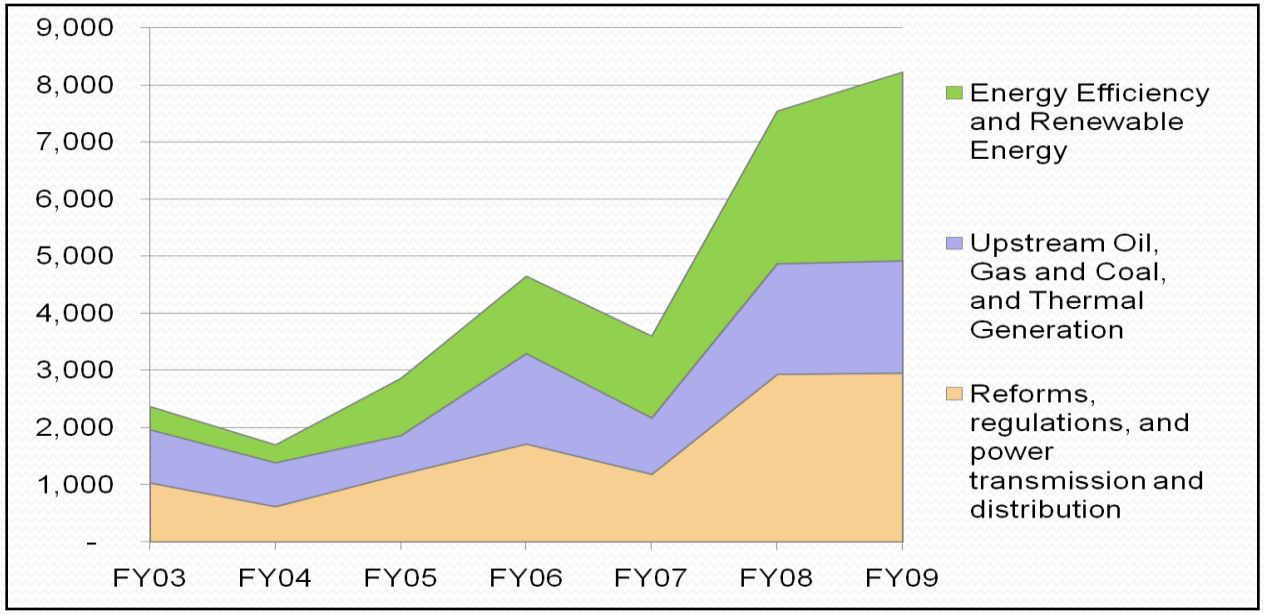
World Bank Group energy operations

Distribution of renewable energy and energy efficiency projects during Fiscal Years 2005-2009

