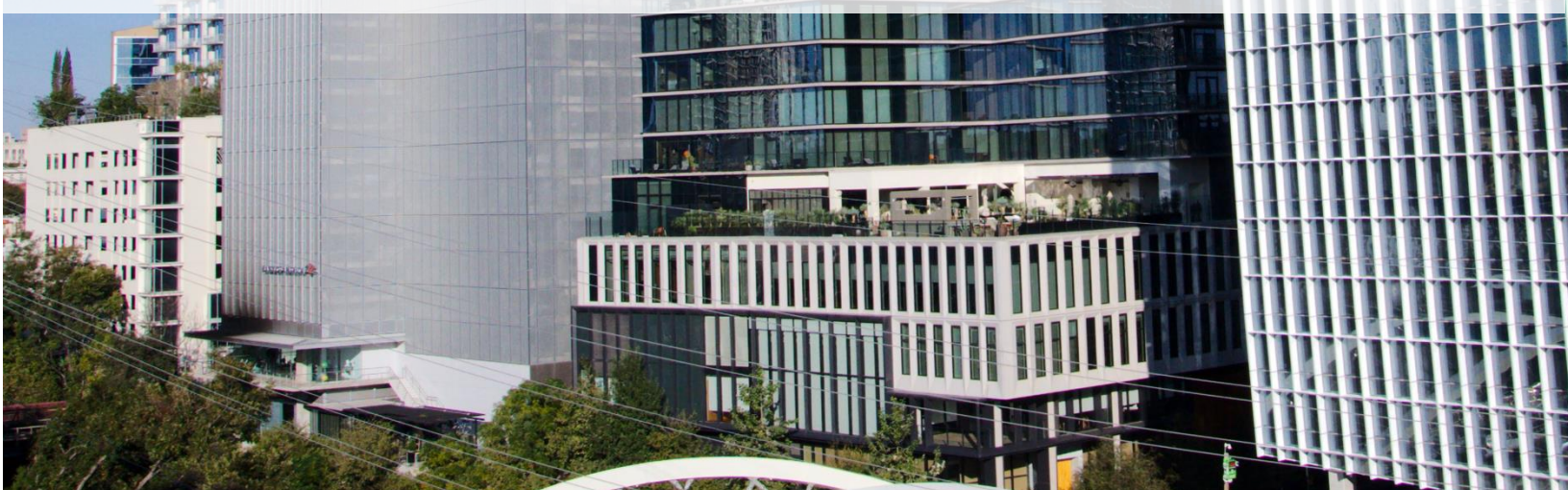
NASEO
National Association of State Energy Officials

MUSH Market Building Financing Options for Energy Efficiency Improvements

A Primer for State Energy Officials



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This report was authored by Sam Cramer, NASEO Senior Program Director, in 2022.

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Executive Summary

Buildings owned by municipal and state governments, universities, schools, and hospitals, otherwise known as the MUSH market, represent great potential for states to pursue energy savings. The opportunity for energy efficiency retrofits in the MUSH market could be as much as $66-208 billion in unrealized energy savings.[1] However, MUSH market building owners face challenges that prevent them from completing the deep retrofits necessary to achieve high levels of energy savings. These challenges include tight budgets and high deferred maintenance needs, a lack of familiarity with available financing options, and a lack of familiarity with how to apply specific financing options to the projects they wish to complete.

Financing offers the benefits of expediency, mechanisms for managing risk (e.g., the risk that energy savings do not materialize), and most importantly, access to dollars that do not compete with other capital budget priorities. State Energy Offices, with their long track records of overseeing and/or managing financing programs, are well-suited to assist MUSH market building owners with understanding their available options for financing building energy upgrades.

This primer provides information on financing mechanisms that MUSH market building owners can leverage when seeking to finance energy retrofits. It offers an overview of commonly used financing products in the MUSH market, along with roles that State Energy Offices can adopt to either oversee or manage each product. The purpose of this primer is to advance State Energy Office staff knowledge about the financing products available to serve the MUSH market, and to inform State Energy Offices about how they can more effectively provide technical assistance and support to building owners. Mechanisms that MUSH market building owners can leverage to finance upgrades include:

- Energy Savings Performance Contracts (ESPCs) - ESPCs are a go-to financing mechanism because they *always* include performance guarantees that protect the interests of MUSH market customers. Forty-nine states and the District of Columbia have legislation in place authorizing the use of ESPCs to help finance MUSH market building upgrades.[2] Historically, ESPC is the largest and most successful energy-sector, MUSH market-private partnership program in the United States. ESPCs have helped MUSH market building owners in 45 states finance over $30 billion in cost-effective upgrades. Many State Energy Offices provide technical assistance and support to building owners throughout the ESPC process, assisting building owners with overseeing Investment Grade Audits, prequalifying energy service companies (ESCOs), developing standardized contracts, and facilitating rigorous measurement and verification (M&V) of ESPC contracts to ensure that projects are achieving agreed-upon energy savings.
- State Energy Revolving Loan Funds (RLFs) - Most State Energy Offices either directly operate one or more RLFs or partner with a third party and provide oversight of the third party's operation of the RLF(s). Strong examples of RLFs that serve the MUSH market include Texas' LoanSTAR fund and

[1] Larsen, Peter H, et. al. Rep. *Updated Estimates of the Remaining Market Potential of the U.S. ESCO Industry*. Lawrence Berkeley National Laboratory, April 2017, p. 11. https://eta-publications.lbl.gov/sites/default/files/revised_market_potential_final_25apr2017_0.pdf.

[2] See "Energy Savings Performance Contracting Legislation Data and Other Resources," Energy.gov (U.S. Department of Energy, 2017), https://www.energy.gov/eere/slsc/downloads/energy-savings-performance-contracting-legislation-data-and-other-resources.

Nebraska's Dollar and Energy Saving Loans Program.[3] As of December 2020, NASEO has tracked 57 programs operating in 35 states and territories, representing a total of $1.65 billion in available financing.

