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Postponing the installation of energy saving equipment can be an expensive decision. This article shows how the cost savings resulting from increased energy efficiency can be used to finance the needed equipment.

Financing Energy Efficiency Projects

By Neil Zobler and Katy Hatcher

Shenendehowa School District in upstate New York recently faced escalating energy and maintenance costs for seven buildings constructed between 1952 and 1969. Back then, lowest first-cost rather than life-cycle cost determined the type of equipment purchased. Three of the buildings, which relied exclusively on expensive electricity for heating and air conditioning, required capital improvements. But budgets already were strained, and Shenendehowa officials were unwilling to approach taxpayers to issue additional bonds.

To solve their problem, school officials installed new energy-efficient equipment that would be paid for from future energy cost savings. With assistance from the state energy office, the district identified an energy services provider that offered an energy services performance contract to fit its needs. The provider guaranteed the equipment performance and energy savings, which were verified using rigorous measurement and verification techniques.

Instead of bundling the financing under the performance contract, the district chose to obtain financing directly from a commercial lender using a 10-year tax-exempt lease-purchase agreement. The agreement contained non-appropriation language, which limited payments to the operating budget savings, thereby avoiding the capital budget process. This financing option allowed Shenendehowa school officials to successfully install energy-efficient equipment without raising taxes.

This article introduces energy performance contracts and the corresponding benefits of using tax-exempt lease-purchase agreements as the underlying financing vehicle. It explains how to use the energy inefficiencies buried in your current operating budget to pay for energy-saving equipment. Clear financial reasoning and cost modeling demonstrate that energy efficiency projects really can pay for themselves out of existing operating budgets without having to compete with capital budget projects. The article also presents a "cost of delay" model that quantifies the opportunity losses caused by delaying the installation of energy efficiency projects.

Show Us the Money!

Most energy efficiency projects stall due to one or more of the following perceived barriers: lack of money to fund them, lack of time or personnel to design and plan them, or lack of internal expertise to implement them. A number of common misconceptions also can undermine energy projects. Consider, for example, the following statements:

- If it's not in this year's budget, it simply has to wait.
- Equipment improvements must be paid from the capital budget.
- Paying lower interest (by floating bonds) or no interest (by delaying the project and planning it into future budgets) saves money and, therefore, is in the best interest of our organization.
- Taxes or fees will have to be increased to pay for equipment improvements.
- Performance contracting with an energy services provider is expensive and unreliable.
- Tax-exempt lease-purchase agreements don't lend themselves to energy projects and are expensive alternative funding solutions.

In fact, capturing wasted energy dollars may be easier than you think. Using a performance contract and corresponding lease-purchase agreement to finance the purchase of assets may allow the repayment to be treated as an operating expense. This is especially important when financing energy efficiency projects because the source of repayment is already in the utility line item in your operating budget.

In contrast, there are several significant challenges associated with using capital budget dollars for energy efficiency projects. Capital dollars are usually already committed to other projects. Even when they are not, capital dollars often are scarce, so energy efficiency projects must compete with other priorities. And last but not least, the approval process for requesting new capital dollars is time consuming, expensive, and typically requires voter approval. Waiting for capital dollars to finance energy projects can cost governments millions of dollars.

Energy Services Performance Contracts

Energy services performance contracting is a common way to implement energy efficiency improvements and frequently covers financing for the needed equipment. An energy services performance contract is an agreement between a government and a private energy services provider, or ESP. The ESP identifies and evaluates energy-saving opportunities and recommends improvements that can be paid for through savings. The ESP usually guarantees that savings will meet or exceed annual payments to cover all project costs. If the savings do not materialize, the ESP pays the difference. The contract clearly identifies the procedures by which these savings are to be measured and verified.

A common concern is the ESP's ability to meet future obligations should the energy savings not occur. Investment-grade ESPs will support the transactions with their strong balance sheets. Some transactions include the creation of a reserve fund to cover potential shortfalls. Other security enhancements may take the form of performance bonds or letters of credit.

