

Mobilizing Commercial Financing to Scale Up Energy Efficiency in the Public Sector

The bottom line. Scaling up energy efficiency is critical to the energy transition—and the public sector is a good place to start. Programs in public buildings, in particular, can introduce new models and thus help shape markets. Given the limits of public financing against huge investment needs, countries must unlock commercial financing. The first steps are to adopt international best practices and select financing mechanisms suited to local policy and regulatory frameworks, public agency characteristics, implementation barriers, and the maturity of financial markets.

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What role can the public sector play in leading the development of energy efficiency markets?

Public buildings and facilities, together a major energy consumer with high visibility, can spur market development and investments

In many nations, the public sector¹ is the largest energy consumer. Public buildings account for about 5.2 percent of national energy consumption in Ireland (Sustainable Energy Authority of Ireland 2023), 5.9 percent in Brazil (Statista n.d.), 7.4 percent in South Africa (Statista n.d.), and 10 percent in Kenya (Kenya Power and Lighting Company 2021).

1 For the purposes of this Live Wire, the public sector is defined as facilities owned and operated by the government, such as universities and schools, hospitals and clinics, government administrative buildings, and museums, as well as public lighting. It does not include state-owned enterprises or public utilities.



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Table 1. Energy savings in public buildings and facilities, realized through World Bank projects

Country	Type of building	Energy savings (%)
Türkiye	Administrative buildings	42.9
	Hospitals	42.7
	Schools (including university)	56.1
Kosovo	Administrative buildings	61.0
	Schools (including kindergarten)	34.0
	Street lighting	51.0
	Public centers (cultural and medical)	34.0
India	Street lighting	55.0
Mexico	Street lighting	44.7
	Hospitals	28.3

Source: World Bank project reports.

But in most low- and middle-income countries, a lack of up-front capital to invest in energy-efficient equipment and adequate maintenance and repairs leaves public buildings and facilities using far more energy than needed. This is avoidable. Available energy-efficient products and technologies can help generate large savings with payback periods that range from as short as a few months (e.g., replacing fluorescent lamps with light-emitting diodes) to 5–10 years (for insulation and efficient heating and cooling technologies) (table 1). Key technologies and measures include rooftop solar PV panels, heat pumps, and smart meters and appliances.

“Despite tremendous opportunity, improvements in efficiency have been minimal to date in most low- and middle-income countries.”

“In more mature financial markets ... the injection of excessive public financing directly into the market could actually undermine market activities and displace commercial financing.”

What hinders the scale-up of energy efficiency in the public sector?

Limited public budgets have not allowed for the high up-front investments required for energy efficiency projects, while commercial financing faces multiple obstacles

Despite tremendous opportunity, improvements in efficiency have been minimal to date in most low- and middle-income countries. Efforts to further energy efficiency in the public sector face many policy and regulatory, institutional, market, and financing barriers. Fortunately, a growing number of global best practices and examples have existed for some time (World Bank 2018). The major barriers and solutions are listed in table 2.

The key challenge now is to implement programs at scale within limited fiscal spaces. For example, it is estimated that renovation of the stock of public buildings in Türkiye (around 500,000 buildings) would cost about \$8.8 billion (Stantec 2023). One answer is to attract commercial financing. A first step in doing so is to strategically deploy the limited public financing that is available to spur commercial capital investments. Doing this will require some changes. And a wide range of new policies and legislative and regulatory changes have already been introduced in countries to create the needed enabling environment.

A growing portfolio of World Bank projects has been designed to overcome barriers to commercial financing. Table 3 presents a sample of completed and ongoing Bank projects that have been designed to increase the public sector's energy efficiency. It also describes some of the elements used to promote sustainable and commercial financing.