- Tax-Exempt Lease-Purchase Agreements (TELPs) - Several State Energy Offices, like the Mississippi Development Authority, partner with third parties to offer TELP financing to state agencies.
- Energy Service Agreements (ESAs)/Managed Energy Service Agreements (MESAs) - State Energy Offices can educate MUSH market building owners on ESAs/MESAs and the steps involved in using ESAs/MESAs to finance efficiency improvements. This can involve distributing information online, through print, and by providing regular trainings at conferences, road shows, or other gatherings where MUSH market building managers may be present.
- Bonds - State Energy Offices provide information on the bonding process to building owners choosing to take this approach.

This primer is aimed at better informing State Energy Office staff about the financing products available to serve the MUSH market. Each of the above options is discussed in greater detail to provide suggested roles, advantages, and options for states to consider.

[3] Fazeli, Sandy. "State Energy Revolving Loan Funds." National Association of State Energy Officials, 2013. https://naseo.org/Data/Sites/1/state-energy-loan-fund-two-pager.pdf.

Introduction[4]

MUSH market building energy efficiency retrofits possess great potential to achieve significant energy savings, and those savings are key to meeting states' governor or legislature-designated lead-by-example (LBE) energy goals. The energy use of MUSH market buildings can constitute up to ten percent of state government annual operating budgets and offers an opportunity to deploy energy efficiency technologies and retrofit aging building infrastructure.[5] In addition, the energy consumed by a state's facilities can account for as much as 90% of its government operations GHG emissions.[6] Upgrading MUSH market buildings with needed energy efficiency improvements can result in billions of dollars in cost savings and relieve pressure on building managers' budgets.[7] According to a study by Lawrence Berkeley National Laboratory (LBNL), the market for efficiency retrofits in MUSH market buildings could be as much as $66-208 billion.[8] In addition, outdoor lighting systems and wastewater treatment facilities owned by local governments also have the potential to achieve significant energy savings if upgraded with energy-efficient equipment. These energy savings can help states meet gubernatorial or legislatively established energy savings and decarbonization goals.

The Challenges to Financing MUSH Market Building Energy Efficiency Retrofits

MUSH market building owners face challenges that prevent them from achieving their vast energy savings potential. First, these owners do not always have the necessary funds to make upgrades. A lack of available funding often results in deferred maintenance and the use of equipment beyond its useful life, reducing building energy efficiency and putting additional stress on building owners' operating budgets due to increasing maintenance expenditures as maintenance needs accumulate. Additionally, building owners may ignore efficiency improvements in favor of more pressing priorities, such as balancing multiple

[4] To help State Energy Officials understand the differences between various financing mechanisms, NASEO convened a roundtable at the Better Buildings Conference in Cleveland, Ohio, in August 2018 to bring experts in the financing community together to discuss MUSH market building financing options. The participants, representing State Energy Offices, other MUSH market stakeholders, Energy Service Companies (ESCOs), the banking sector, the national labs, and the U.S. Department of Energy, discussed the differences and nuances among various MUSH market building financing mechanisms and how they are used to finance MUSH market building retrofits. This primer reflects the insights gained from the roundtable as well as NASEO's research on this topic. It provides several pieces of information on MUSH market building finance that State Energy Offices should consider, as well as an overview of commonly used MUSH market building financing mechanisms, including bonds, RLFs, tax-exempt lease-purchase agreements, ESAs or MESAs, and ESPCs. It also includes examples of State Energy Office support for MUSH market building owners for each mechanism. For additional information on this topic, or if you would like to explore one of these topics in more detail, please contact Sam Cramer at scramer@naseo.org.

[5] Berg, Weston et. al. Rep. *The 2019 State Energy Efficiency Scorecard*. American Council for an Energy Efficient Economy, October 2019, accessed December 23rd, 2019, p. 118. https://aceee.org/sites/default/files/publications/researchreports/u1908.pdf.

[6] Ibid.

[7] For additional policy and program examples for Lead-by-Example initiatives, see "Lead-By-Example Workshop: Innovative Financing Solutions For State Building Energy Strategies." National Governors Association, October 2019. https://www.nga.org/center/meetings/lead-by-example-workshop/.

[8] Larsen, Peter H, et. al. Rep. *Updated Estimates of the Remaining Market Potential of the U.S. ESCO Industry*. Lawrence Berkeley National Laboratory, April 2017, p. 11. https://eta-publications.lbl.gov/sites/default/files/revised_market_potential_final_25apr2017_0.pdf.

competing operational and replacement needs. The limited information available to MUSH market building owners about potential financing options for building upgrades (and the potential pitfalls within those processes) may also leave them susceptible to bad contracts, misinformation, and "improvements" that may end up costing them additional capital and further limit their budgetary flexibility.

Successful financing and project implementation in the MUSH market involves coordination across multi-agency teams. A state or locality needs its finance, legal, energy, procurement, and landlord agencies working together to help successfully finance these kinds of projects. This can be an additional barrier to MUSH market building energy retrofits as these decision-makers may infrequently work together and communicate. This combination of challenges means MUSH market building owners may choose not to pursue efficiency retrofits if they cannot find ways to overcome the barriers.

Table 1: Barriers to Financing Energy Projects and State Energy Office Actions to Address Barriers

Barrier to MUSH Market Building Financing	State Energy Office Role/Strategy to Address Barrier
Frequent staff turnover in decision-making agencies.	- Host regular, in-person trainings. - Develop materials for agency staffers on various financing options. - Provide information on how to discuss financing options with MUSH market building owners.
Frequent staff turnover in MUSH market building management.	- Host regular, in-person trainings on various financing options available to building owners (every year or every few years as needed). - Develop one-pagers, briefs, and other materials on financing options that can be sent to building owners and managers.
Lack of knowledge of financing options.	- Develop one-pagers, briefs, and other materials that can be sent to building owners/managers. - Host regular webinars explaining the different financing mechanisms as well as case studies of others in the state who have used them.
Lack of coordination between key decision makers.	- Regularly convene key decision makers to discuss existing programs and provide updates as needed.