Performance contracts come in all shapes and sizes. They can be tailored to provide comprehensive solutions to energy waste, to take advantage of efficiency opportunities, and to supply needed

Exhibit 1

COMPARING FINANCING OPTIONS FOR ENERGY PROJECTS

	CASH	BONDS	MUNICIPAL LEASES	PERFORMANCE CONTRACTS
Interest Rates	N/A	Lowest tax-exempt rate	Low tax-exempt rate	Can be taxable or tax-exempt
Financing Term Term	N/A	May be 20 years or more	Up to 10 years is common and up to 12-15 years is possible for large projects	Typically up to 10 years, but may be as long as 15 years
Other Costs	N/A	Underwriting, legal opinion, insurance, etc.	None	May have to pay engineering costs if contract not executed
Approval Process	Internal	May have to be approved by voters via referendum	Internal approvals needed. Simple attorney letter required	RFP usually required; internal approvals needed
Approval Time	Current budget period	May be lengthy—process may take over a year	Generally within one week	Generally within 1-2 weeks once the award is made
Funding Flexibility	N/A	Very difficult to go above the dollar ceiling	Can set up a master lease, which allows you to draw down funds as needed	Relatively flexible. An underlying municipal lease is often used
Budget Used	Either	Capital	Operating	Operating
Greatest Benefit	Direct access if included in budget	Low interest rate because it is a general obligation of the public entity	Allows you to buy capital equipment using operating dollars	Provides performance guarantees that help approval process
Greatest Hurdle	Never seems to be enough money available for projects	Very time consuming	Identifying the project to be financed	Identifying the project to be financed, selecting the energy service provider

products and services. Careful review of most performance contracts will reveal three related but independent offerings—a project development agreement (identifying what needs to be done to save the money), an energy services agreement (showing how to continue to save after the equipment has been installed), and a financing agreement.

The most popular performance contract used in the public sector is called a guaranteed savings agreement. A guaranteed savings agreement bundles equipment purchasing and performance guarantees, and it also may include financing, maintenance, and energy costs. Analyzing the performance contract by its component parts allows any organization to evaluate which activities are best handled internally and which should be outsourced. For example, ESPs usually borrow at taxable interest rates, whereas public agencies are able to issue lower cost tax-exempt obligations. Therefore, financing is usually less expensive when provided by the government.

Properly structured performance contracts can be treated as an operating expense, and the energy savings can be used to pay for equipment, engineering audits, and services. Governments can overcome the aforementioned lack of time and lack of expertise barriers by outsourcing the work to qualified, reputable energy services providers using a performance contract.

Tax-Exempt Lease-Purchase Agreements

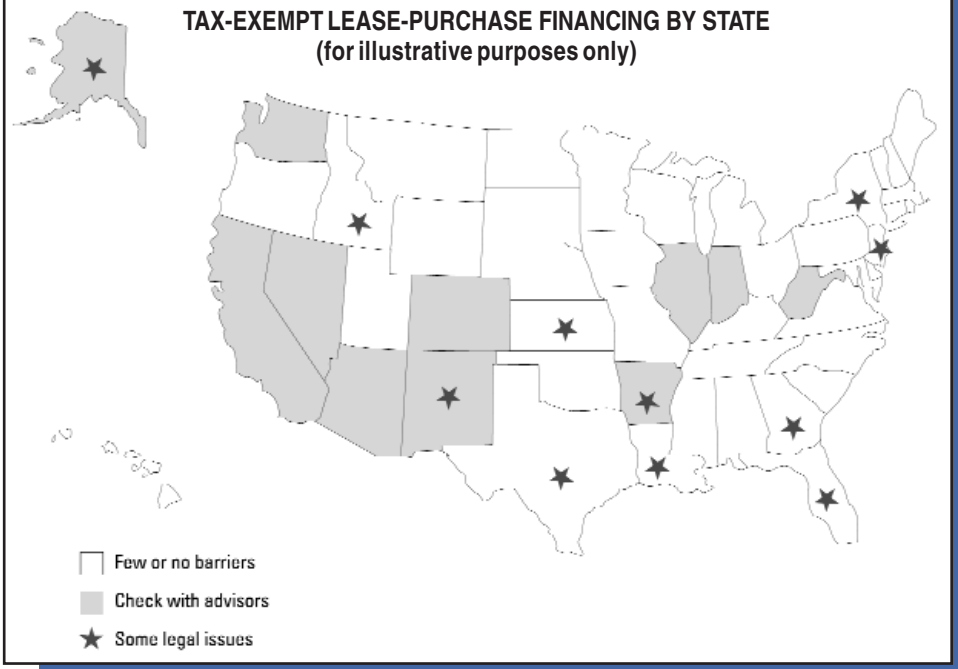
Tax-exempt lease-purchase agreements frequently are used as the underlying financial instrument in a performance contract. This makes sense in that unlike traditional debt financing (i.e., bonds, loans, etc.), lease-purchase agreements allow governments to pay for energy upgrades by tapping money that is already in their annual utility budgets rather than using limited capital budget dollars. (See Exhibit 1 for a comparison of different financing options.) In other words, governments can draw on dollars saved from future utility bills to pay for new, energy-efficient equipment today.

