

# Energy efficiency financing: The role of public programmes

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## Abstract

This paper provides discussion of how public programmes can support Energy Efficiency (EE) financing mechanisms that are developed and deployed across the globe. The paper highlights different types of EE financing mechanisms, and their shortcomings. It further demonstrates how public programmes have evolved to facilitate EE financing.

The paper also presents relevant examples of public programmes (derived from case studies) to understand their role in supporting the EE financing mechanisms in several countries. It is based on work sponsored by the International Partnership for Energy Efficiency Cooperation (IPEEC) and focused on the trends in 5 participating countries (USA, France, Japan, Russia and India).

## Introduction

Energy efficiency (EE) is globally recognised as one of the most valuable untapped energy options, and some even call it the fifth source of primary energy in addition to after coal/oil/gas, hydro, nuclear and renewable sources. Investments in EE present a unique combination of advantages by increasing energy security and improving economic efficiency and environmental conditions.

According to the International Energy Agency (IEA), implementation of EE policies could result in nearly 36 % reduction in greenhouse gases (GHG) emissions by 2050. More than two thirds of these GHG reductions could come from

demand-side (end-use) EE interventions across different sectors. USD 10.5 trillion (EUR 7.9 trillion) worth of new investments are required in the energy sector by 2030, out of which USD 525 billion (EUR 399 billion) would be required for EE improvements.

Despite EE's recognized advantages as a bankable investment with immense co-benefits, most of the EE potential remains untapped due to the underdeveloped state of traditional EE investment delivery mechanisms. Hence, renewed and strong efforts are required to assess the EE financing mechanisms and provide appropriate fiscal instruments that would supplement government efforts in creating the EE market.

This paper will examine issues associated with EE financing mechanisms and identify public programmes to address them. The paper is based on an International Partnership for Energy Efficiency Cooperation<sup>1</sup> report: "*Assessment of the EE Mechanisms (AEEFM)*" (to be published in 2012) and was led by India, drawing on inputs from the USA, France, Japan, and Russia.

The paper is structured in three sections. The first section presents the most commonly adopted financing mechanisms for EE. The second section highlights the barriers posing significant challenges to the successful delivery of these financing through these mechanisms. Lastly, the third section presents a selection of public programmes identified to address these issues, supported with relevant examples which demonstrate

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1. IPEEC is a high-level international forum. It provides global leadership to identify and facilitate government implementation of policies and programmes that yield energy efficiency gains. It was established in 2009 at the G8 summit in L'Aquila, Italy. Its 15 member states account for over 75 % of world GDP and energy use and greenhouse gas emissions.

the benefits and successes of such programmes. The sections present India-specific cases, highlighting recent innovations in an emerging country.

### Types of Energy Efficiency Financing Mechanisms

The use of financing is vital in any economic system, as it enables consumers to purchase products that are out of their immediate reach. Financing is defined as the act of providing funds to the borrower by the lender for making purchases or investments (EE investments, for example). Generally, government agencies, financial institutions and banks provide capital to businesses, consumers, and investors to help them achieve their goals. Table 2 summarises the various EE financing mechanisms that are currently employed in India, the USA, France, Japan and Russia.

#### SUBSIDIES AND GRANTS

Subsidies and Grants are the most direct means of transferring funds, and can be provided to businesses that invest in EE improvements in a variety of ways:

- **Project or product-related subsidies/rebates** are offered for specific EE products, sometimes after verification of the energy savings forecasts. Grants also fund EE research or commercialisation of a technology. Here, rebates are generally tied to the efficiency and volume of equipment installed.
- **Subsidies/Grants** are less expensive to administer than loans because they require no payback, and are therefore the preferred financing option for efficiency improvements in emerging markets like India. Mature markets like the

USA and Germany also adopt this mechanism to promote technological developments. System benefit charges, federal funding, land use fees and oil overcharge funds are often sources of grants. Typically, the State's energy/environmental/natural resource agency or public utility commission administers EE grants. Many countries across the world have awarded grants in the residential, commercial, utility, industrial, agricultural and public sectors.

Subsidies can be given to industries/businesses that invest in EE improvements in a variety of ways. Some of the common delivery channels are listed below:

- As a fixed payment for an eligible investment.
- Possible tax incentives, credits or rebates.
- As a percentage of the total value of the investment (usually capped at some level).
- As an amount linked to the amount saved in energy or energy costs.