Addressing the Barriers to Financing MUSH Market Building Efficiency Retrofits

State Energy Offices play a vital role in helping MUSH market building owners overcome barriers via education and technical assistance. Several different financing mechanisms are available to help MUSH market building owners finance efficiency improvements, including energy savings performance contracts (ESPCs), revolving loan funds (RLFs), tax-exempt lease-purchase agreements (TELPs), energy service agreements and managed energy service agreements (ESAs and MESAs), and bonds. However, uncertainty about the differences among some of these mechanisms can cause confusion about which mechanism or combination of mechanisms may be the most appropriate to finance improvements. For example, while ESPCs are often-used mechanisms to help building managers finance energy retrofits for MUSH market buildings, alternatives to ESPC may be particularly suitable in certain situations (e.g., small dollar value projects may struggle to attract interest from an ESCO). State Energy Offices are well positioned to share finance-related information and technical assistance to facilitate energy efficiency retrofits in the MUSH market.

How State Energy Offices Assist MUSH Market Building Managers in Financing Projects

To educate stakeholders and deliver support, State Energy Offices provide information through many avenues, including online resources, websites, in-person trainings, direct technical assistance, peer-to-peer exchanges, marketing materials, and reports. State Energy Offices can use their resources to convene key stakeholders, coordinate efforts between stakeholders, and serve as consistent advisors throughout agency and staff turnover. Additionally, State Energy Offices are well-positioned to engage energy and financial regulatory bodies whose decisions may affect the ability of state and local agencies to oversee MUSH market building retrofits.

By offering in-person trainings on MUSH market building finance on a regular basis., State Energy Offices can help to address potential institutional knowledge drain during staff turnover in the MUSH market. Continuous training efforts can also ensure that MUSH market building owners are kept up to date with the latest information on new financing options that can support building retrofits. State Energy Office partnerships with Registered Municipal Advisors[9] can also help provide accurate and up-to-date information to building owners seeking guidance on the budgetary implications of financing efficiency retrofits.

MUSH Market Building Energy Efficiency Financing Options

Many MUSH market building owners use their general capital expenditure or operating budgets to fund retrofits in their buildings; in constrained budget environments, this may limit the depth of retrofits and/or renovations taking place. As an alternative, some owners may opt to leverage their capital or operating budgets with private capital through ESPC programs, bonds, loans, RLFs, tax-exempt leases, ESAs/MESAs, or some combination of these various options.

While these mechanisms can have similar features, they offer distinct differences that can significantly impact the value proposition of an energy efficiency financing transaction. State Energy Offices are in a better position to educate MUSH market building owners when they understand the differences among the available financing mechanisms. This section overviews common instruments MUSH market building owners can use to finance energy improvements, delivers information on the key features of each option, and provides specific examples of support State Energy Offices can provide to MUSH market building owners in implementing each financing mechanism.

[9] Registered Municipal Advisors are persons who provide financial advice to or on behalf of municipal governments with respect to municipal financial products or the issuance of municipal securities or solicits municipal governments or other obligated persons. They must be registered with the U.S. Securities and Exchange Commission (SEC).

Table 2: MUSH Market Building Financing Mechanisms and the Role of the State Energy Office

Financing Mechanism	Role of the State Energy Office
Energy Savings Performance Contracts	State Energy Offices can: - Provide outreach and support to agencies looking to make upgrades using ESPC; - Review Investment Grade Audits and Measurement & Verification Reports; - Prequalify ESCOs for building owners to work with on projects; and - Support the tracking and documentation of projects (e.g., with eProject eXpress).
Revolving Loan Funds	State Energy Offices can: - Directly manage these products or oversee a third-party that runs the program; or - Provide credit enhancements, like Loan Loss Reserves (LLRs) or Interest Rate Buydowns (IRBs) to make loans from these programs more attractive.
Tax-Exempt Lease-Purchase Agreements	State Energy Offices can partner with other agencies to develop state-run leasing programs that provide favorable leasing terms to agencies looking to make efficiency improvements to their buildings.
Energy Service Agreements	State Energy Offices can support education and outreach efforts to help building owners understand how ESAs operate.
Managed Energy Service Agreements	State Energy Offices can support education and outreach efforts to help building owners understand how MESAs operate.
Bonds	State Energy Offices can provide information on the various types of bonds and where and when they would be most appropriately used.

Energy Savings Performance Contracts

Description

ESPCs delivered by energy service companies (ESCOs) enabled MUSH market building owners to make more than $30 billion of needed, cost-effective energy-related infrastructure upgrades to their facilities during the last three decades.[10] Historically, ESPC is the largest and most successful energy-sector, MUSH market-private partnership program in the United States. ESPCs repurpose the money currently spent on energy, water, and the maintenance of obsolete equipment to pay for projects, including debt repayment, without the need for customers to tap into their own capital budgets. For example, in 2012, building owners utilizing ESPCs saved 224 MMBtu, which is about 1% of all commercial building energy use in the country.[11] Unlike other financing mechanisms discussed in this primer, ESPCs *always* include a performance guarantee, which is critical to protecting MUSH market customers because it provides recourse in the event savings are not achieved.