A tax-exempt lease-purchase agreement is more akin to an installment-purchase agreement than a rental agreement. Under most rental agreements, the lessee returns the asset at the end of the term without building any equity in the asset. A lease-purchase agreement, however, presumes that the lessee will own the asset once the term expires. Further, interest paid on this type of lease-purchase agreement is exempt from federal income tax, which translates into lower rates.

Governments should consider using a lease-purchase agreement to pay for energy efficiency equipment when the projected energy savings are greater than the cost of the equipment plus financing, especially when a creditworthy energy services provider guarantees the savings. The financing terms for lease-purchase agreements may extend as long as 12 to 15 years; however, they are usually less than

Exhibit 2

TAX-EXEMPT LEASE-PURCHASE FINANCING BY STATE
(for illustrative purposes only)



10 years and are limited by the useful life of the equipment.

Many governments already lease equipment. Adding an energy project to an existing lease agreement may be surprisingly easy, especially if a master lease is already in place with a lending institution. However, the statutes governing the use of this type of financing vary from state to state. The use of tax-exempt lease-purchase agreements may differ across schools, municipalities, and counties even within the same state. As such, governments should always consult legal counsel before entering into lease-purchase agreements. Exhibit 2 provides some sense for the disposition of the states toward lease-purchase financing.

There may be situations when a lease-purchase agreement is not advisable. Examples include instances in which state statute or charter prohibits the use of this financing tool, other financing methods are cheaper, the approval process is too difficult or politically driven, other funds are readily available, or excess money exists in current operating or capital budgets.

Debt or No Debt?

Tax-exempt lease-purchase agreements usually do not constitute a long-term "debt" obligation because of non-appropriation language written into the agreement. This language effectively limits the payment obligation to the government's current operating budget period. If for some reason future funds are not appropriated, the equipment is returned to the lender and the repayment obligation is terminated at the end of the current operating period without obligating future budgets. Legality notwithstanding, walking away from a lease-purchase agreement is not really an option. Failure to continue appropriations would likely hurt the government's credit ratings and make future borrowing more difficult and expensive.

Because lease payments are not considered "debt" from a legal perspective in most states, lease-purchase financing rarely requires voter approval. However, governments must demonstrate to lenders that energy efficiency projects financed through lease-purchase agreements are of essential use (i.e., essential to a government's operations). Put another way, governments should not enter into lease-purchase agreements unless they have a long-term commitment to the assets being financed. This minimizes the risk of non-appropriation in the eyes of lenders and can result in a more favorable interest rate.

"Debt" can be interpreted from three perspectives—legal, credit rating, and accounting. As mentioned above, most lease—purchase agreements are not considered "legal debt," which may eliminate the need to obtain voter approval. However, credit rating agencies, such as Moody's and Standard & Poor's, do include some or all of the lease-purchase obligations when they evaluate a government's credit rating and its ability to meet payment commitments (i.e., debt service). These two perspectives may differ markedly from the accounting treatment of lease-purchase agreements by both internal accountants and external auditors.