#### LENDING PROGRAMMES

The most important sources of commercial debt financing for EE investments are local financial institutions: commercial banks, non-bank financial institutions (FI) such as leasing companies, and government-owned and privately-owned development banks that lend to commercial enterprises.

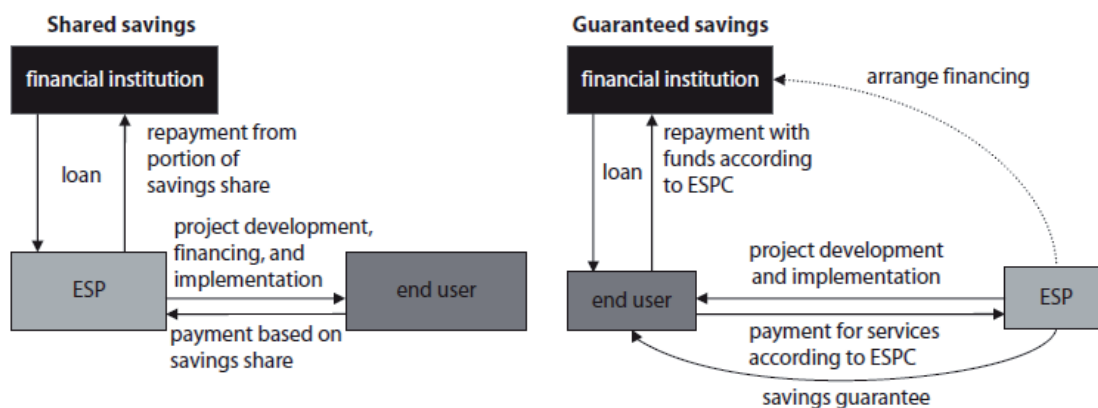
The local banks and FIs generally source funds from internal accruals and dedicated credit lines from multilateral/bilateral development institutions. International funds have historically been a major source for funds for EE investments in develop-

Table 1. Different Approaches to Finance Industrial Energy Efficiency.

	I. Premature Market	II. Transforming Market	III. Mature Market
<b>Finance Mechanisms</b>	Grant, subsidy	Performance contracting, carbon financing	Innovative lending
<b>Main issues</b>	Initial costs, high transaction costs, liquidity issues	Recourse financing, lack of Monitoring & Verification procedures, implementation issues	Risk perception, Split incentives
<b>Financing tools</b>	Accelerated depreciation, tax deductions, tax credits, rebates, subsidies	Guaranteed savings, shared savings, carbon financing, free lending, International Performance Measurement and Verification Protocols	Interest rate, loan loss reserve, risk guarantee funding, on-bill financing, revenue decoupling, revolving loan funding

Table 2: EE Financing Mechanisms adopted in India, the USA, France, Japan and Russia.

Type of financing mechanism	Delivery channels/frameworks
<b>Subsidies and Grants</b>	Grants, subsidies, Tax incentives others
<b>Lending programmes</b>	Bank window, low interest lending, Guarantee Fund, others
<b>Performance contracting</b>	Guarantee savings, shared savings, others
<b>Carbon financing</b>	CDM funding
<b>Energy saving certificates trading</b>	White certificates, ESCerts, EE credits etc.



Source: Taylor et al. 2008.

Figure 1: Shared and Guaranteed saving models.

ing countries and these funds are generally channelled through local commercial financial institutions. In mature markets like the USA, Germany, France, Russia and Japan, the local banks and FIs source funds from internal accruals and represent the most important source of lending for EE projects.

Many of the lending programmes of multilateral and bilateral agencies in developing countries are accompanied by a significant grant component for facilitating the transactions costs, due diligence, feasibility studies and pilot demonstrations.

For example, in India, there are dedicated-public-sector FIs (providing tailor-made long-term debt products for EE investments. Public FIs generally have most favourable terms of lending with interest rates at prime less 2 %. Some lending programmes (such as the JICA-SIDBI scheme in India) have established EE equipment lists to reduce the transaction costs. In India, the SIDBI-GEF scheme for energy efficiency financing in MSME has witnessed tremendous response, and is catering to more than 4,000 MSME units in five clusters across the country. Several bilateral institutions such as the German bank KfW, the Japanese International Cooperation Agency (JICA) and the French Development Agency (AFD) have increased their visibility in providing lines of credit to EE investments in the country.