Table 2. Barriers to commercial financing for public sector energy efficiency

Barriers	Solutions
Policy and regulatory	
• Restrictions on public borrowing • Restrictive one-year budget cycle • Line-item budgeting, limiting the use of operating cost savings to pay for capital upgrades • Budgetary savings may result in lower future budgetary provisions, limiting the ability to repay debt	• Allow public borrowing for investments designed to lower future costs, including energy efficiency • Shift to multi-year budgeting, use ESAs • Transition to performance-based budgeting, make allowances for cost savings to repay investments
Institutional	
• Restrictions on signing multiyear contracts and assuming debt obligations • Aversion to trying new approaches, taking risks • Limited experience or capacity to undertake ESCO procurement, negotiate with commercial lenders • Lack of financial discipline (bookkeeping, timely payments) • Low (baseline) service levels • Need for parallel investments not focused on energy efficiency (e.g., structural improvements, seismic safety)	• Shift to multi-year budgeting, use ESAs, make allowances for multi-year contracting within budgetary ceilings • Provide standard templates and approaches for commercial financing modalities, reward public officials for reducing energy use • Build capacities to ensure strong financial management • Establish national norms for heating and cooling service levels • Provide parallel grants for measures not focused on efficiency, and improve service levels to meet norms
Financing	
• Lack of borrowing and repayment history • Reliance on state budget transfers/no financial autonomy • High interest rates • Lack of collateral, risk of late/nonpayment • High transaction costs relative to typical commercial financing projects	• Use public financing schemes to demonstrate repayment histories and timely payments • Allow public borrowing for investments designed to lower future costs, use ESAs • Develop nondebt options such as ESAs, energy service company contracts, leases • Require competitive borrowings to lower costs • Set up escrow accounts, guarantees, ESAs and other mechanisms to reduce lender risks • Aggregate projects to increase transaction size • Develop loan agreements and templates to streamline financial evaluation and risk assessment

Note: ESA = energy service agreement.

Table 3. Some World Bank projects to raise energy efficiency in the public sector and attract commercial financing

Country Implementation period	Project name (type of instrument; sector)	Project size (\$ millions) (breakdown of EE component only)	Detailed component and market-enabling activities, plus results of completed projects
India February 2015– March 2025	Partial Risk Sharing Facility for Energy Efficiency (guarantee; energy)	\$133 CTF: \$25; GEF: \$18; borrower: \$90	Partial credit guarantees to ESCO-implemented subprojects, including those in the public sector, thereby lowering investment risks for commercial lenders.
Türkiye November 2019– December 2025	Energy Efficiency in Public Buildings I (investment; energy)	\$200 IBRD: \$150; CTF: \$50	Loan to renovate central government buildings, pilot ESCO contracts, and develop a national program with suitable financing mechanisms.
Bosnia and Herzegovina March 2014– February 2024	Energy Efficiency (investment; energy)	\$64 IDA: \$32; IBRD: \$32	Loan to renovate public buildings and support for developing and piloting sustainable financing mechanisms. Results included lifetime energy savings of 1,335 GWh, 934,316 beneficiaries, creation of an EE revolving fund with KM 4.75 million initial capital, piloting of performance-based contracts. An additional \$2.6 million was investment from reflows from sustainable financing schemes.
Mexico March 2016– October 2023	Energy Efficiency in Public Facilities Project (investment; energy)	\$156 IBRD: \$100; borrower: \$56	Financing of municipal EE projects in buildings, SL, and water pumping using ESAs and utility repayment schemes. Results included 20 municipal SL investments (127,987 LEDs), 1.7 million beneficiaries, the renovation of 17 hospitals, lifetime energy savings of 715,002 megawatt-hours resulting in 314,624 tCO ₂ e greenhouse gas emissions saved, 100 percent repayment rate under 36 ESAs.
India May 2018– September 2023	Energy Efficiency Scale-Up Program (Program for Results with guarantee; energy)	\$1,348 IBRD: \$220; borrower: \$548; private: \$200; other: \$380	Program helped scale up energy savings in the residential and public sectors through bulk purchasing via public ESCO (Energy Efficiency Services Limited). Guarantee supported access to commercial financing. Results included support to 1,600 municipalities and towns to install 10.7 million LED SLs, lifetime energy savings of 329,346 GWh, resulting in 267.1m tCO ₂ e emissions avoided, and 539 million beneficiaries. Guarantee was ultimately not used.