In general, lease-purchase financing of energy efficiency equipment is small compared to a government's total operating expenses. This usually means that the accounting treatment of such payments is open to interpretation. Most governments recognize that the energy savings cannot occur if the energy efficiency projects are not installed. As such, the projects' lease-purchase costs (or the financing costs for upgrades) can be paid out of the savings in the utility budget. Outside auditors, however, may take exception to this treatment if the payments are considered

STATES TAKE ADVANTAGE OF ENERGY SAVINGS TO FUND ENERGY EFFICIENCY PROJECTS

Many states explicitly support the use of cost savings from energy efficiency equipment to finance that equipment. Consider the following examples:

- In Pennsylvania, public sector organizations are authorized to use funds designated for operating expenses, utility expenses, or capital expenditures to meet lease-purchase or installment payments under performance contracts. (Pennsylvania Guaranteed Energy Savings Act 29 of 1996 - §5(b))
- School districts in California are authorized to enter into energy efficiency financing relationships that "can be repaid from energy cost avoidance savings." (California Education Code 17651 (a))
- In Florida, "it is the policy of this state to encourage school districts, state community colleges and state universities to reinvest any energy savings resulting from energy conservation measures into additional energy conservation efforts." (Florida Statutes Title XVI, Chapter 235.215 (1))
- In Minnesota, "a district annually may transfer from the general fund to the reserve for operating capital account an amount up to the amount saved in energy and operation costs as a result of guaranteed energy savings contracts." (Minnesota Statutes 2000 Chapter 123B.65 Subdivision 7)
- In Texas, lease-purchase payments are to be "made from maintenance taxes" and "shall not be considered payment of indebtedness." (Texas Statutes Chapter 271—Public Property Finance Act)

"material" from an accounting perspective. Determining when an expense is "material" is a matter of the auditor's professional judgment. While no strictly defined accounting thresholds exist, as a practical guide, an item could be considered "material" when it equals or is greater than 5 percent of total operating expenses. Energy efficiency improvements are rarely considered "material" using this practical guideline.

Getting the Best Deal

If tax-exempt lease-purchase financing is so good, why are some public organizations reluctant to use it to fund energy efficiency projects? One reason may be the higher stated interest rate compared to that of a bond. Recently, a financial manager was heard to say, "We float bonds at around 3 percent. Why should we enter into a tax-exempt lease-purchase agreement at 4 percent?" It is, unfortunately, a common misconception that the lowest interest rate is always the best deal. In addition to interest rates, two other factors must be considered when determining the best financing alternative for energy efficiency projects: (1) total borrowing costs and (2) the costs of delay.

Total Borrowing Costs

Every borrower seeks the best deal. As stewards of public funds, government managers seek to provide quality service at a low cost. Bonds at 3 percent interest sound better than a lease-purchase agreement at 4 percent; however, the real savings become clear only when the total borrowing costs been calculated. This means adding administrative costs and fees to the actual financing costs (i.e., interest payments). Typically, lease-purchase agreements do not include any extra costs or fees beyond the interest rate (with the exception of fees related to setting up an escrow account to manage funds during the construction period if "construction progress payments" are necessary). The legal opinion for a lease-purchase agreement usually requires little or no research and can be provided by internal counsel.

In contrast, adding bond issuance costs to the cost of energy efficiency projects can dramatically change the economics of deal, especially for smaller projects. Typical bond issuance costs include compensating underwriters and financial advisors, obtaining legal opinions and credit ratings, and educating voters on bond referendums. These costs, none of which apply to lease-purchase financing, are significant. In the final analysis, the financing method that generates the lowest total borrowing cost is the best deal—and it may not be the one with the lowest stated interest rate.

The Costs of Delay

Quantifying the costs of delaying the installation of energy efficiency equipment adds a new dimension to the financial decision. Public officials often believe that postponing energy projects until operating or capital budget dollars are available—rather than financing them immediately—is a better financial decision. They reason that if internal budget dollars are used, paying interest can be avoided completely. However, delaying the installation delays the point at which energy savings can begin. These opportunity losses are quite real.

For example, the city center complex in Springfield has an HVAC system that is 20 years old and at the end of its useful life. Lighting technologies have improved significantly to justify installing new energy efficient lighting, even though the existing lighting was changed only five years ago. Springfield also recognizes the economic benefits of installing an energy management system. This project will cost $1 million. The ESP has calculated a five-year simple payback on this equipment that has a blended average life of eight years. The city must decide whether it is a better financial decision to wait until funds are available in next year's budget or to finance the installation today.