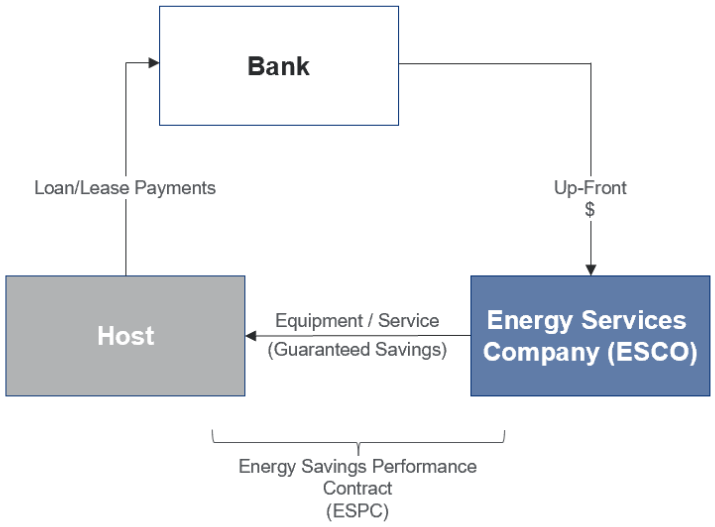
ESPCs are arrangements between ESCOs and MUSH market building owners. The owner enters into a contract with the ESCO to provide services including whole-building energy audits, the installation of

[10] Stuart, Elizabeth, et. al. Rep. *U.S. Energy Service Company (ESCO) Industry: Recent Market Trends*. Lawrence Berkeley National Laboratory, October 2016. https://eta-publications.lbl.gov/sites/default/files/esco_recent_market_trends_30sep2016_1.pdf.

[11] Carvallo, Juan Pablo, et. al. Rep. *Evaluating Project Level Investment Trends for the U.S. ESCO Industry: 1990-2017*. Lawrence Berkeley National Laboratory, March 2019. https://eta-publications.lbl.gov/sites/default/files/esco_db_paper_-april_2019_preprint.pdf.

various energy efficiency measures, and maintenance and monitoring of those measures. Smaller facilities can also aggregate together to make improvements with the same ESCO.[12] The ESCO guarantees a specific level of energy savings in the contract, and if the actual energy savings are less than the guaranteed level, then the ESCO either pays the building owner the difference in cost, installs additional Energy Conservation Measures (ECMs) to meet the agreed-upon savings, agrees to other resolutions, or employs some combination of these solutions. Financing for these contracts is provided by a third-party financier and commonly includes the financing tools covered below, such as TELPs.

Figure 1: Generalized ESPC Structure



Adapted from: B. Schlein, Citi, presentation to NASEO Financing Committee, June 2020

Advantages and Considerations

Forty-nine states and the District of Columbia have legislation in place authorizing the use of ESPCs to help finance MUSH market building upgrades.[13] However, simply enacting ESPC-authorizing legislation is insufficient to achieve program success. The Energy Service Coalition estimates 45 states have recorded some ESPC investment and 28 states have recorded over $100 million in ESPC investment.[14] Practical experience suggests that the development of a statewide program providing technical assistance to building managers throughout the ESPC process is instrumental. States build trust in ESPC among MUSH

[12] For more information on strategies smaller projects can take to leverage ESPC, see Smith, Linda, and Philip Quebe. Rep. *Energy Savings Performance Contracting for Small Projects*. U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, May 2021. https://betterbuildingssolutioncenter.energy.gov/sites/default/files/attachments/ESPC%20for%20Small%20Projects%20FINAL_May%202021_web%20version.pdf#:~:text=For%20the%20purposes%20of%20this%20guide%2C%20the%20term,or%20more%20is%20considered%20a%20%E2%80%9Cstandard%E2%80%9D%20ESPC%20project.

[13] See "Energy Savings Performance Contracting Legislation Data and Other Resources," Energy.gov (U.S. Department of Energy, 2017), https://www.energy.gov/eere/slsc/downloads/energy-savings-performance-contracting-legislation-data-and-other-resources.

[14] "ESPC Race to the Top Tally" (Energy Services Coalition), accessed January 21, 2022, https://www.energyservicescoalition.org/espc/table.

market building owners when ESPC programs offer critical services such as overseeing building audits, prequalifying ESCOs, developing standardized contracts, and facilitating rigorous third-party measurement & verification (M&V) of ESPC contracts to ensure that building owners are receiving agreed-upon savings. ESPCs enable MUSH market agencies to implement facility improvements with little or no upfront capital costs by leveraging a guaranteed multi-year stream of energy savings. The process of confirming that savings have been achieved, known as measurement and verification (M&V), is an essential component of ESPCs. Without M&V, ESPC customers and program administrators may miss out on key ESPC benefits.

Well-designed state ESPC programs can prevent MUSH market building owners from taking on poorly structured and executed ESPCs, which is critical to avoiding reputational damage to ESPC within the state. State Energy Officials looking to delve into the details of the ESPC process and learn more should visit the U.S. Department of Energy's (DOE's) *ESPC Toolkit*, which is an online compendium of resources, trainings, and best practices from other states related to the entire ESPC process.[15]

Roles for State Energy Offices

State Energy Offices can help ensure that MUSH market building owners can leverage ESPCs without concern that using ESPC will impact their capital budgets. Several State Energy Offices develop and run ESPC programs that provide comprehensive assistance and support to MUSH market building owners looking to make ESPC-financed retrofits. For example, the Colorado Energy Office and Virginia Energy each provide comprehensive technical assistance to building owners throughout the ESPC process. Both Energy Offices assist with the ESCO selection process and the Investment Grade Audit by providing templates and forms and attending meetings between the owner and ESCO; they also attend check-in meetings during the construction process. After construction is over, the State Energy Offices review the M&V reports submitted by the ESCO to ensure that the guaranteed savings agreed to by the ESCO and the client are being met. Through their efforts, these two ESPC programs have generated over $75 million in energy savings for MUSH market building owners through ESPC use.[16]

A critical part of the ESPC financing process is ensuring that building owners engaging in ESPCs are receiving the agreed-upon guaranteed savings. Articulating the value of M&V is important to ensure its inclusion in a contract. State Energy Offices overseeing ESPC programs need to consider several strategies when incorporating M&V into ESPC or other financing product contracts.[17][18] This includes meeting with the ESCO

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[15] Energy Savings Performance Contracting (ESPC) Toolkit. U.S. Department of Energy. Accessed January 14, 2021. https://betterbuildingssolutioncenter.energy.gov/energy-savings-performance-contracting-espc-toolkit.

