

# Recycling Financing Structure for Energy Efficient Projects

## Background

Efficient energy use or energy efficiency (EE) seeks to reduce energy use on a permanent basis through the installation of improved technologies. Such projects result in savings through reductions in consumption, replacement costs and CO2 emissions. These financial gains/cost savings can be used to repay the cost of financing such projects. Often the cost savings accrue within a short period of time. And yet, EE projects are typically funded by IBRD loans with maturities that far exceed the time within which savings accrue to the borrower. Longer maturity loans are more expensive, use up a significant amount of a country's credit exposure with IBRD, and use IBRD capital inefficiently.

## The Structure

A recycling loan structure wherein the loan maturity is matched to the projected payback period, drawn down, repaid, and drawn again a number of times for successive phases is more suitable for EE projects. The borrower repays the loan with money saved on energy costs from each phase of the project. For example, a loan can be structured as a series of 5-year IBRD Flexible Loans over a 20-year period, rather than one 30-year loan. By repaying each tranche and re-investing the funds into other phases of the project, the borrower is in essence recycling the loan to expand the project.

The recycling financing structure can take many forms such as Adaptable Program Loan (APL), Disbursement-linked Loan, a combination of both, etc.

The project's reach and impact can be further increased by blending the IBRD Flexible Loan with other sources of concessional financing such as Clean Technology Fund or Global Environment Facility.

## Outcome

Using the recycling loan structure to finance successive projects can help a country optimize the financial and environmental impact of EE projects by:

- Minimizing the cost of the loan; replenishing the pool of lendable funds for new projects; eliminating lack of capital as a barrier for developmentally sound projects;
- Avoiding breaching IBRD credit exposure limits and optimizing a country's credit line with IBRD. This is very important in an environment where IBRD lending is stretched to capacity due to

## At a Glance

- A recycling loan structure in which a loan is reinvested over several cycles uses IBRD capital efficiently for EE projects.
- Reinvesting the funds significantly increases the financial and environmental impact of EE loans, while using the same World Bank credit exposure.
- These structures are ideal when the energy savings generated by the project accrues to the borrower.

increased demand, and many countries are reaching their country exposure limits.

- Generating a much greater level of energy savings and reduction in peak demand over the life of the project than a standard long-maturity IBRD loan. See example<sup>1</sup> below.

Total (million)	Traditional IBRD Loan	Recycling Loan	Impact
Investment	\$100	\$400 <i>(in \$100 million revolving tranches)</i>	4 times
Number of CFLs <sup>3</sup> installed	50	200	
Savings on replacement of old bulbs	\$80	\$320	
Energy savings	\$1,000	\$4,000	
tCO2e <sup>4</sup>	5	20	

Note: Pay-back period for CFL investment = 4 months (includes savings and initial investment, without loan cash flow)

1. Data based on EE project for Mexico and the World Bank Low-Carbon Development study for Mexico, 2010.

2. Assuming a peak coincidence factor of 0.264% and a capacity reduction of 53W per replaced lamp.

3. CFL: Compact Fluorescent Lamp;

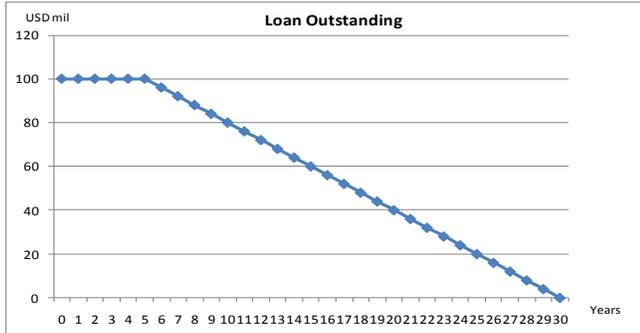
4. tCO2e: Tones of CO2 equivalent

**Traditional IBRD Financing:** \$100 million loan with 30-year maturity, 5-year grace period and 18-year average life.

**Alternative Customized Financing:** Series of four, \$100 million 5-year loans with 2-year grace periods over 20 years.

Both structures result in the same level of credit exposure with the Bank: \$100 million. The impact of the second structure in terms of energy savings and CO2 reduction is significantly higher. Moreover, peak demand is reduced by about 700MW<sup>2</sup>, reducing the need for investments in the expansion of power generation capacity by about \$1.9 billion.