Let's analyze the economics of this transaction. The average monthly savings is about $16,667 per month ($1,000,000 divided by 60 months). Assuming lease-purchase financing is available at 4 percent for seven years, the annual financial obligation would be $164,026 (12 times $13,669). Installing immediately and financing the project would generate a positive annual cash flow of $35,974 over the term of the financing. (See Option A - Fast Track Financing.)

If the project's installation were delayed for one year, Springfield would pay the local utility $200,000 more (12 times $16,667) than it would have if energy efficiency equipment had been installed immediately. These funds, which could have been applied against the project cost, are lost forever. (See Option B - Waiting for Cash.)

On a discounted net present value basis over 12 years (using the 4

Exhibit 3

FINANCE NOW OR WAIT FOR CASH?

	Option A - Fast Track Financing				Option B - Waiting for Cash			
Year	Savings	Cost	Annual Cash Flow	Cumulative Cash Flow	Savings	Cost	Annual Cash Flow	Cumulative Cash Flow
1	$200,000	($164,026)	$ 35,974	$ 35,974	$ 0	$ 0	$ 0	$ 0
2	200,000	(164,026)	35,974	71,949	200,000	(1,000,000)	(800,000)	(800,000)
3	200,000	(164,026)	35,974	107,923	200,000	0	200,000	(600,000)
4	200,000	(164,026)	35,974	143,897	200,000	0	200,000	(400,000)
5	200,000	(164,026)	35,974	179,872	200,000	0	200,000	(200,000)
6	200,000	(164,026)	35,974	215,846	200,000	0	200,000	0
7	200,000	(164,026)	35,974	251,820	200,000	0	200,000	200,000
8	200,000	0	200,000	451,820	200,000	0	200,000	400,000
9	200,000	0	200,000	651,820	200,000	0	200,000	600,000
10	200,000	0	200,000	851,820	200,000	0	200,000	800,000
11	200,000	0	200,000	1,051,820	200,000	0	200,000	1,000,000
12	200,000	0	200,000	1,251,820	200,000	0	200,000	1,200,000
	Net Present Value—Option A			$ 892,524	Net Present Value—Option B			$ 760,151

percent borrowing rate as the discount rate), financing this project is $132,373 better ($892,524 minus $760,151) than waiting for one year and then paying for the project with cash. A delay of two years costs $281,725 present value dollars! This cost of delay calculation becomes more complicated when comparing two different financing alternatives with different interest rates and terms, but the result is no less stark.

It is counter-intuitive to think that paying interest can be a better financial decision than paying no interest. In reality, though, the savings from energy efficiencies lost in one year can be greater than the total financing costs over the term of the deal. Although the outcome described above depends on the different variables in the analysis and may not hold true in all cases, it does underscore the importance of factoring the costs of delay into the decision of when and how to finance energy efficiency equipment.

Conclusion

Energy efficiency equipment differs from other capital equipment. Because the dollars saved by installing energy efficiency equipment can be used to service the debt used for such projects, governments can install the equipment without increasing operating costs or using precious capital budget dollars. In fact, as long as the lease payments are lower than the energy dollars saved, a positive cash flow is created that can be used for other projects or to maintain the equipment. Extending the repayment terms will reduce the monthly payment, providing even more cash.

In today's tight economy, with uncertain and often increasing energy prices, a good energy efficiency policy is a necessity. As stewards of significant assets, public sector facilities and finance managers must aggressively manage all costs and maintain effective cash management programs. Accelerating the installation of energy efficiency equipment will improve not only your facilities but also your financial statement. In addition, this decision will demonstrate that government managers are acting responsibly as stewards of their constituents' resources and the environment.

NOTES

[1] Statutes vary from state to state. Always check with your legal advisor.

[2] James Donegan, Ph.D., Western Connecticut State University, interview by the author. An amount is "considered material when it would affect the judgment of a reasonably informed reader when analyzing financial statements."

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