Source: Original compilation based on World Bank operational documents.

Note: CTF = Clean Technology Fund; ESA = energy service agreement; EE = energy efficiency; ESCO = energy service company; GEF = Global Environment Facility; GWh = gigawatt-hour; IBRD = International Bank for Reconstruction and Development; IDA = International Development Association; KM = convertible marka; LED = light-emitting diode; SL = street lighting; tCO₂e = tons of carbon dioxide equivalent; TF = Trust Fund.

What types of financing mechanisms can be used to leverage commercial financing?

Innovative financing approaches, along with stronger regulations, can help scale up commercial financing for energy efficiency in the public sector

Energy efficiency projects have conventionally been financed and implemented by public agencies through government grants or loans, typically with financing from the World Bank and other international financial institutions (IFIs) and donors. Examples include EU Cohesion Funds for the renovation of public buildings in many EU Member States (e.g., Croatia, Romania) and World Bank loans in several countries in the Europe and Central Asia region. While all these programs, which involved purely public financing, generated the desired levels of energy savings in public facilities, in most cases, the investment activity ceased once funds were exhausted and project units were dissolved. Given that investment needs remain high, many countries are now developing sustainable financing mechanisms and institutions and exploring ways to better leverage commercial financing.

The World Bank, other IFIs, and governments have used a wide range of financing mechanisms and financial instruments to facilitate a shift from grants and budget financing toward commercial financing.

Within a financing mechanism or approach to structure energy efficiency project financing, specific financial instruments can be deployed to facilitate commercial financing. A financial instrument is a specific financial product or tool used to raise or allocate funds for project implementation. It seeks to facilitate investment, mitigate suboptimal investment situations, or close investment gaps.

Figure 1 illustrates how financing mechanisms may change in the progression from public to market financing.

How do you know which mechanism will work best at any given time?

Available mechanisms fall into two broad groups, but context is everything

The most suitable mechanisms reflect the local legislative and regulatory environment, the maturity of financial markets, public agencies' capacity, and the status of the energy services market. There must be a clear plan to move to more commercial financing mechanisms over time.

The available mechanisms fall into two broad groups. The first consists of those that utilize public financing to catalyze commercial financing. In such cases, public funds may be used to demonstrate energy and cost savings and the manageability of risks. Revolving repayments can encourage schemes to blend public and commercial financing sources over time. Government agencies, energy efficiency or other specialized funds, public or super energy service companies (ESCOs), and development banks can administer the public funds using a variety of financial instruments.

The second group of mechanisms includes financial instruments that directly leverage commercial financing. These engage commercial financing institutions in undertaking efficiency investments and allow public agencies the option to apply directly to banks or commercial service providers to support the implementation of relevant measures.

Group 1: Mechanisms that utilize public financing to catalyze commercial financing

The World Bank and other IFIs have financed, sometimes with co-financing from national governments, energy efficiency projects in the public sector when (1) public entities were unable or unwilling to borrow from commercial sources, (2) commercial financiers were unwilling to finance the investments or unable to price the risks, and/or (3) there was inadequate credible data about the returns and risks. In such cases, public funds were used to demonstrate the energy and cost savings and low risks and payback periods of investments. Such pilot or demonstration investments provided valuable guidance on how to overcome the contracting