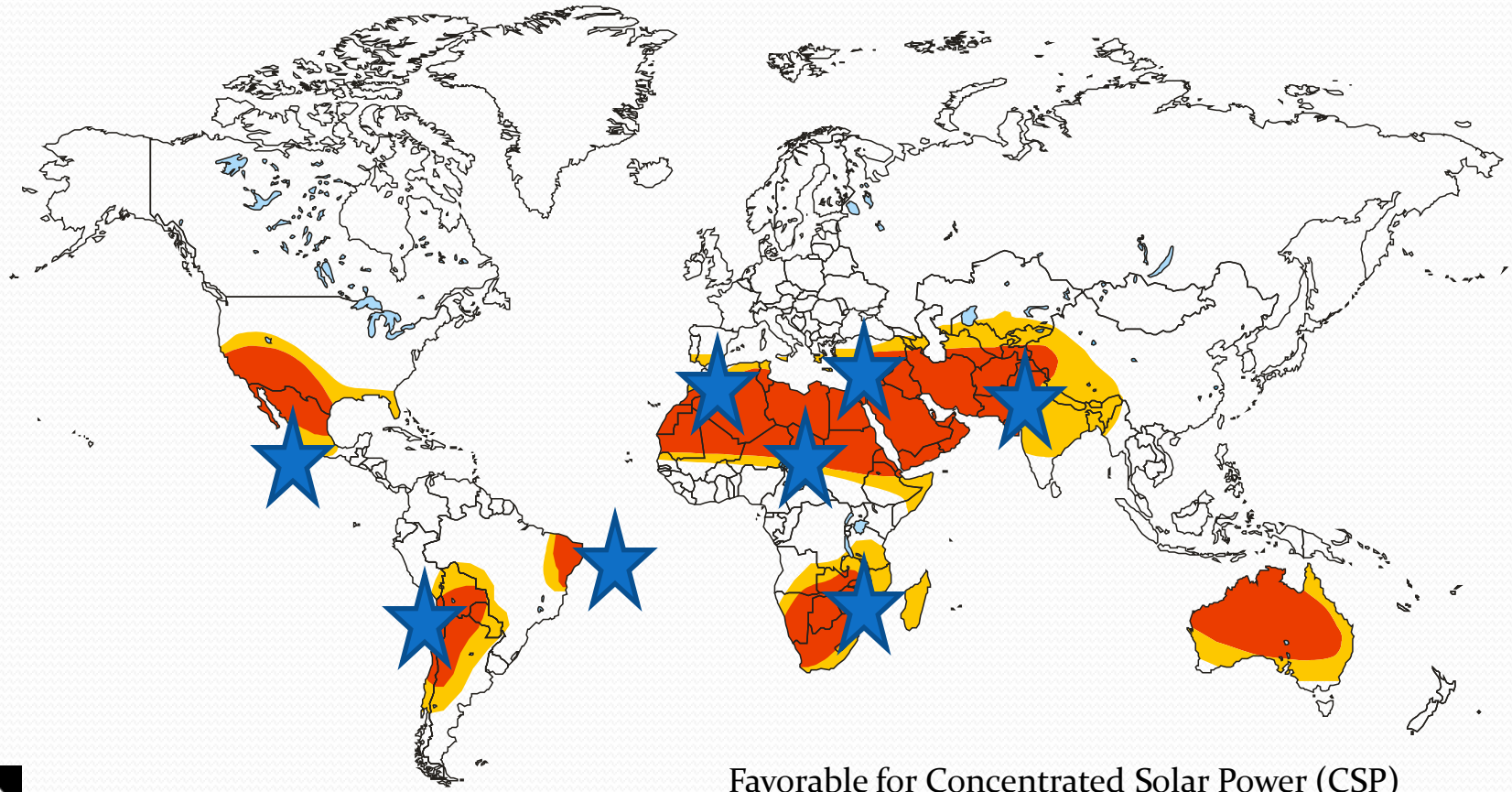


Record high investments for new renewable energy and energy efficiency

WBG lends US$3.1 billion in Fiscal Year 2009



Majority of areas physically suitable for solar energy located in WBG client countries



Conventional financial instruments for energy sector programs

Loans	• Sovereign guaranteed LIBOR-based investment loans:
	  • Development policy loans;
	  • Sector investment (project) loans

Guarantees	• Partial Risk Guarantee:
	  • Conditional; 100 % on principle;
	  • Risks covered - devaluation, regulatory risks, contract breach, technology failure;
	• Partial Credit Guarantee:
	  • Unconditional; reducing the cost of borrowing;
	• Combined Guarantees

IFC Debt and Equity	• Support of private sector investments by market-term financing

Climate mitigation financing sources & instruments

Global Environmental Facility (GEF)	• Grant financing requested by host governments • WB is n implementing agency • Co-financing of policy implementation and pilot & demonstration of new technologies
Clean Technology Fund (CTF)	• Co-financing of concessional donor loans requested by host governments • Promote scaled-up financing for demonstration, deployment and transfer of low-carbon technologies • Risk mitigation for new entrants

Carbon Finance	• Enhancing viability of investments
	  • WB-managed Kyoto Funds
	  • Carbon Partnership Facility

ESMAP – Energy Sector Management Assistance Program	• Donors' trust funds to support upstream policy and sector work in energy sector

Analytical and advisory activities

- Non-lending support and advice for:
  - regulatory and institutional capacity building
  - policy guidance, policy framework,
  - Transactional support and advice
- Available through:
  - Bank AAA,
  - as part of policy lending,
  - through trust funds managed by the WBG like ESMAP, etc.