[16] For additional information on the technical assistance provided by these programs as well as how they fund their staff, please see Cramer, Samuel. *State Funding of Technical Assistance for Guaranteed Energy Savings Performance Contracts: Case Studies of Best Practices*. National Association of State Energy Officials, March 2020. https://naseo.org/data/sites/1/documents/publications/GESPC%20Case%20Studies.pdf.

[17] For more details on how State ESPC programs have ensured energy savings by promoting sound M&V, see US DOE 2019, "ESPC for State and Local Governments: Strategies for Successful Measurement and Verification of Savings," available at https://www.energy.gov/sites/prod/files/2019/02/f59/ESPC-strategies-mv_0.pdf.

[18] For more information on ESPCs, see "Evaluating ESPC Results," Better Buildings Solution Center (U.S. Department of Energy), accessed January 21, 2022, https://betterbuildingssolutioncenter.energy.gov/evaluating-espc; and "Energy Savings Performance Contracting (ESPC) Toolkit," Better Buildings Solution Center (U.S. Department of Energy), accessed January 21, 2022, https://betterbuildingssolutioncenter.energy.gov/energy-savings-performance-contracting-espc-toolkit.

and building manager and creating a plan and narrative around M&V to put into the agreement that can be understood by anyone who may need to take over or review contract oversight and management in the future. There also needs to be an explanation as to why the owner and ESCO made the decision to include specific M&V measures in the contract. Additionally, managing non-routine baseline adjustments during the M&V period is important, as those adjustments may have an impact on whether the ESCO's upgrades meet the guaranteed levels of savings or not. Failure to validate savings can lead to adverse impacts on state-wide programs, frequently operated by State Energy Offices, when decision-makers suspect programs are costly or ineffective with no evidence to the contrary. Lawrence Berkeley National Laboratory and U.S. DOE offer eProject eXpress (ePX), a tool specifically designed to help states track and report energy project and program results and avoid the consequences of failing to validate project savings.[19] State Energy Offices can help MUSH market building owners through the entire ESPC process, ensure that ESPC contracts are executed effectively, and review M&V reports to ensure that building owners are receiving the guaranteed savings agreed to in their contracts.

State Energy Office Revolving Loan Funds

Description

State Energy Office RLFs enable MUSH market building owners to access long-term, low-interest financing for energy efficiency, water efficiency, renewable energy, and resiliency upgrades for their buildings. RLFs differ from traditional loans due to the reuse of the principal and interest payments to make new loans for the same sectors the fund is targeting. Because principal and interest repayments are used to reseed the fund, the revolving nature of RLFs allows state programs to support designated clean energy activities practically indefinitely, excepting the drawdown of funds due to defaults by borrowers.

Today, 35 states operate at least one RLF, with many using federal and state funds, greenhouse gas auction revenues, bonds, and/or private capital to establish and grow their loan pools.[20] RLFs date back to the 1970s and 1980s when early pioneers, such as the states of Nebraska and Texas, seeded their state RLFs with petroleum violation escrow and oil overcharge allocation funds. States have significantly expanded their use of RLFs with the influx of funds from the American Recovery and Reinvestment Act (ARRA) of 2009 and increased state interest in clean energy financing.

RLFs typically hold MUSH market building owners to standard financial requirements in loan security, have a maximum allowable payback period for projects, and explicitly state what types of projects are eligible for funding (often including the need to meet certain efficiency or performance standards). As borrowers repay their principal and interest, the money is returned to the fund to make additional loans, enabling the RLF to continue operating without exhausting its pool of capital. The interest and fees paid by borrowers are minimal and support program administration costs.

Advantages and Considerations

RLFs offer financing for building improvements at below-market interest rates due to their backing by state governments and prioritization of meeting public purpose goals (as opposed to achieving greater returns

[19] Learn more about eProject eXpress at https://eprojectbuilder.lbl.gov/login.

[20] For a list of active State Energy Revolving Loan Fund programs throughout the nation, see "State Energy Financing Programs" (NASEO, 2021), https://www.naseo.org/state-energy-financing-programs.

on investment). However, RLFs also may come with constraints on their funding, depending on what the statute or guidance governing the RLF determines for project and technology eligibility. Additionally, many states established RLFs using ARRA dollars, and those funds are subject to rules such as Davis-Bacon, Buy American, and ARRA reporting requirements. These rules may limit how RLF funding can be applied. Furthermore, there are no guarantees of specific levels of energy savings for projects financed via RLFs, so estimated levels of energy savings from installed equipment may not materialize as expected. However, combining RLF capital with the use of another financing mechanism that guarantees savings, such as an ESPC, can help mitigate this challenge.

Roles for State Energy Offices

Many RLFs are operated by the State Energy Office in each state, while the rest are run as a partnership between the Energy Office and a third-party administrator.[21] When the State Energy Office directly manages the RLF, it typically solicits applications from prospective organizations, determines which applications will receive funding, collects repayments from existing loans, and reports on RLF activity. State Energy Offices are also very active in marketing RLFs to prospective clients and provide continuing education in case the rules governing their use are changed.

For example, in Nebraska's Dollar and Energy Saving Loan Program, the Nebraska Energy Office (NEO) purchases a percentage of each loan at a 0% interest rate, lowering the borrower's costs while still providing an attractive yield for their partner lenders.[22] The fund has achieved a 2:1 private-to-public capital leverage ratio since the program's establishment in 1990, with NEO's $153.3 million combined with $172.2 million from private lenders supporting over $320 million in loans.[23]

Tax-Exempt Lease-Purchase Agreements

Description

Tax-exempt lease-purchase agreements (TELPs) are a subset of capital leases commonly used by municipalities and other building managers in the MUSH sector when financing energy-efficient equipment.[24] TELPs are frequently used as part of ESPCs.[25] When combined with ESPCs, TELPs provide the capital while the ESPC provides the overall structure including the performance guarantee. Building managers lease the equipment from Energy Service Companies (ESCOs) or similar firms for a specified period with the intent of purchasing the equipment once the lease is complete. The interest received on

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[21] *State Energy Loan Funds*. National Association of State Energy Officials. Accessed January 14, 2021. https://www.naseo.org/Data/Sites/1/state-energy-loan-fund-two-pager.pdf.