#### ENERGY PERFORMANCE CONTRACTING (EPC)

Performance contracting is essentially a loan from the provider of the green/renewable equipment (known as an Energy Services Company, or ESCO), that is paid out of the savings or benefits of the green project. Typically, the ESCO arranges the financing, and the company pays the ESCO through reduced energy bills, sharing the energy cost savings over a predetermined length of time, after which all of the energy savings revert to the company. The ESCO often guarantees the energy savings from the project. This mechanism is used for both EE and renewable energy projects, and can be used with projects of almost any scale.

There are different models for energy performance contracting: the shared savings model and the guaranteed savings model.

- Under the **shared savings model**, the cost savings are shared by the ESCO and the client at a pre-determined percentage

for a fixed number of years. In this model, the ESCO shares verified energy savings with the customer,

- In the **guaranteed savings model**, the ESCO guarantees a certain level of energy savings to the customer. In the latter model, the ESCO assumes the performance risk, but usually not the credit risk, since the customer has to provide funding himself (from his own funds or from banks). This model is therefore based on end user or third party financing. It has the advantage that interest rates are usually much lower, and therefore more energy efficiency investment is possible. In contrast, in the shared savings model, the ESCO assumes both the performance and the credit risk.

#### CARBON FINANCING

Carbon financing facilitates financial reward through carbon credits for the reduction of greenhouse gas emissions by emitters in developing countries. The Clean Development Mechanism (CDM) is recognised through the Kyoto Protocol and allows for the offset of emissions in developed countries by investment in emission reduction projects in economies such as China, India or Latin America<sup>2</sup>. For industrialised countries, Joint Implementation (JI) is another mechanism that allows investments to generate emission credit for the same or another developed country.

Carbon financing is the first global environmental investment and credit scheme of its kind, providing standardised emissions offset instruments (Carbon Emission Reductions – CERs), and is seen by many as a trailblazer. The mechanism stimulates sustainable development and emission reductions, while giving industrialised countries some flexibility in terms of how they meet their emission reduction or limitation targets.

Since the beginning of 2006, this mechanism has already registered more than 1,650 projects and is anticipated to produce CERs amounting to more than 2.9 billion tonnes of CO<sub>2</sub> equivalent in the first commitment period of the Kyoto Protocol, 2008–2012.

2. The Kyoto Protocol is a protocol under the United Nations Framework Convention on Climate Change. It establishes finance mechanisms to address climate change.

### The Indian Designated National Authority

In India, since the establishment of the Indian DNA (Designated National Authority) in 2003, 536 projects have been registered by the Clean Development Mechanism (CDM) executive board, which account for about 20 % of all the registered projects (as of 1 October 2010). Biomass utilisation projects, waste gas/heat utilisation projects, the installation of more energy-efficient boilers or a solar panel for rural households and renewable energy (wind, hydro) projects were mainly being implemented in India in the initial period after the introduction of the CDM. Other than these projects, India now has various types of registered CDM projects including EE (cement, steel, etc.), fuel switch, HFC reduction, N<sub>2</sub>O decomposition, reforestation, and transportation projects. Apart from this, CDM promotion cells have been established at the state level. These cells conduct supportive activities such as information dissemination on CDM and coordination between local and national governments.

### CERTIFIED EMISSION REDUCTION (CER) TRADING

Energy savings certificates are known by various names throughout the world – White certificates in Europe and Americas, Energy Saving Certificates (ESCerts) in India and so on. These certificates are documents certifying that a particular consumer of energy has achieved a certain amount of energy savings. Energy users are required to meet certain energy efficiency targets under this mechanism. These certificates can be traded and purchased by entities who are unable or unwilling to meet their obligations through their own activities. It is analogous to the carbon trading scheme, as tradability ensures that energy efficiency is achieved at the lowest cost possible.

### Issues in energy efficiency financing mechanisms

The literature on EE financing over the last decade has indicated many issues associated with the development, deployment and delivery of financing mechanisms across the globe. A review of this literature, with specific focus on the most recent, has obviously helped in identifying and understanding the nature of major obstacles to the successful delivery of EE financing mechanisms.

The issues identified have been grouped under each of the four EE financing mechanisms discussed above. The following sections provide a better understanding of the context and the nature of impacts that follow as consequences of these issues.

#### ISSUES IN SUBSIDY-BASED FINANCING MECHANISMS

Subsidy-based mechanisms are usually subject to the free rider<sup>3</sup> problem. Some companies may get the benefit of a subsidy for EE investments that they would have made in any case, even without the incentive. This has an adverse impact on the government budget and may require large expenditure of public funds. Apart from this, high transactions costs, in the form of significant paperwork or other application processes, can also discourage subsidy use.