Public Sector Investment Example:

Egypt Kureimat Integrated Solar Combined Cycle Project

Multi-lateral (WBG and/or GEF)

- Grant: $49.8m for solar component
- IBRD project preparation, regulatory and policy support

Bilateral

- Japanese Bank for International Cooperation
- Loan or grant

Recipient equity (Govt of AR Egypt)

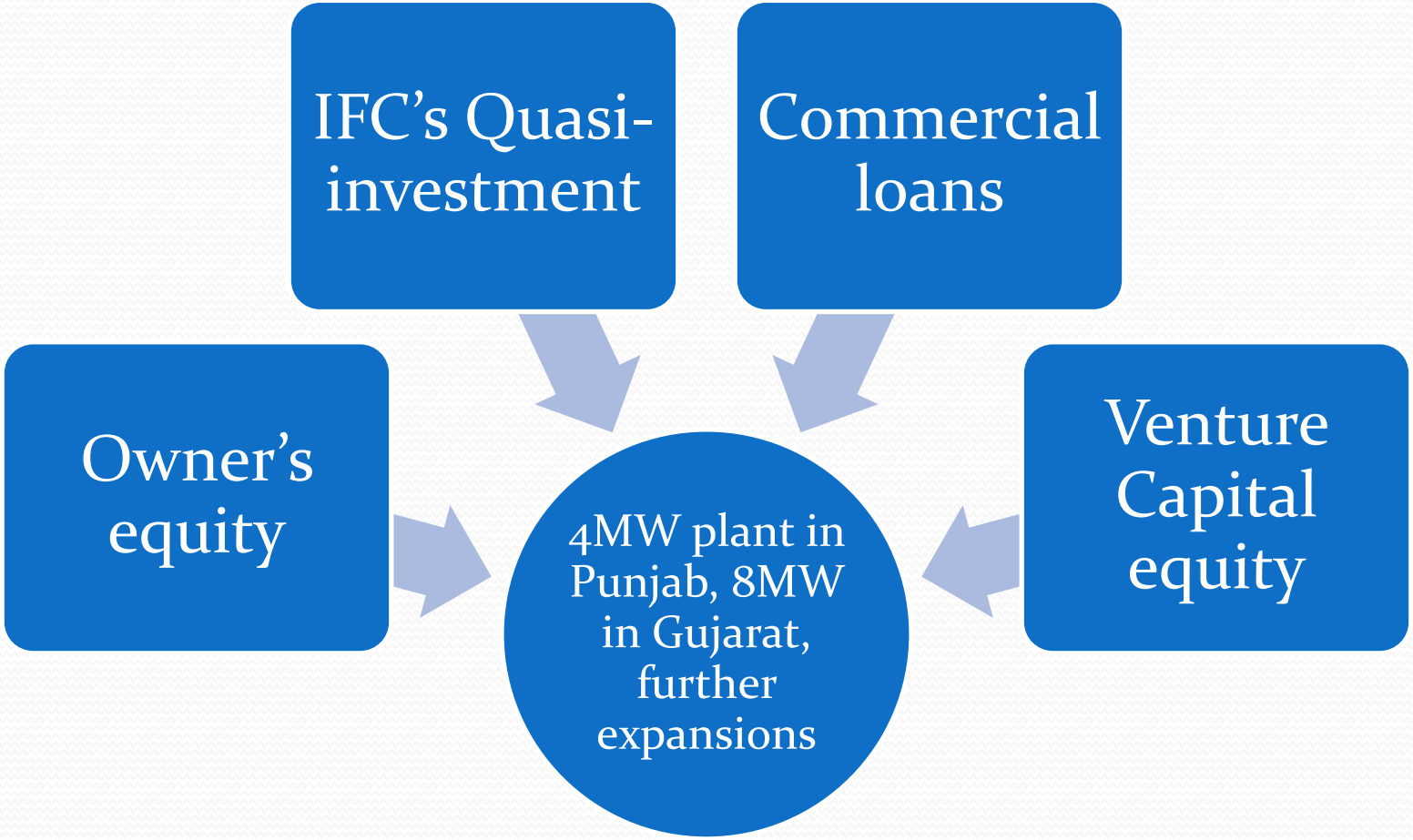
- Through public utility or special purpose vehicle
- Equity and management

