Financing the Transition to Energy Efficient Lighting

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Asian Development Bank
Basics of Asian Development Bank (ADB)

- Multilateral development finance institution established in 1966
- Poverty reduction is overarching mandate
- Provides financial and technical assistance
- 67 members – 48 from Asia and Pacific region
- Financial assistance:
  - $21.57 billion approved financing in 2012
  - ADB invested US $2.3 billion in clean energy projects in 2012
ADB’s Asia Pacific Region
ADB’s Operation : Instruments and Responsible Departments

- **Sovereign Loans** (Government Pipeline, Fiscal Guarantee, normally 25-26 years loan period with interest rate of LIBOR + 0.2-0.4%, 5-6 year grace period, and a commitment charge. The PPTA supports the project preparation) – Regional Departments

- **Nonsovereign Loans** (No requirement for government pipeline and fiscal guarantee, Government’s no-objection required, LIBOR+risk premium, grace period, commitment charge and front-end fee). - Private Sector Operation Department

- **Technical Assistance and Grants** (to assist policy studies, capacity development and project preparation) - Private Sector Operations Department, Regional Departments, and Regional Sustainable Development Department
Why Energy Efficiency
Cheapest Low-Carbon Solution: Energy Efficiency

Source: McKinsey 2007
A Huge Opportunity

- **Two-thirds** of the global economic potential of energy efficiency remains untapped to 2035, mostly due to non-technical barriers.
- Economically viable efficiency measures can halve world energy demand growth to 2035 and delay "lock-in" of CO₂ emissions permitted under a 2 °C warming trajectory by **five years**.
- EE creates net economic gains estimated at $18 trillion to 2035, after additional investments of $11.8 trillion, concentrated in Asia.

*Energy efficiency potential used by sector in the New Policies Scenario*
CFL Projects Invested by ADB
Philippine Energy Efficiency Project (2008)
Project Cost: $46.5 million

- ADB Loan – $31.0 million
- ADB Grant – $1.5 million
- Government – $14.0 million

- Reduce peak demand by about 450 MW
- Defer power generation investment of $450 million
- Reduce oil imports by about $120 million per year
- Clean Development Mechanism (CDM) revenue (350,000 tons reduced CO₂)
1 million CFL = 50 MW power plant

With the Same Lumen Output

- 9 W = 40 W
- 13 W = 60 W
- 18 W = 75 W
- 25 W = 100 W

1,000,000 CFLs
13 Watt each
13,000,000 watts
13 MW

1,000,000 incandescent
60 Watt each
60,000,000 watts
60 MW

Savings of about 50 MW of equivalent generation

1 million CFLs cost $1.5 million

50 MW Power Station costs $50 million
Philippine Energy Efficiency Project (PEEP)

**Component 1:**
Efficient Lighting Initiative
- Retrofit Government Office Building
- National Residential Lighting Program
- Public Lighting Retrofit Program
- Energy Efficiency Testing and Lamp Waste Management

**Component 2:**
Efficiency Initiatives in Buildings and Industries
- Super ESCO
- Efficient Building Initiative

**Component 3:**
Communication and Social Mobilization
- Communication for Efficient Lighting
- Promoting Efficiency in Everyday Life

**Component 4:**
Project Implementation Support
Simple Message is No Lecture!!

P400 a year
Switching to CFL lowers electric consumption, guarantees longer lamp life, and helps protect the environment.

2 YEARS warranty

XYZ, Inc.
COMPACT FLUORESCENT LAMP
75 watts = 15 watts
Lamp Life 10,000 hours
10 x 1,000 hrs 10,000 hrs

If this lamp fails to work, return for replacement by or before December 2010. Text DOE 2920 for more information.
Pakistan Energy Efficiency Project (2009)

- Procurement: 2 supply contracts for 30 million units signed in 2012 (100% financed by ADB/AFD loans)
- Distribution: Each utility responsible within its operation region, using its own resources (counterpart co-financing)
- Lessons and Experience
  - Cost effective to help addressing power supply deficit
  - Tailored technical specifications (country standards, public acceptance, wide available suppliers, rapid technology shift)
  - Country-wide rollout – commitment, planning and public awareness/education
  - CDM opportunities – require advance actions
Nepal Energy Access and Efficiency Improvement Project (2009)

Grant 0182/Grant 0183
CFL program and Waste Management

- CFL program design prepared
  - CFL procurement from international supplier.
  - 8 regional centers selected for distribution and no. of CFL for each center determined.

- Lamp waste management strategy for Nepal prepared
  - Extended Producer Responsibility
  - Consumer Awareness on Hazardous of Mercury - awareness campaign/ distribution of leaflets
  - Handling and Disposal of Incandescent Bulbs - recycling/ use of bulb eaters and disposal in landfill sites
  - Transportation and Treatment of disabled Incandescent Bulbs - use of bulb eaters
  - Handling of Fluorescent Lamps - various procedure
  - Collection of Spent Lamps - at NEA/ retailers
  - Transportation and Processing - Lamp Crushing and Filtering of dust particles and mercury & Disposal of Activated Carbon Filter to landfill sites and recycling of glass
Why Low Hanging Fruits Unpicked
ADB’s Demand-Side Energy Efficiency Investment

Opportunities are being overlooked.

Scaling up EE requires capacity building, project aggregation and packaging of replicable initiatives.

Low

- Residential $43m
- Individual Retail $0
- Offices $167m
- Education 0
- Hospitals 0
- Light Industry 0
- Process Industry $363m
- District Heating $449m

High

Capital Intensity

Low

Labor intensity

High
Barriers to Energy Efficiency

- Limited policies and enforcement
- Lack of management awareness
- Limited knowledge, information and services
- Lack of financing

Policy/Regulatory

End-users

Equipment/Service Providers

Financing Institutions
How
Market Transformation

- Green line: Standards and labels
- Red line: No standards or labels
- Cyan line: Standards only

Energy Labels "pull" the market

Minimum standards "push" the market

Sales

Efficiency
Moving from Public to Commercial Financing

- Leveraging Commercial Financing through Performance Contracts
- Partial Credit or Risk Guarantees
- Dedicated Credit Lines
- Energy Efficiency Funds

Commercial Financing

Market Maturity

Public Financing
Toward Low-Carbon Future

International climate policy
G20, G8, UN GA, MEF, Rio+20
UNFCCC

International Framework
Enablers
Policy methodologies
Measurement, reporting, verification

International climate finance (GCF)

National mitigation actions (NAMAs)

International Technology Mechanism

Corporates/Project Developers/Banks
Regions/Cities
Consumers
Thank You!

For more information:

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