3. The problem of free rider refers to someone or an institution enjoying the benefits of a collective effort without contributing to the effort.

### ISSUES IN LENDING PROGRAMMES

The local bankers or FIs often lack the technical knowledge necessary to adequately value the contribution that an EE project can make to the profitability of a loan applicant. As a consequence, loan applications for EE projects may receive unfavourable reviews by bank officers. The lending is generally asset-based: the bank usually requires collateral and EE projects usually lack high value collateral. Collateral value is low because a sizeable share of total EE project costs, including high engineering, development installation, and monitoring costs, produce no collateral. In addition, EE equipment is highly specific to a certain site or application. High asset specificity implies illiquidity of certain investments, which leads to additional security being required by investors in those investments. Once the equipment is installed, the asset value is drastically diminished due to the limited resale/reuse value of energy efficiency equipment and costs involved to recover assets from end users.

Another type of lending practiced by banks worldwide is project financing where the banks secure project cash flows as collateral. This type of lending is generally adopted for large-scale Infrastructure projects and is viewed as the best alternative to asset based lending. However, cash flow-based lending is also inherent with several challenges for energy efficiency projects. The intangible nature of the revenues from energy savings that is hidden in the energy cost of the facility of beneficiary will restrict the ability for ensuring an effective repayment mechanism that is critical for lending institutions. Apart from this, the realistic assessment of energy savings is another pressing challenge.

In emerging markets like India, lending directly to small and medium players who dominate the industry is often considered as a risk. The perceived high credit risks have made financial products disadvantageous and often expensive, thus further limiting the availability of good offers for bankers and to a lesser extent to borrowers (who in any cases generally do not find the terms and conditions of the loan to be attractive). Also, many EE projects are simply too small to get attention from company management and banks, which prefer to give larger loans.

The transaction costs associated with investments in EE, such as the acquisition of information or the risks associated with investments in new technologies, are generally perceived high in the market and substantially inhibit such investments.

#### ISSUES IN PERFORMANCE CONTRACTING-BASED FINANCING MECHANISM

This mechanism is primarily driven by the local ESCO industry and by FIs willing to finance performance contracting projects under shared savings/guaranteed savings model. One of the primary challenges perceived in this type of financing mechanism is the lack of credibility/ability on the part of the ESCOs to play their role. As this concept is relatively new, its understanding is critical to the end-users and to FIs who procure and invest in such services provided by the local ESCO industry. The limited ability for local ESCOs to obtain bank financing or to raise equity capital (particularly for new, small ESCOs that are financially weak and lack collateral/credit history) represents another obstacle for the local ESCO industry. In emerging countries like India, the lack of standardised pro-



protocols for performance contracts is also affecting the growth of this industry. However, this issue can be addressed by accreditation programmes.

#### **ISSUES IN CARBON FINANCING AND ENERGY SAVINGS CERTIFICATE TRADING**

CDM as recognised under the Kyoto protocol and local regulatory market initiated via mandatory compliance framework/regulations are the two main channels used to deliver these financing mechanisms. The major disadvantages with these mechanisms are that the carbon credit/white certificate market is susceptible to dynamic movements driven by supply and demand characteristics. If the market is flooded with certificates, prices may drop substantially, reducing the incentives for investors. The recent fall in prices of carbon credits in the Euro market is an example of such a scenario. Another challenge in the carbon financing mechanism is that investors should opt for less costly options (lowest hanging fruits) in order to avail themselves of CDM benefits, leaving the high investment options unattractive. Therefore, the full potential of energy efficiency interventions may not be effectively realised when the investors are relying on carbon financing. Both white certificate trading and CDM usually involves complex bureaucratic procedures, monitoring and verification, that are commonly associated with high transactions costs.

#### **Public Programmes: Increase in Energy Efficiency Financing**

A number of programmes have been developed globally to address the substantial issues accompanying energy efficiency financing mechanisms. Public programmes have been the forefront of options to deliver energy efficiency financing to industry. This section will discuss some of these options, supported by examples which demonstrate their applicability and benefits.

##### **INITIATIVES ADDRESSING ISSUES IN SUBSIDY MECHANISMS**

- Streamlined application processes, if possible, should be employed to avoid free riders and reduce transactions costs
- Outreach programmes may be necessary to maximise the effectiveness of these programmes.