Figure 1. Moving from public to commercial financing

Commercial Financing Market Maturity Public Financing	Moving From Public to Commercial Financing	Financing Mechanisms	Financial Instruments	Country Examples
	Market-Based Commercial Financing	Bank Financing of ESCO projects	Guaranteed Savings Shared Savings	Brazil, China, India, Italy, Kenya, Spain, USA
	Leveraging Commercial Financing	Bond Financing	Green Bonds Municipal Bonds	Kenya, Mexico, South Africa, USA
		Public-Private Partnerships	BOT, BOOT, DBFOT Performance Contracting - ESCOs Chauffage	Croatia, France, Germany, India, South Africa, Tunisia
		Supplier Financing	Supplier Credit Equipment Leasing	Kenya, Korea, Japan, South Africa, USA
		Management Contracts with Performance Based Payments	Management Contracts Concessions Shared Savings	India, Tunisia, USA
		Blended Financing	Capital Rebate Grant plus Loan Guarantees	Japan, Germany, Lithuania
		Partial Risk-Sharing Program	Market-based Loan and Guarantee	China, Hungary, India
		Credit Line with Commercial Banks	Market-based Loan Concessional Loan Loans to Partner Banks Forfaiting	Armenia, China, Germany, India, Serbia, Spain
	Public Financing to Catalyze Commercial Financing	Credit Line with Development Bank	Market-based Loan Concessional Loan	Germany, India, Japan, South Africa, Turkiye
		Public or Super ESCOs	Energy Savings Agreements Energy Savings Capture Guaranteed Savings Shared Savings	Abu Dhabi, Belgium, Dubai, India, Saudi Arabia, USA
		EE Revolving Funds	Market-based Loans Concessional Loans Energy Savings Agreements Energy Savings Capture Forfaiting	Armenia. Bulgaria, Kosovo. Montenegro, Montenegro, N. Macedonia, Romania, Thailand, U.K., Uzbekistan
Utility On-Bill Financing		Market-Based Loans Concessional Loan	Mexico, South Africa, Tunisia, USA	
Public Financing	Direct Lending Budget Financing & Grants Grants	Direct Funding to Beneficiaries Partial Grants 100% grants	Bosnia, Denmark, Turkiye, Vietnam	

Note: ESA = energy service agreement; BOT = build-own-transfer; BOOT = build-own-operate-transfer; DBFOT = design-build-finance-operate-transfer.

a. "Financing mechanism" refers to the overall system, strategy, and approach adopted to structure, deploy, and manage financing. It defines the source of funds and the criteria and requirements for accessing them, the method for disbursing funds to the project or beneficiaries, and the approach for recouping the investment (if the mechanism is intended to be sustainable). It also determines how risks and returns are managed. A financing mechanism may include a combination of financial instruments.

and payment risk issues faced by private investors. However, demonstrations alone have consistently proven insufficient to sustain market activities and investments, so efforts have been made to use public financing in more sustainable ways, using public funds in a revolving scheme to allow for more sustainable financing and eventual commercial financing.

Financing mechanisms under Group 1 are described below.

Energy efficiency revolving funds (EERFs). EERFs provide financing to public agencies to cover the preparation and investment costs of projects. Some of the resulting energy cost savings are then used to repay the EERF until the original investment is recovered. The repayments can then be used to finance additional projects, thereby allowing the capital to revolve and creating a sustainable financing mechanism. Such schemes can use debt financing, energy savings (or budget) capture, energy service agreements, or forfeiting.

In **Montenegro**, 18 energy efficiency projects in public buildings are being financed using budget capture, with over \$600,000 placed in an energy savings capture account to date. In Bulgaria, the Bulgarian ESCO Fund (BEF) was established by Enemona, a local ESCO, which received a loan of €7 million from the European Bank for Reconstruction and Development to buy receivables (forfeiting) under contracts with public sector clients (e.g., kindergartens, schools, hospitals, municipal buildings).

Public or super ESCO. A public or super ESCO, capitalized by the government, functions as an ESCO for the public sector market while also supporting the capacity development and project development activities of existing private sector ESCOs. With its size and credibility as a public institution, a super ESCO has the capacity both to support the growth of a nation's private, domestic ESCOs and to finance energy efficiency projects, thus overcoming the barriers faced by smaller ESCOs.

Credit line with development bank. With this mechanism, public funds are utilized to offer financing through local banks or financial institutions. Financing may be provided on market terms and conditions or concessional terms (lower interest rate, longer tenor) depending on the cost of the funds to the development bank and target markets.

Group 2: Mechanisms with financial instruments that directly leverage commercial financing

In more mature financial markets—where (1) public sector lending is practicable, (2) public agencies and municipalities have more discretionary budgets and credit ratings, and (3) commercial financing for energy efficiency is more developed—commercial financing mechanisms can be used to facilitate the direct participation of commercial banks and financial institutions. In these cases, the injection of excessive public financing directly into the market could actually undermine market activities and displace commercial financing. However, judiciously designed mechanisms can boost market activities and crowd in commercial financing over time.