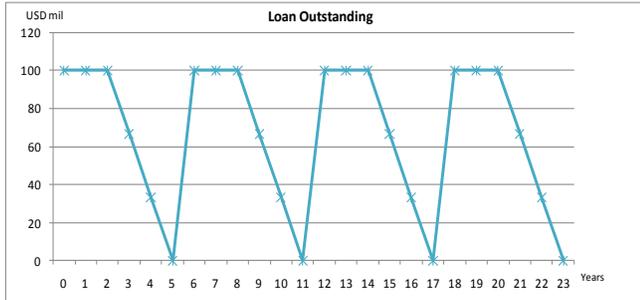
**Traditional IBRD Loan:**



**Financial Terms:**

**Amount:** 100 USD million  
**Average to maturity:** 18 years  
**Maturity:** 30 years  
**Grace period:** 5 years  
**Repayment schedule:** Amortizing  
**Bank's country exposure:** USD 100 million  
**Investment pay-back:** 4 months  
**Bank's country exposure:** 100 million

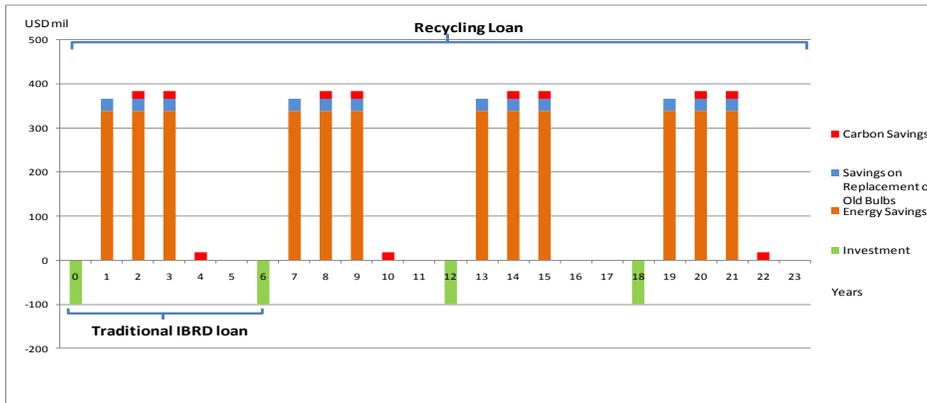
**Alternative Customized Financing:**



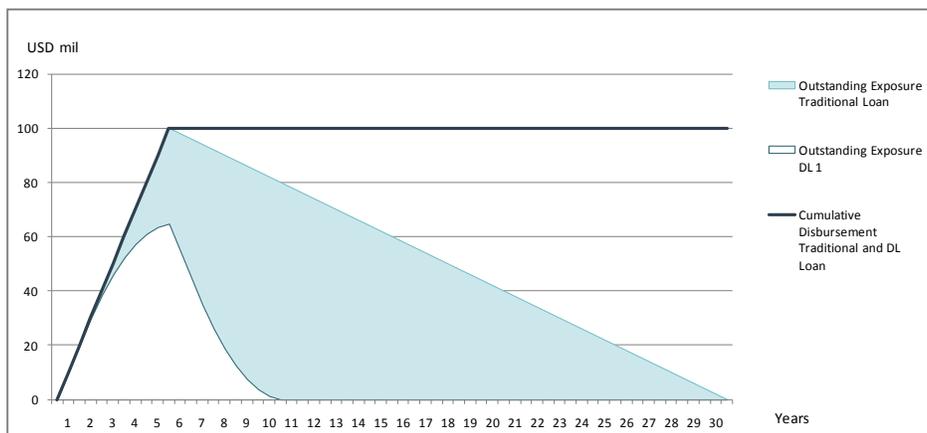
**Financial Terms:**

**Amount:** USD 400 million (in USD100 million tranches)  
**Average to maturity:** 16 years  
**Maturity:** 5 years each tranche (20 years total)  
**Grace period:** 2 years  
**Repayment schedule:** Amortizing  
**Bank's country exposure:** USD 100 million  
**Investment pay-back:** 4 months

**Investment vs. Revenues**



**Savings in Exposure: Traditional vs. disbursement-linked loan:**



**Traditional Loan**

**Amount:** 100 USD million  
**Disbursement period:** 5 years (six-disbursement-linked loan: month disbursements of 10 million USD)  
**Maturity:** 30 years, Grace period: 5 years

**Disbursement Linked (DL) Loan**

**Amount:** 100 USD million  
**Disbursement period:** 5 years (sixth-month disbursements of 10 million USD)  
**Each disbursement:** 1 year grace period, 5 years final maturity

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