To facilitate effective delivery, subsidies must be typically tied to specific investments by strictly defining the criteria that qualify for the grant/subsidy. One example would be an energy efficiency subsidy tied to the type of equipment purchased and installed – e.g., a list of equipment identified in advance by the government providing the subsidy (see case studies in annexes).

##### **INITIATIVES ADDRESSING ISSUES IN PERFORMANCE CONTRACTING**

In order to enhance the penetration of performance contracting among energy end users and FIs, government agencies have taken the lead across the globe with demonstration projects highlighting the potential savings and benefits of performance contracting. Reasonable payback from these demonstration projects can help strengthen the trust between clients and ESCOs. The growth of the ESCO industry worldwide is facilitated by the formation of ESCO associations that will lobby for the interests of the industry. Their functions include lobbying

with the government, accreditation of ESCOs, promotion of successful projects, etc. Independent accreditation of ESCOs and their comparative rating provide facility owners with an informed choice and comfort pertaining to their respective technical and financial capabilities. In India, BEE has initiated the credit rating programme along with CRISIL (a local credit rating agency) in order to evaluate ESCO resources and capabilities for implementing large-scale EPC-based energy efficiency projects in the country.

A few countries like India and the USA have a functional Super ESCO owned and operated by the government. These state-owned entities are profit-making organisations which compete with private ESCOs to successfully implement energy efficiency projects. The initial barrier of financing for energy efficiency projects is eliminated, as the projects are backed by the government. The super ESCOs in these countries have mostly targeted residential consumers, public buildings, agricultural pumping and small-scale enterprises. The successful completion of projects and demonstration of savings can act as triggers to unlock the market for private investors.

##### **Examples of initiatives addressing issues in performance contracting**

1. USA's "Super-ESPC" Federal Programme;
2. India's "Setting up of Super ESCOs – Energy efficiency service limited (EESL)";
3. Accreditation of ESCOs in India.

##### **INITIATIVES ADDRESSING ISSUES IN CARBON FINANCING**

Experience in promoting the use of carbon funds reveals that EE initiatives have to gradually transit away from project-based CDMs to programmatic crediting approaches which would help overcome some of the barriers, such as high transaction costs and complex M&V of energy savings and GHG emissions savings.

The primary factor driving energy saving certificate schemes across the globe is the use of mandatory targets imposed on local energy-intensive users and Utilities. In order to mitigate the dynamic nature of secondary markets where these certificates are traded, the pricing mechanism has to be transparent and regulated by an independent authority. Also, the legal framework binding these targets have to be stringent with substantial penalties for compliance. Furthermore, the targets have to be continuously reviewed and revised in compliance with international standards.

#### **Conclusion**

Public programmes play an important role in delivering effective EE financing mechanisms in many parts of the world. Our findings are that the approach for effective delivery must be holistic and market-based.

The programmes designed must not distort the market and should be "smart" with clear exit periods and be simultaneously effective in catalysing growth. For example, Credit Guarantee programmes should exist only to catalyse EE lending to small and medium-level players, and soft loans should aim to reduce the perception of high risk. Only when markets have achieved a certain volume and success rate, can market-based mecha-

nisms that focus on mitigating risk (like EE bank windows) be introduced, lowering transaction costs and building capacity for private sector leadership in investing in energy efficiency.

## Case studies

### EXAMPLES OF DELIVERING SUBSIDIES FOR ENERGY EFFICIENCY:

- India's "State Energy Conservation Fund" (SECF)
- The USA Federal Tax Incentives – Non business Energy Property Credit

Both India's SECF and the US tax credit scheme clearly defined the criteria for availing the energy efficiency subsidies. The US tax credit scheme defined the eligible properties and technologies, whereas the India's SECF was operating under guidelines defined by government. Both these programmes have been widely promoted to targeted stakeholders, and extensive outreach programmes have been organised from the funds allocated under them.

The US tax credit programme has been widely accepted by all groups of stakeholders and the India's SECF has witnessed approx. INR 70 crores of expenditure for strengthening the institutional capabilities, promoting energy efficiency and increasing awareness among the end users.

### INITIATIVES ADDRESSING ISSUES IN LENDING MECHANISMS

- Soft loans,
- Guarantee funds, and
- EE bank windows.