Sample mechanisms under Group 2 are described below.

Credit line with commercial banks. This type of financing mechanism makes funds available to participating local commercial banks and financial institutions to provide debt financing for energy efficiency projects. Credit lines, which may be established by governments or IFIs, increase the funding available for participating institutions. These lines are often provided under preferential terms (lower interest rates, longer tenors). The participating institution then blends these with its own funds to offer financing at market-based or preferential terms.

Risk-sharing facilities. These provide partial coverage of the risk involved in extending loans to public entities. Each facility represents a bilateral loss-sharing agreement and generally includes a subordinated recovery guarantee; it may also include a “first loss reserve” to cover 50–100 percent of the initial losses up to a specified amount. A partial risk-sharing facility can help public agencies by providing them with access to commercial finance, reducing the cost of capital, expanding the loan tenor or grace periods to match project

cash flows, and building commercial lenders' capacity to price and finance energy efficiency projects.

In **India**, a partial risk-sharing facility issued 79 guarantees, of which 20 were for public sector projects totaling \$33.5 million (replacement of inefficient streetlighting with light-emitting diodes and installation of efficient pumps in a municipal water utility).

Blended financing. This mechanism combines public and private capital to offer more affordable financing for energy efficiency projects. It combines grants with financial instruments such as loans, guarantees, and concessional interest rates to mobilize private sector investments when financing costs are high, or payback periods long.

Management contracts with performance-based payments. Performance-based management contracts provide incentives to the private sector to invest in the management and operation of a public facility with payments made to them based on specified performance-improvement levels. Such contracts have been utilized for the management and operation of water supply and sanitation utilities and for street lighting projects.

Supplier financing. Supplier financing, including supplier credit and equipment leasing, has been instrumental in promoting the adoption of energy-efficient equipment by reducing or eliminating up-front costs and offering a non-debt financing option. Manufacturers and suppliers of energy-efficient equipment have provided financing to industrial and commercial clients in many countries. Supplier financing is also being used in the public sector in countries where the risk of nonpayment is minimal.

Public-private partnerships (PPPs). A PPP is an agreement between the government and one or more private partners (that may include operators, investors, and financiers) to deliver certain services, generally under a long-term contract. In the case of energy efficiency projects, the private partners can deliver services and financing for commensurate fees to

align with public energy savings goals. The effectiveness of the alignment depends on the equitable allocation of risks. PPPs can leverage substantial capital expenditures from a private partner to implement projects. There are many forms of PPPs, with the structure depending on the allocation of the technical and financial risks. PPP types include chauffeage, ESCO contracting, and so-called BOT (build-own-transfer), BOOT (build-own-operate-transfer), and DBFO (design-build-finance-operate) schemes.

In **Croatia**, a PPP was used for the renovation of the Varazdin County Palace. Under a 20-year agreement, Meteor-Privatno Partnerstvo invested €1.2 million and was granted exclusive building rights for the improvement and use of the building for the contract period, with a fixed payment of €13,880 per month.

What can we take away from these experiences?

Improving the energy efficiency of public buildings is important, given their high energy use, large efficiency potential, and importance in influencing local markets

Public sector energy efficiency programs need to be sustainable, scalable, and designed so as to attract commercial financing. This calls for the strategic deployment of public funds, including those provided by the World Bank and other IFIs. The use of public funds to draw in commercial financing takes two forms: (1) via financing, as a catalyst to demonstrate savings and repayment schemes, usually on a revolving basis, and (2) via programs that seek to directly engage commercial financing institutions. Selecting the right financing mechanism for the job depends on country-specific policies and regulatory frameworks, public agency characteristics, implementation barriers, and the maturity of financial markets.

Public finance has generally been effective in demonstrating the large potential cost savings and manageable repayment risks of energy efficiency projects, as shown by Bank operations in several countries. Most such schemes have been in markets where public sector entities were not deemed

creditworthy, the market was underdeveloped, or payback periods were high. They offer evidence to the private sector of potential business opportunities and provide local data on efficiency potential, financial savings, and repayment performance, thereby encouraging investments from private sources.

