



GEF Support to Energy Efficiency: Transforming Markets

December 7, 2007

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Global Environment Facility

- Established in 1991 to provide “incremental cost funding” for projects in developing countries with “global environmental benefits”
- Operates financial mechanism for UNFCCC
- From 1991-2006 has allocated \$6b to projects leveraging \$20b
 - In CC, \$2b has leveraged another \$10b
- GEF-4 Replenishment, 2007-2010
 - largest to date (\$3.13b)
 - \$1b allocated to climate change

Climate Change Operational Programs

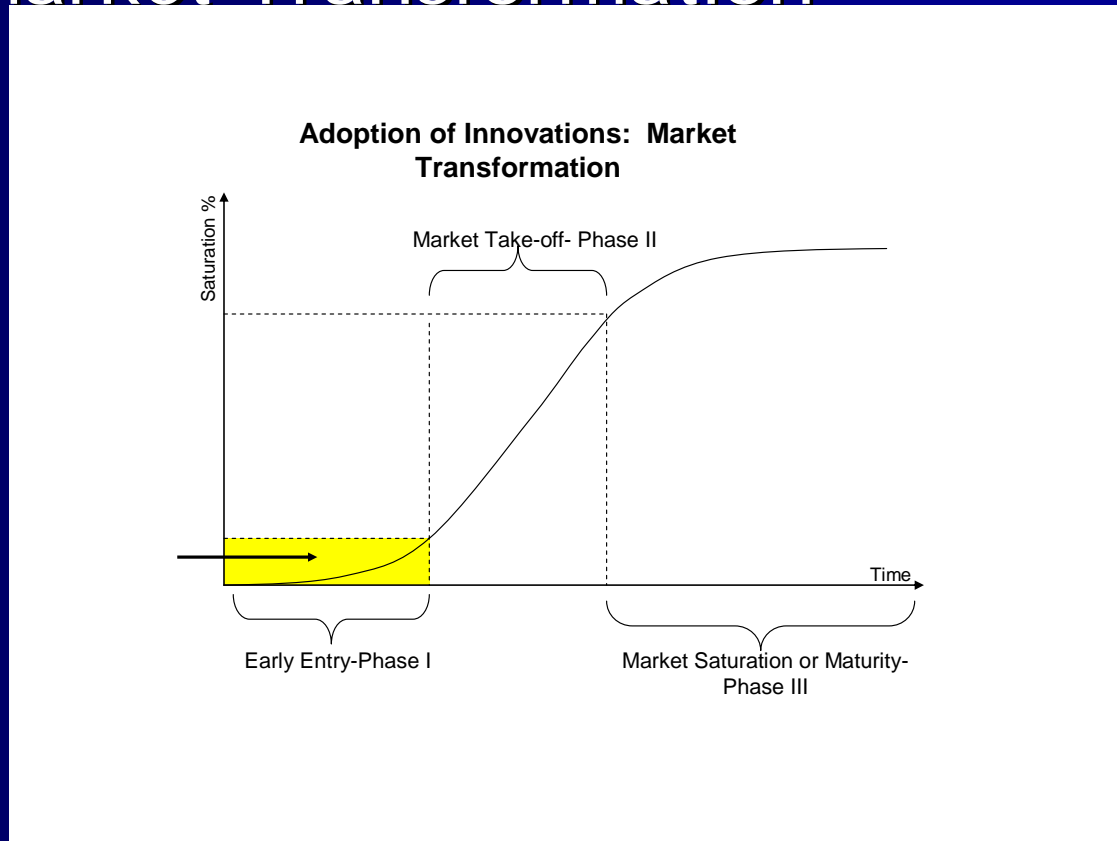
- **Operational Programs**
 - Energy Efficiency; Renewable Energy; Low GHG Emitting Energy Technologies; & Sustainable Transport
- **Approach: to remove barriers to enabling investments in EE/RE to move ahead**
 - Create enabling environment for clean energy investments
- **Energy efficiency has had greatest results (kWh saved, CO2 avoided)**
- **Challenge is to scale-up energy efficiency—EE represented more work: Why?**
 - Greenfields issue
 - More difficult baseline/additionality/incrementality conditions because of profitability of EE projects

Climate Change Mitigation

- **Mission of GEF in CC Mitigation:**
To develop and transform the markets for energy and mobility in developing countries so that they will be able to grow and operate efficiently toward a less carbon-intensive path

What is GEF's Role or Comparative Advantage?

■ Market Transformation



China Refrigerators Project: Results

- Production of EE fridges grew from < 1000 in 1999 to over 10.62m 2005
- 16 fridge manufacturers produced 39.58 million EE fridges (all of which are *at least* 40% more efficient than the minimum standard) between 2000 and 2005 (2x project target)
- Average fridge efficiency improved from 0.794 in 1999 to 0.566 in 2005, for a gain of 28.7% (> 3x targeted 8% gain)
- 256 domestically manufactured EE fridges on the market meet or exceed the "Level 1" energy efficiency requirement (superior to European grade A).
- High efficiency models from two manufacturers have achieved > 70% efficiency gains relative to standard. Some models achieve 79% efficiency.