#### Soft Loans or Low-Interest Rate Lending:

These programmes use public funds to offer loans at interest rates that are below the market rates for EE investment loans. Soft loans are supported by public funds, and can be considered as subsidies for banks to promote loans for EE projects. By reducing the costs of borrowing, soft loans seek to encourage investments in EE that might otherwise not be implemented due to high financing costs. Often more complicated to set up than a traditional subsidy, however, soft loan programmes are generally less broadly used.

Soft loans are often associated with revolving funds where repaid loan funds are cycled back into the fund for lending for a new project. Money in the revolving fund is fully dedicated to EE lending. Revolving funds are typically publicly supported, through subsidised interest rates or through partial or full public funding of the main investment; money for the fund may come from dedicated taxes on energy sources. Operation of the fund itself may be set up in cooperation with commercial banks. Such an arrangement allows for an evaluation of loan applications, monitoring of loans, and collection of loan payments to be managed by commercial banks that have existing expertise in these areas. Government offices, as a consequence, do not need to become bankers to administer the fund. The public funding involved makes loan money available for EE projects that are currently not available strictly through the private sector. Thus, EE projects seeking funding through the revolving loan fund do not need to compete against more tra-

ditional investments for bank funding. Finally, the public funds provided to commercial banks are usually provided at zero or well below market interest rates. This enables the banks in turn to provide loans for EE projects at rates below market. In return for receiving public funds, banks can be asked to assume some or all of the risk of repayment associated with the loans.

These types of loan funds offer a number of advantages:

- Governments are kept out of the banking business, thanks to the involvement of the commercial banking industry, which uses existing financial institutions and expertise.
- Banks become interested in making EE loans, thanks to the provision of dedicated public funds. Involving banks in fund administration introduces them to EE lending and familiarizes them with these types of projects.
- EE investments are more attractive to potential loan applicants due to lower than market interest rates.

#### Guarantee Funds/Loan Loss Reserve:

These funds help cover the credit risks associated with financing EE projects with a medium to long term. In such schemes, public or donor funding is pledged (usually up to a ceiling level) to guarantee some of the risk of principal repayment for these loans. Typically, the loan recipient pays an annual fee (usually 1 to 3 percent of the total outstanding balance on the loan) to the guarantor in order to obtain a guarantee for the loan. As a consequence, guarantee funds can help address the issues for EE lending that are associated with collateral requirements, the higher risk nature of new technologies, and the risk of longer-term lending. In some cases, guarantee funds are earmarked for groups with greater difficulty in getting loans, such as small and medium enterprises (SMEs). Like revolving funds, guarantee funds can be helpful in building the capacity and willingness of banks to offer EE loans by subsidising risks until the banks become familiar with the market and can manage the risks on their own.

Guarantee funds tend to work best in situations where the banking sector is fairly well-developed and liquid (i.e., where available lending capital is not an issue), but where the risks (or perceived risks) of EE loans is the primary issue. They also suit best where there is sufficient market demand for loan financing. Guarantees marginally enhance the credit of a loan applicant by reducing risk, but cannot solve fundamental problems within the banking sector or assist loan applicants with more significant credit issues

A related instrument, the Loan Loss Reserve Fund (commonly used in the United States), provides partial to full protection for a bank's portfolio of small loans as a group, rather than providing guarantees for individual loans, and can be useful in situations where a traditional guarantee is not appropriate. As with guarantee funds, this type of mechanism works best in a developed banking sector.

#### EE Bank Windows:

These are bank programmes that specialise in making EE loans, which they obtain by reaching out to potential customers. In few typical arrangements, bank staff is trained to evaluate and understand EE project risks. Specific EE loan products are developed as well as outreach programmes for particular industry segments (e.g., SMEs).

Once in place, these programmes reduce transaction costs for both the customer and the bank, provide attractive offerings, and in turn deliver cost-effective financing. Most of the programmes are intended to provide partial subsidies and other financial and technical support to the banking industry to allow it to develop the capacity necessary to offer EE loans independently. Performance of these programmes varies: while some are quite successful in stimulating local bank lending and investment, many suffer from chronically low deal flow.

#### EXAMPLES OF LENDING PROGRAMMES FOR ENERGY EFFICIENCY:

- India's "Small Industries Development Bank of India (SIDBI)" loan programme for financing EE projects in the Micro Small and Medium Enterprises (MSME) sector;
- India's "Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE):" programme to promote bankers to provide zero collateral lending for the MSME sector up to a loan of Rs 1 crores;
- US Department of Energy's Loan Guarantee (Programme 1703).