[22] Nebraska Energy Office, "Dollar and Energy Savings Loan Program," accessed December 20, 2019, http://www.neo.ne.gov/programs/loans/loans.html.

[23] *Ibid.*

[24] Capital leases and operating leases are the two most common types of leases used by lessees when leasing equipment. A capital lease is a lease in which the lessee intends to purchase the leased equipment after a specified time-period, while operating leases stipulate that the lessor maintains managership of the equipment throughout the life of the contract.

[25] Less than 10% of the ESPC projects completed in the S/L market were completed *without* financing. Lawrence Berkeley National Laboratory ESCO Market Study. 2021. See Peter Larsen et. al., "U.S. ESCO Industry: Industry Size and Recent Market Trends (2018)" (Berkeley, CA: Lawrence Berkeley National Laboratory, 2021), https://eta-publications.lbl.gov/sites/default/files/lbnl_esco_market_study_07june2021_-_nh.pdf.

these leases by the lessor is exempt from federal income taxes, which reduces the borrowing costs for the lessee compared to similar leases for private entities. TELPs usually have lengths shorter than twelve years, though they may extend to 15-20 years in certain cases.[26] TELPs also often have non-appropriation clauses which allow termination of the lease in the event the lessee is unable to appropriate the funds necessary to make its lease payments.[27]

Building managers may need to consider whether TELPs are treated as debt on their balance sheets. Currently, TELPs are not considered debt, and therefore voter approval is not required for building managers to utilize them to make improvements. However, the Financial Accounting Standards Board issued new rules regarding leases that may include TELPs as a form of debt, which may limit their use in the MUSH market building finance arena moving forward.

Advantages and Considerations

One benefit of lease payments is that depending on the type of lease, payments to the lessor can be made from a building's operating budget rather than its capital expense budget. TELPs do not require performance guarantees or special benefits required of other financing options. This can provide additional flexibility with repayment terms in the lease. However, because there are no guarantees of specific levels of energy savings from the use of the equipment financed through a TELP by itself, building managers need to be aware that the estimated savings from the equipment may not materialize as expected and they need to have the necessary funds available to cover energy costs regardless of the equipment's performance. TELPS also often come with non-appropriation clauses that allow for termination of the lease if the lessee cannot make the lease payments, increasing flexibility for both parties.

Roles for State Energy Offices

Several State Energy Offices have offered lease financing for MUSH market building owners in their states. For example, the Mississippi Energy and Natural Resources Division partnered with a private lender to provide lease financing under the state's Energy Efficiency Lease Program. The partner firm solicited capital from state and national lenders, and underwrote the leases based on the lessee's creditworthiness. Interest rates for the program ranged from 2.5-3%, and loan terms were 10 years long. Seven leases were finalized under the program, resulting in a total of $32.5 million in improvements.[28]

Many State Energy Offices also offer educational assistance and resources to building managers interested in utilizing TELPs. For example, the Texas State Energy Conservation Office (SECO) provides information about the Texas Master Lease Purchase Program, which is run by the state's Public Finance Authority, on its website, along with other financing tools offered by the state.[29] Education to building owners about how

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[26] G. Leventis et. al., *Current Practices in Efficiency Financing: An Overview for State and Local Governments*, Lawrence Berkeley National Laboratory, November 2016, p. 28. https://emp.lbl.gov/publications/current-practices-efficiency.

[27] *Ibid.*

[28] *Ibid*. at 30.

[29] Texas State Energy Conservation Office. "Other Funding Resources." Accessed January 14, 2021. https://comptroller.texas.gov/programs/seco/funding/other.php.

to utilize TELPs, in partnership with other agencies, is critical in ensuring those owners are comfortable with the benefits and challenges of utilizing this type of financing to make retrofits.

Energy Service Agreements and Managed Energy Service Agreements

Description

Energy Service Agreements (ESAs) and Managed Energy Service Agreements (MESAs) are arrangements between a building owner and a third party to allow the third party to implement energy efficiency measures for the building owner, who then pays for the equipment using the energy savings. ESA and MESA providers own the equipment and manage the operations and maintenance of that equipment on behalf of the building owner.[30] Because ESAs and MESAs are recently developed financing tools with a limited history of project use in the public sector, states and localities should seek legal guidance for the applicability of their use in MUSH market-owned buildings.

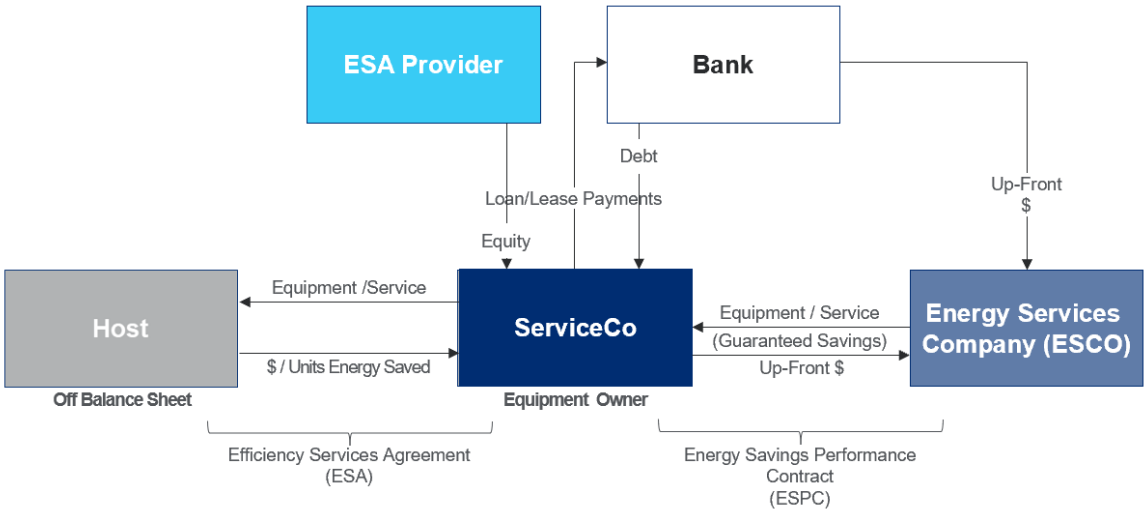
ESAs can be used for microgrids, local distributed and/or clean energy resources, and energy efficiency projects. They can be narrower in scope, such as "Lighting-as-a-Service" or "Cooling-as-a-Service"[31] projects, or more all-encompassing of the potential upgrades available to a building. ESAs are typically off-balance sheet for a state or local government and do not constitute debt. Finally, ESAs can also be offered together with ESPCs, or an ESPC can be part of the ESA agreement. However, unless the ESA is combined with an ESPC, it does not offer a savings guarantee or any promise of shared savings.