UNDP: China Energy Efficiency

Refrigerators: 1999-2004

- Goal: To reduce carbon dioxide and other greenhouse gas (GHG) emissions caused by household refrigerator energy use in China:
 - Improve refrigerator energy efficiency;
 - Build on CFC phase-out to introduce changes
 - Provide economic benefits to refrigerator owners and manufacturers
- Activities:
 - Consult and train refrigerator manufacturers
 - Develop meaningful efficiency standards & labels
 - Provide incentives at stages of market development
 - Combination of supply-push and demand-pull elements

China EE Refrigerators: GHG Benefits

- Independent Evaluation Mission Concluded:
 - Project reduced CO₂ emissions by 11 million tons by 2005
 - Reduced 42 million tons by 2010.
- Lifetime savings of the refrigerators affected by the project:
 - Estimated reduced CO₂ emissions of 170 million tons for refrigerators produced through 2005 (savings through 2020)
 - Reduced 630 million tons for refrigerators produced through 2010 (savings through 2025).



GEF Support to Market Transformation Through EE Standards and Labels

- Goal: To provide universal adoption of EE standards and labels for refrigerators and other energy consuming appliances
- Project examples
 - India: Market Transformation for Energy Efficient Refrigerators and Air Conditioners
 - Asia Regional: 6 products in 5-7 countries
 - South Africa: under development
 - Tunisia: Support to Cooling Appliances
 - Argentina & Uruguay
 - Central America

New GEF Role: “Ban the Bulb” or Phase out the Incandescent Light Bulb

- Incandescent technology unchanged in 125 years
 - Efficiency can be improved by 4-5 times
 - Final technology unclear—performance standards (w/lm)
- Britain, California, Australia, & others taking initiative to phase out inefficient incandescent lighting
- GEF’s role: To accelerate global adoption of new, efficient lighting and to phase out inefficient, incandescent lighting
 - Requires Market Transformation approach
 - Can provide tricky—cost issues
 - Requires both demand-pull/supply push approach
- Can UNFCCC process encourage action?

Past GEF Support to EE Lighting

- **World Bank/GEF supported CFL projects early**
 - Illumex in Mexico, Utility-based DSM promoting CFL's
 - Costs posed a constraint despite long-term financial savings
- **IFC/GEF supported CFL projects**
 - Poland-PELP; ELI—6 countries
 - Determined product quality was key to widespread adoption—supported China appliance testing agency
- **UNDP/GEF also supported EE lighting**
 - Philippines; China: Green lights
 - Progress can be made, but not nearly approaching market saturation
- **Current GEF Initiative**
 - UNDP/UNEP collaborative initiative
 - Global knowledge and experience sharing component; to develop standards and information for developing countries wanting to participate
 - Also provide link to Annex I Country initiatives through IEA collaboration
 - Truly Global initiative—not Annex I or non-Annex I, global technology program

Phasing Out Inefficient Lighting: Challenges

- GEF Global program will allow all countries to “buy-in” to program
 - GEF resources can be accessed for national activities
 - Most national activities do not require extensive investments
- Not sure of final technological solution
 - CFL’s look good, but perhaps halogen or other technologies will be eventual winner
 - Need to engage manufacturers—Phillips, OSRAM, GE
 - Establish performance-based standards
- Most countries only import bulbs
 - Largest manufacturers of EE bulbs—China, India
 - What most countries need is import controls, standards
 - Largest current challenge may be Russia
- Pushing market toward maturity—not early stage of market transformation
 - GEF does not have resources for incentives or follow-on investments
 - CDM resources...CFL methodology...could be used to drive to market saturation
 - Programmatic CDM....?

GEF and Carbon Finance

- GEF and carbon finance (both CDM/JI) need to be structured to take advantage of each of their comparative advantages
- GEF Policy on Carbon Finance (CDM/JI)
 - GEF can remove barriers and demonstrate, for CDM/JI to replicate
 - GEF can provide partial risk guarantee, but if called, CER's get forfeited
 - GEF resources from biodiversity or land degradation can result in carbon offset credits, as long as GEF resources do not pay for transaction costs



Opportunities for collaboration to support energy efficiency: Pre (and Post) 2012

- Greater scope for GEF and carbon offset regimes to collaborate and reinforce each other, provided:
 - GEF and CF resources do not co-mingle in same investment
 - GEF resources do not pay verification, certification costs
- Programmatic cooperation, technological or sector-specific approaches possible
- Increasing energy efficiency to the level required to stabilize climate requires maximization of efforts and synergies



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Thank you

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