The SIDBI financing programme mentioned above has the features of both Soft Loan programme and the EE Bank Windows. It has disbursed approx. USD 263 million (approximately EUR 209 million) to date for several small and medium scale industries in India. SIDBI has sourced its funding mainly from JICA and AFD to achieve this scale of success. The loan products under this scheme were extremely competitive and carried substantially lower interest rates than other commercially available financing. The products were tailor-made energy-efficient equipments for industries with a payback period of 7 to 10 years. The products were designed to suit the needs of small and medium players starting from USD 0.02 million. Apart from this, JICA and AFD followed a simplified procedure in loan sanctioning, i.e. EE loans sanctioned as per the Energy Saving Equipment List (carrying exhaustive list of energy saving measures). This substantially reduced transaction costs for both the buyer and seller of loan products.

The credit guarantee programme of India was established in 2011 and targeted exclusively at the micro, medium and small enterprises (MSME) sector, and witnessed guarantee approvals for USD 0.552 Million (approx. EUR 0.44 million) proposals and credit assistance of around USD 4.769 billion (approx. EUR 3.799 billion) as of March 31, 2011. This programme provided a guarantee cover of 75 % of the sanctioned amount with a maximum guarantee cap of USD 0.125 Million/0.13 Million (approx. EUR 0.99/0.1 million/0.1). The extent of the guarantee cover is 85 % for micro enterprises for credit up to USD 0.01 Million. These features enabled the MSME entrepreneurs to avail credit for technology improvement and promoted energy efficiency among MSME entrepreneurs.

In the US, by the end of 2006, USD 17 million (approx. EUR 13.5 million) of guarantees represented USD 93 million (EUR 74 million) worth of energy efficiency investments, with a total of 331 energy efficiency projects and 1,500 contracts in the gas retail portfolio. No guarantee has been called to date; and only the gas retail portfolio suffered defaults of USD 150,000 (EUR 119,000). After a relatively long period of modest activ-

ity as they gained familiarity with the new instrument, banks significantly scaled up their energy efficiency lending with support of the guarantee programme in 2004<sup>4</sup>.

#### SMALL INDUSTRIAL DEVELOPMENT BANK OF INDIA (SIDBI) MSME FINANCING PROGRAMME – INDIA

**Objective:** To promote EE in the Micro-Small and Medium-enterprise (MSME) sector.

**Description:** SIDBI offers financial assistance to MSMEs for taking up EE investments under various Government of India incentive schemes using multilateral or bilateral agencies Lines of Credits.

SIDBI recently arranged the line of credit from JICA, AFD and KfW for financing EE activities in Micro, Small and Medium Enterprises (MSMEs) sector. The financial assistance to MSMEs will be directly through SIDBI, as well as through re-finance to banks/State Finance Corporations (SFCs) and Non Banking Financial Companies (NBFCs). Here the investment grade projects are screened for financing.

SIDBI with fewer establishments across the country has to rely to a large extent on other lending institutions to increase its outreach to SMEs. The characteristic features of SIDBI's MSME financing programme is given in the table below:

#### STATE ENERGY CONSERVATION FUND (SECF) – INDIA

**Objective:** Promotion of efficient use of energy and its conservation within the State.

**Description:** The Indian government proposed financial support of about Rs 70.00 crores (EUR 100 million) as contribution by the Bureau of Energy Efficiency (BEE) towards SECF of the State Designated Agencies to promote the efficient use of energy and its conservation in the State. Here, the states that have constituted their SECF and finalised the rules and regulations to make it operational is given a central government grant of Rs 2 crores (EUR 285,000).

SECF is a requirement under Section 16 of the Energy Conservation Act 2001, and the State Government needs to constitute a Fund for the purposes of promotion of efficient use of energy and its conservation within the State. Under this programme, all state Governments are required to constitute SECF. Section 16 of the Energy Conservation Act 2001 states that:

- The State Government shall constitute a Fund to be called the *State Energy Conservation Fund* for the purposes of promotion of efficient use of energy and its conservation within the State.
- To the Fund shall be credited all grants and loans that may be made by the State Government or Central Government or any other organisation or individual for the purposes of this Act.
- The Fund shall be applied for meeting the expenses incurred for implementing the provisions of this Act.
- The Fund created under sub-section (I) shall be administered by such persons or any authority and in such a manner as may be specified in the rules made by the State Government.