For more details, please visit:
www.worldbank.org/energy
http://go.worldbank.org/ERF9QNT660

Project Investment Types: Private

- IFC: Investments in private sector solar plants, PPP, etc.
  - Debt, equity, hybrid or mezzanine: flexible and innovative structures offered
- IBRD-MIGA: Partial Risk Guarantees and Partial Credit Guarantees
- Carbon Finance tools
- Local and international currencies, hedging products
- Deep experience in energy sector investments

Private Sector Projects by IFC – Example: India Azure Power SPV



Increasing commitment

- Recent Green Bonds – *" to help stimulate and coordinate public and private sector activity to combat climate change"*
  - *"An opportunity to invest in climate solutions through a high quality credit fixed income product"*
- Three issuances in USD ($1.1 billion) and SEK ($2.85 b SEK) so far
- Further such issuances expected

For more details, go to: http://go.worldbank.org/LFS55Z7LL0

Clean Technology Fund (CTF) financing

- A new multi-billion fund ($5 billion pledged so far), managed by World Bank, for climate change mitigation to finance “transformational” projects
- Terms are very concessional; 40 year term, 10 year grace, 0.25 % service fee, zero interest rate, for renewable energy projects
- WBG doing several CSP in MENA with CTF funding
- Bank client countries representatives in CTF Trust Fund Committee (as of Dec 09): Egypt, Morocco, India and Brazil

The CTF MENA CSP Investment Plan

- Scale-up investment plan includes about 1 GW at cost of $6-8 billion ($4 billion for generation, $2-4 for transmission)
- Accelerate global market momentum
- Projects in Morocco, Algeria, Tunisia, Egypt, and Jordan presented recently at Tunis Conference on Oct 21 and 22
- Cross-border transmission infrastructure included through projects in Jordan and Tunisia
- Investment Plan submitted for Trust Fund Review in December 2009
- Financing from CTF (up to $750 m), development agencies, Clean Development Mechanism, and private sector

Financial Analysis Methodology

- Comparison of expected levelized energy costs for different financing packages and rate of return expectations

Key Assumptions

- Estimates based on a 100 MW plant without storage
- 22.5% Capacity Factor
- US$ 4000/kW capital costs
- US$ 10/ton carbon credit carbon revenues

Financial Analysis Results for CSP in MENA

Scenarios	US dollars/kWh at 8% Equity IRR	US dollars/kWh at 12% Equity IRR
(A) Commercial (no support)	0.25	0.29
(B) Scenario (A) + Carbon Finance	0.24	0.28
(C) Scenario (B) + 50% concessional debt ~ CTF terms	0.14	0.16

Proposed Financing Plan

Source	Proposed Amount
CTF	Up to US$ 750 million
Other concessional financing	US$ 750 million - US$ 1000 million
Private sector /non-concessional official financing /Host governments	US$ 4-6 billion
Total *	**~ US$ 6-8 billion**

* of which US$ 4 billion for generation projects

South Asia CSP Program

- **Addresses the following barriers:**
  - **Bankability and sustainability of current incentive mechanisms**
  - **Marginal commercial viability and competition with cheaper conventional energy options**
  - **Undeveloped CSP industrial base**
  - **Lack of marketing mechanisms**

South Asia CSP Program

Program Activities:

- Assessment of solar generating targets
- Analysis of financial Incentives and regulations
- Assistance for removing CSP related grid bottlenecks
- Inventory compilation of CSP suitable sites
- Introduction of cost reduction strategies

Next Steps

- Coordinate with donors to confirm financing for MENA Investment Plan by Summer 2010
- Define prospective projects in South Asia within a year
- Finalize a CTF/WBG investment plan for 100 MW project in South Africa
- Move projects forward

Continued partnership

- The WBG will remain to be engaged with the renewable energy development agenda in South Asia through the public and private sector arms.
- We look forward to a constructive dialog on possible assistance from the WBG

Thank you!

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