The development of robust project pipelines poses a challenge, and aggressive marketing is typically essential. Such efforts must be supported by regulatory reforms (to drive demand), incentives (where necessary), access to data (on building stocks, energy use), and capacity building. Early investments need to be carefully structured, documented, and widely broadcast to build market awareness and interest. Initiatives also need to develop energy services markets, such as through simple performance-based approaches that foster the creation of private entities such as ESCOs and facilitate their ability to access commercial financing.

“Public sector energy efficiency programs need to be sustainable, scalable, and designed so as to attract commercial financing.”

Key steps toward these goals are described below.

Learn from innovative financing models that have proved able to attract and benefit from commercial financing. In less-developed markets, and for budget-dependent entities such as schools and government buildings, public financing models have successfully demonstrated the benefits (and risks) of energy efficiency projects. However, care must be taken to ensure the effective, efficient management of public funds, including through training for fund managers. Governance structures must also be in place to ensure the proactive development of markets. Such funds also need a clear exit strategy to encourage commercial financial institutions to step in. Regulatory and institutional development need to be conducted in parallel to ensure a smooth transition to commercial financing.

Payback periods may be long—due, for example, to low baseline service levels and the need for parallel structural and safety improvements—in which case longer-term financing can help. However, financing should not be undermined by issues unrelated to energy efficiency performance. Where possible, parallel grants to cover investments beyond energy efficiency could help demonstrate the potential for sustainable commercial financing.

Develop innovative and sustainable financing mechanisms. In relatively developed markets, where public entities are creditworthy and investments in energy efficiency are more common, or where public entities have independent revenue streams (e.g., universities, hospitals), it is possible to set up ways for commercial financial institutions to participate directly in projects. Blended financing, guarantees, and other mechanisms that combine public and private funds can help reduce the risks perceived by private investors until the market can be sustained on its own.

Where sustainable public financing schemes have operated successfully (under Group 1 in table 4), plans to engage commercial financiers directly (Group 2) could be developed. This process may involve using energy efficiency funds or super ESCOs as guarantees or as subordinated debt until such time as commercial lenders are more comfortable financing projects on their own. But so long as public financing is offered in parallel to commercial financing, it will be preferred; there must be a clear plan to phase down and transition away from public financial offerings.

Address creditworthiness issues. Where public agencies' ability to provide collateral and make timely repayments is in question, it is important to help public clients develop repayment histories and reduce perceived risks to lenders. After these are established, ways to draw in commercial financing include credit enhancement using energy savings capture accounts, escrow accounts, and risk-sharing guarantees.

Facilitate and encourage mechanisms that leverage commercial financing. Financing mechanisms that help to mobilize commercial financing should be encouraged. It is important to pilot performance-based contracts implemented by ESCOs, risk-sharing programs (e.g., India), blended