ESA and MESA arrangements are more complex than other financing options that serve the MUSH market, such as ESPCs, RLFs, or TELPs. Under an ESA, the building owner enters into an agreement with the ESA Provider (Provider). The Provider sets up a special purpose entity or service company to manage the project and limit risk to the Provider. Under the terms of the agreement, the service company contracts with an ESCO or energy service provider to perform a baseline assessment of the building's energy consumption and provide an upfront estimation of the savings the building could achieve through installing recommended pieces of equipment. The service company then hires an ESCO to install and maintain the equipment over the life of the contract. Depending on the contract, the ESCO may also perform M&V on the building after it installs the new equipment to ensure that the building owner is achieving the energy savings.

[30] G. Leventis et. al., *Current Practices in Efficiency Financing: An Overview for State and Local Governments*, Lawrence Berkeley National Laboratory, November 2016, p. 53. https://emp.lbl.gov/publications/current-practices-efficiency.

[31] A form of energy service agreements focused on just one energy end use such as lighting or space cooling.

Figure 2: Generalized ESA Structure



Source: B. Schlein, presentation to NASEO Financing Committee, June 2020.

ESAs and MESAs differ in how they treat the risk of utility rate increases during the ESA contract.[32] In a standard ESA, the customer makes predictable payments to the Provider; if the utility bill rate increases during the contract, the customer is responsible for paying the higher bill. However, when a building owner and a Provider enter into a MESA, the Provider also agrees to pay the customer's utility bill. The "bill" is based on historical building consumption rates and the forecasted energy savings. The customer then pays a guaranteed bill to the Provider that is lower than what they paid before the contract. The Provider then pays the utility bill; the difference between the "bill" and what the Provider pays the utility makes up the Provider's revenue stream. If utility bills increase faster than the Provider expected, then the Provider loses revenue.

Advantages and Considerations

ESAs/MESAs can be useful to building managers for several reasons. ESAs/MESAs are off-balance sheet transactions, so they will not impact the capital budgets of a building or constitute debt.[33] The maintenance services are included in the contract, so building managers will not have to train or retrain their own maintenance staff, freeing up that staff time to perform other essential maintenance duties. ESAs/MESAs can mitigate the risk that upgrades do not produce the estimated energy savings (i.e., performance risk) by incorporating performance guarantees or other contractual arrangements that hold the Provider accountable. ESPCs *always* include a performance guarantee; ESAs/MESAs do not always include a performance guarantee. However, the complexity of ESAs/MESAs can lead to higher transaction costs and longer closing times than other forms of MUSH market building finance. Building managers considering utilizing ESAs/MESAs should consider whether their agencies want to manage the facility's energy use or

[32] *Ibid*. at 54-55.

[33] Changes made to FASB standards in 2016 kept ESAs/MESAs as off-balance sheet transactions but required other models, like Power Purchase Agreements and operating leases, to be disclosed on budget sheets. See Nadel, Steve. Energy service agreements: Potential big kid in town? American Council for an Energy-Efficient Economy, February 12, 2019. https://www.aceee.org/blog/2019/02/energy-service-agreements-potential.

have a third-party manage its use, and which building systems they want to retain control of, if any. However, the third-party ownership of these upgrades can be very problematic for governments if they have or are planning to use their buildings as collateral for future bond issuances. It can result in legal complications that may end up prohibiting the use of ESAs/MESAs for financing public building retrofits, so MUSH market building owners should carefully consider any legal implications of this financing mechanism before engaging in retrofit projects.

Roles for State Energy Offices

As ESAs/MESAs do not require enabling legislation and are private sector products, State Energy Offices have relatively limited roles with this mechanism. However, as ESAs/MESAs are relatively new financing products with a limited track record of use in the public sector, State Energy Offices can educate MUSH market building owners about ESAs/MESAs, the similarities and differences with ESPC, and the steps involved in using an ESA/MESA to finance efficiency improvements. This can involve information disseminated online and through print, and regular trainings at conferences, road shows, or other gatherings where MUSH market building managers may be present. Providing this education on ESAs/MESAs will increase building owner familiarity and may result in greater usage of ESAs/MESAs for MUSH market building retrofits.

Bonds

Description

Bonds are the most traditional form of MUSH market building finance and the mechanism with the longest history of use, both in the United States and worldwide. In the U.S., between 2005 and 2017, almost $30 billion in bonds were issued to support energy efficiency, renewable energy, or environmental infrastructure improvements, with an average issuance size of $150 million.[34]

A bond represents a loan made by an investor, or multiple investors (e.g., bondholders, who may sometimes be the taxpayers), to a borrower (e.g., state or local governments). Borrowers issue bonds for a specified amount of money and a specified repayment period that varies based on the characteristics of the project being financed, the creditworthiness of the borrower, the interest charged by the lender, and various other project, borrower, and investor dependent factors. State and local governments utilize general obligation (GO) and revenue bonds to finance various projects within their jurisdictions.