4. 'Financing energy efficiency', World Bank, 2008

Table 3. SIDBI's Indicative Terms for Financing EE Projects.

	Parameter	Norms
1.	Minimum Assistance	Rs.10 lakh (around EUR 1,500)
2.	Minimum promoter's contribution	25% for existing units 33% for new units
3.	Debt Equity Ratio	Maximum 2.5:1
4.	Interest Rate	The project expenditure eligible for coverage under the Line will carry a rate of interest of 11% p.a. payable monthly.
5.	Upfront fee	Non-refundable upfront fee of 1% of sanctioned loan plus applicable service tax.
6.	Security	First charge over assets acquired under the scheme; first/second charge over existing assets and collateral security as may be deemed necessary.
7.	Repayment period	Need-based. Normally, the repayment period does not extend beyond 7 years. However, longer repayment periods of more than 7 years can be considered under the Line, if deemed necessary.

This fund is managed by State Designated Agencies (SDAs). SDAs are statutory bodies set up under section 15 of the Energy Conservation Act (EC Act), 2001, at the state level to implement the Act. They are the nodal agencies which coordinate with BEE to ensure implementation of the Act in the country. SDAs have an important role to play in creating public awareness and developing an understanding of the values of energy conservation, enforcement of the Energy Conservation Act (2001) at the grass-root level, stimulating market transformation at the local level, collection, collation and analysis of data regarding energy use and dissemination of information to the masses regarding end use of efficient energy. SDAs are the fulcrums for implementation of various initiatives at the central government level, such as publicity and awareness campaigns, directing Designated Consumers to get energy audits and Investment Grade Energy Audits, etc.

**Target Sector:** All sectors.

**Total amount disbursed:** The Central government disbursed a total of Rs 32 crores (approx. EUR 4,567,000) i.e. Rs 2 crores (approx. EUR 285,500) to each of the 16 Indian states.

#### CREDIT GUARANTEE FUND TRUST FOR MICRO AND SMALL ENTERPRISES (CGTMSE) – INDIA

**Objective:** To facilitate securitisation of the guaranteed loans. CGTMSE provides a new window of hope to entrepreneurs in setting up their own enterprises, or for diversification, expansion, and modification by facilitating the extension of collateral free credit through the institutional mechanism. It enables MSME entrepreneurs to avail themselves of credit for capacity building, skill development, marketing support and improvement of technology besides meeting working capital and other requirements.

**Description:** To address the problem of MSEs in accessing institutional credit in the absence of collateral security and/or third party guarantee, which was hampering growth of the sec-

tor, the Government of India and SIDBI set up the CGTMSE in August 2000.

The guarantee cover available under the scheme is to the extent of 75–80 % of the sanctioned amount of the credit facility, with a maximum guarantee cap of Rs. 62.50 lakh/Rs. 65 lakh (about EUR 89,000/92,500). The extent of the guarantee cover is 85 % for micro enterprises for credits up to Rs. 5 lakh (about EUR 7,000).

The extent of guarantee cover is 80 % for (i) Micro and Small Enterprises operated and/or owned by women; and (ii) all credits/loans in the North East Region (NER). In case of default, the Trust settles the claim up to 75 % (or 80 %) of the amount in default of the credit facility extended by the lending institution.

**Guarantee fee:** For credit facility up to Rs. 5 lakh (EUR 7,000), an upfront Guarantee Fee (GF) of 1 % of the amount sanctioned will have to be paid to the Trust by the Member Lending Institutions (MLI). For amounts sanctioned beyond Rs. 5 lakh (EUR 7,000) and up to Rs. 100 lakh (about EUR 143,000), the GF is 1.5 %, while for credit facility up to Rs. 50 lakh (EUR 71,000) for units in the North Eastern Region including Sikkim, the GF is 0.75 %. The GF will have to be paid within 30 days from the date of first disbursement of credit facility by the MLI to a borrower.

**Cost to the borrower:** The Credit Guarantee Scheme leaves it to the discretion of the MLIs to decide about passing on the incidence of Guarantee Fee and Annual Service Fee to the borrower or may alternatively decide to bear it themselves.

**Target Sector:** MSME

**Total amount dispersed:** Cumulatively, as on March 31, 2011, Credit assistance of around Rupees 23,846 crores (EUR 34 million) is provided.

**Total Number of Projects sanctioned:** Cumulatively, as on March 31, 2011, Guarantee approvals were extended by CGTMSE to 5.52 lakh (about EUR 7,900) proposals.