Table 4. Examples of financing options to leverage commercial financing

Existing market conditions	Financing mechanisms	Advantages	Limitations
Group 1—Mechanisms that utilize public funds to catalyze commercial financing			
Bank perceptions of high risk in financing of public EE projects, lack of public agency borrowing histories	Energy Efficiency Revolving Fund (EERF)	Can be structured to address financing needs & evolving capacity of public agencies	Likely to need new legislation or amendments to existing legislation to establish the EERF
Difficulties in contracting between private service providers and public agencies		Can offer various financial instruments (preferential loans, ESAs, energy savings capture, forfeiting)	Needs a professional, well-incentivized fund management team
Ability of public agencies to enter into multiyear agreements and retain energy cost savings		Facilitates rapid implementation of public sector EE projects and reduces risk to public agencies	May need additional capital infusion if repayment period is long
Good public agency payment discipline	Super ESCO	All of the above plus:	Legislative changes will most likely be required to establish the Super ESCO
Willingness of government to establish a new entity/SOE for EE financing/market development and to mobilize public financing to capitalize it		Contributes to rapid development of an energy services industry and can offer a broader range of financial instruments including performance-based contracts	Need to create a new company with substantial technical and financing capacity and equity capital
Experience of development bank in providing financing for public sector projects	EE credit line with development bank	Can provide concessional financing (lower interest rate, longer tenor) for public agencies	Development bank needs to be interested and willing to finance EE projects
Reluctance of government to establish a new organizational unit or company		Development bank has experience in debt financing for public agencies	Need to enhance capacity of development bank for technical and financial appraisal of EE projects
Group 2—Mechanisms that directly leverage commercial financing			
Well-developed banking sector, willingness of banks to consider an EE line of business	EE credit line with commercial banks	Leveraging of private funds from banks	Public agencies need to have borrowing capability and willingness to assume debt
Limited liquidity in banking sector, access to longer-term loans		Efficient processing of loan applications	May need TA and capacity building of banks re EE technologies & business models
Sufficient and sustainable market demand to develop a large pipeline of projects		Potential for scaling up	May need to provide credit enhancement since public agencies may not provide suitable collateral

(continued)

Table 4. Continued

Existing market conditions	Financing mechanisms	Advantages	Limitations
All of the above plus	Partial Risk-Sharing Program	Can address the risk perception of banks	Requires establishment of a guarantee fund
Need to address bank perception of high risk		Increase banks' interest and activities in debt financing for EE projects	Limited success in some World Bank projects
Need for partial grants or interest rate buy-down to address long payback measures; high cost of capital	Blended financing	Helps scale up financing as grants are reduced.	Some complexities in design and administration, can create dependency on low-cost financing
Banks unwilling to consider an EE line of business without further market development		Performance-based grants can assure energy and cost savings	May need a guarantee facility to stimulate debt financing
Need to access private sector expertise and willingness to assume operational control and risks	Management contracts with performance-based payments	Clear incentives for improvements in operational efficiency	Complex contracts and negotiation process
Government willingness to outsource operations to private service provider		Financial and operational risks are transferred to the private sector	Need for aligning private and public sector objectives and risk-sharing
Equipment suppliers willing to provide supplier financing or leasing options, creditworthy public clients	Supplier financing	No capital required from public agencies	Total cost over the life of the lease contract may exceed equipment cost
Commercial banks willing to provide financing to suppliers		Payments to suppliers can be structured to be lower than cost savings	Complexity of contract structures
Well-established contract structures for simple equipment replacement, ability to resell equipment for nonperforming leases		Supplier may assume operation and maintenance responsibilities	Commitment to a long-term contract may limit ability to upgrade/replace equipment
Existence of an energy services industry with sufficient active ESCOs, strong M&V protocols	Performance contracting with ESCOs	ESCOs can provide or arrange financing from banks	Contract structures can be complex
Legislation supporting contracts between ESCOs and public agencies, public agencies have good payment discipline		ESCOs provide guarantee of performance	Needs formal M&V for assuring that the guarantees have been met

Notes: EE = energy efficiency; EERF = Energy Efficiency Revolving Fund; ESCO = energy service company; M&V = measurement and verification; TA= technical assistance.

financing, and PPPs; evaluate them; refine the processes; develop templates; and offer training to public officers on how to use them. Credit lines may encourage commercial banks and financial institutions to invest. Choose the mechanisms that best align with the interests of service providers and public entities, consistent with local regulatory and market conditions.

“The development of robust project pipelines must be supported by regulatory reforms, incentives, access to data, and capacity building.”

Build capabilities. As more experience in energy efficiency projects is gained, training and capacity-building programs are needed to improve the skills and capabilities of public sector decision-makers, facility managers, and engineers. Periodic training also needs to be provided to others with roles in implementation, such as energy auditors, designers, construction firms, ESCOs, financial institutions, and measurement and verification professionals. They can learn from early projects, improve over time, and better appreciate the business opportunities opened up by improved efficiency. Public agencies need to understand the importance of energy efficiency, navigate the project cycle, and be trained in proper operations and maintenance to ensure that project benefits are realized and sustained over time.

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