> General Obligation bonds (GO bonds) – Bonds that are backed by the "full faith and credit" of the borrowing entity, consisting of the state or local government's revenue generated through various forms of taxation of economic activity in the area.
>
> Revenue bonds – Projects repay these bonds through specific revenue streams charged to users of those projects. MUSH market sector building projects that revenue bonds finance include electric

[34] Elizabeth Bellis Wolfe and Sean Williamson, "Leveraging Bond Financing to Support Energy Efficiency and Renewable Energy Goals: A Resource Summary for State and Local Governments" (Washington, DC: U.S. Department of Energy, 2020), https://www.energy.gov/sites/prod/files/2020/10/f79/Leveraging-Bond-Financing_resource-summary.pdf.

and water utility construction and maintenance, airports, seaports, prisons, toll roads, bridges, parking garages, and stadiums.

MUSH market building owners use their bonding authority to make general renovations to their buildings, which may or may not include energy efficiency or renewable energy upgrades. Building owners can use bonds to finance whole-envelope renovations and new building construction, which means that efficiency upgrades can be financed through bond measures as part of those renovations. However, general obligation bonds must be paid for by taxpayers, who may veto new bond issuances to renovate MUSH market buildings, should such issuances arise on voting ballots or referenda. Therefore, states tend to proceed cautiously when utilizing general obligation bonds. Revenue bonds are backed by a specific revenue stream, as opposed to the "full faith and credit" of the borrowing entity, and generally do not require taxpayer approval. According to *The Bond Buyer*, in 2017, states possessed approximately $450 million of long-term debt obligations, with around 60 percent of that debt taking the form of revenue bonds and the remaining 40 percent as GO bonds.[35]

Advantages and Considerations

Bonds are useful because they are well-understood by building owners. Owners may utilize bonds as a first approach to finance retrofits if they are familiar and comfortable with the process. In certain cases, communities with many competing priorities for municipal bond financing may find combining bonds with ESPCs to stay under budget for major infrastructure and educational facility projects more amenable than a strict bond issuance. However, most agencies prefer to fund projects within their capital budgets before going to financial institutions for a bond issuance, as the use of bond instruments may result in a tax increase or increased debt. MUSH market building owners' use of bonds is potentially challenging due to either public pushback or statutorily imposed debt limits that limit bond issuances altogether.

Roles For State Energy Offices

State Energy Offices can help by providing information on bonding authorities to MUSH market building owners. They can offer resources on how the bonding process works in their states and identify who the right contacts are to approach about this process. State Energy Offices have also supported the development of secondary markets for energy-efficient loans through the creation of asset-backed notes, such as through the Warehouse for Energy Efficiency Loans (WHEEL) program.[36] While this program is currently inactive, State Energy Offices can create and/or support programs that function similarly in making bonds issued by MUSH market building owners more attractive to investors.

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[35] Driessen, Grant A. Rep. *Tax-Exempt Bonds: A Description of State and Local Government Debt*. Congressional Research Service, February 15, 2018, p. 6. https://fas.org/sgp/crs/misc/RL30638.pdf.

[36] "WHEEL: A Sustainable Solution for Residential Energy Efficiency." National Association of State Energy Officials. Accessed January 14, 2021. https://www.naseo.org/Data/Sites/1/documents/committees/financing/documents/WHEEL_Primer.pdf.

Conclusion

With an increasing number of financing products, MUSH market building owners have more ways than ever to retrofit facilities to meet lead-by-example energy goals, execute needed maintenance improvements, and gain other benefits (e.g., comfort and indoor air quality). State Energy Offices' ability to educate and support MUSH market building owners by providing resources, conducting trainings, convening stakeholders, and offering other forms of technical assistance is critical to financing success. State Energy Offices can increase the likelihood of project success by helping building owners improve their awareness of often complex financial, legal, and contractual processes.

Additional Resources

DOE's *Energy Savings Performance Contracting Toolkit* contains a number of resources to assist states with developing or modifying their ESPC programs, from understanding the basics of ESPC, to developing a statewide program, to expanding an existing program, to verifying the savings from ESPC projects. DOE also developed three technical assistance resources in partnership with NASEO to help state and local governments achieve successful ESPCs with effective M&V:

- *The Business Case for Applying M&V in State and Local Government ESPC Projects* highlights the substantial, cost-effective benefits of incorporating well-documented M&V of savings in state and local ESPC projects.
- *Energy Savings Performance Contracting for State and Local Governments – Strategies for Successful M&V* provides ESPC program administrators with a selection of tested strategies to support successful M&V for state and local ESPC projects.
- *Understanding your ESPC Savings Guarantee* provides key details about the savings guarantee in ESPCs and a list of resources to further understand savings guarantees.

Additionally, DOE's *Performance Contracting National Resource Center (PCNRC)* is an online repository for DOE's best practice resources and solutions related to ESPCs.

DOE's *Better Buildings Financing Navigator* is a webpage that can help guide MUSH market building owners towards which financing products would be best for the projects they wish to pursue. It provides information on the various financing products available in the market and can connect building owners with potential capital providers interested in financing efficiency projects.

LBNL's report, *Current Practices in Efficiency Financing: An Overview for State and Local Governments* provides an in-depth look at many of the public building financing options discussed in this brief. It includes an overview of each mechanism as well as a section on how state and local actors can get involved in the deployment of said mechanism.

The National Governors Association (NGA) hosted a meeting focused on *Lead-by-Example Financing Solutions for State Building Energy Strategies*. The agenda and slides provide information on many of the financing mechanisms outlined in this document.

NASEO's *State Energy Loan Fund Map* provides information on State Energy Revolving Loan Funds, including what sectors they lend to and their performance statistics.

DOE's *Leveraging Bond Financing to Support Energy Efficiency and Renewable Energy Goals* provides information to state, local, and K-12 school energy professionals and non-finance experts seeking to understand how bonds can be used to pay for energy efficiency and renewable energy projects and initiatives.