BERKELEY LAB

U.S. DEPARTMENT of ENERGY

Energy Efficiency Financing Foundations

Training for Public Sector Facility Managers and Finance Officers

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Module 3

Traditional Financing Product Structures

Learning Objectives

Introduce and explain traditional public sector financing products.

Explore product subcategories common in public sector financing.

Weigh advantages and disadvantages of each specific product type.

Compare across the menu of product types.

Types of Traditional Financing Products

Loan

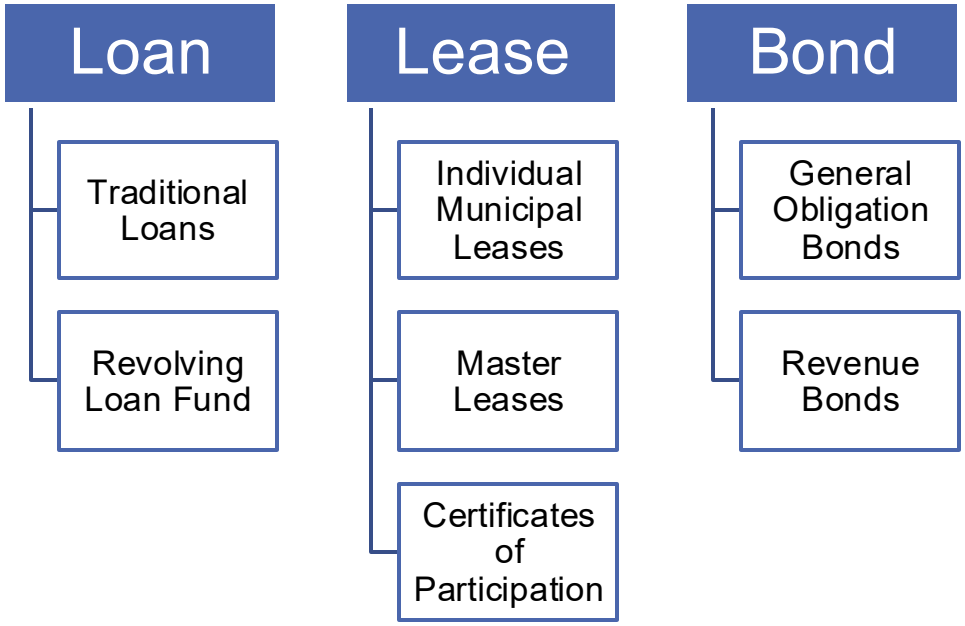
Contract in which one party disburses money to another party in exchange for a promise of repayment over time, typically with interest.

Lease

Contract in which one party pays another party for the use of real property or equipment, sometimes granting the user unrestricted ownership at the end of the contract.

Bond

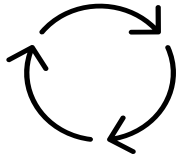
Contract in which one party purchases a promise from another party to be paid a fixed amount after a given period of time, typically with interim interest payments and/or a discounted purchase price.



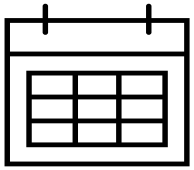
Loans

Customers can borrow money directly from banks or other financial institutions.

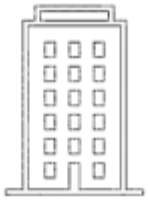
Loan financing may be available from equipment manufacturers, vendors, and contractors, but may require review by municipal advisor.



Lines of credit may be available.



Typically shorter terms than publicly offered debt



Not generally secured by real estate in public sector. May be secured by financial assets or revenue pledges.

In some locations, below-market-rate loans may be available for energy-related projects.

Learn More

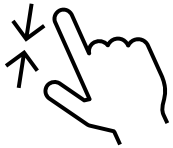
Graphic by the U.S. Department of Energy (DOE)

Loans: Advantages

- **SIMPLE STRUCTURE**
  Loans are simple documents that require a relatively low level of effort to execute and administer, and they are well understood by most finance teams.
- **GOOD FOR SMALLER PROJECTS (BUT WORKS FOR LARGER ONES ALSO)**
  Less complexity and lower up-front transaction costs can make loans well-suited to many energy efficiency projects, which are often smaller than full-scale building renovations.
- **FLEXIBLE SCOPING**
  Loans can cover a wide variety of project scopes and do not need to be tied to discreet equipment.
- **RENEGOTIABLE**
  Rates, terms, and amounts can be renegotiated depending on market conditions and borrower financials. Refinancing is also frequently available.
- **MORE COMMONLY DISCOUNTED THROUGH PROGRAMS**
  While not an inherent advantage, in practice it is more common to encounter energy programs that offer discounts on loans than on other forms of traditional financing.

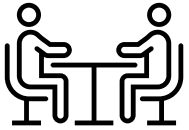
Learn more: Better Buildings Financing Navigator

Simple

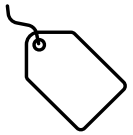


Good for Smaller Projects

Flexible



Renegotiable

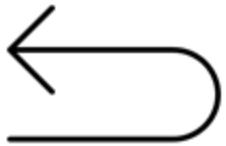


Discounts May Be Available

Loans: Disadvantages

- **GENERALLY SHORTER TERMS (ESPECIALLY VS. GENERAL OBLIGATION [GO] BONDS)**
  Municipal bonds often have terms of 20 years or more—which can be particularly advantageous for energy efficiency projects—in order to match energy savings with payment obligations. Bank loans typically do not extend beyond 10–12 years, though there can be exceptions. Shorter-term loans may not be able to spread annual payments sufficiently to match longer-term energy-savings measures.
- **GENERALLY HIGHER INTEREST RATES (ESPECIALLY VS. GO BONDS)**
  Banks can deduct interest income on loans, but only above their "cost of funds" (amount they pay to investors/depositors), except for loans to small issuers. Loans are not typically guaranteed by full "faith and credit" (taxing authority) of the issuer and rarely collateralized by real property in the public sector. "Loans" in the public sector must also be held to maturity (non-tradeable) in order to avoid classification as regulated securities. These factors can combine to produce higher borrowing rates. However, some jurisdictions offer programmatic loan options that are below market rate.

Learn more: Better Buildings Financing Navigator



Generally Shorter Repayment Period vs. GO Bonds

Generally Higher Rates vs. GO Bonds

Bank Loans to Public Agencies – Recent Findings

- Governments have rapidly increased their reliance on private bank loans from about $30 billion before the Great Recession to over $200 billion in 2023.
- Bank loans in the public sector are largely collateralized, but by financial assets or pledged revenue streams rather than real estate.
- As interest rates across the economy rise, loan share as a percentage of municipal debt rises. “Bank loans may be the least expensive financing option as borrowing costs increase.”
- “Debt contract renegotiation, which is nonexistent in the municipal bond market, is frequent in the loan market.”
- Another advantage of bank financing is access to lines of credit.

Learn more: Chicago Federal Reserve, “The Privatization of Municipal Debt”

New Construction Loan
Carpinteria, California Sanitary District

New administration building design

- Ambient lighting
- Natural air flow
- Passive cooling/heating
- High-performance building envelope
- Offset meeting room optimizes building usage for evening meetings
- Rooftop solar
- Native, drought-tolerant landscaping with sophisticated drip irrigation system to conserve water resources

Source: Carpinteria Sanitary District and Blackbird Architects

Loan Details

- The district hired an agent to request financing proposals and received seven responses.
- Based on bids received, district staff recommended a $4 million, 15-year term loan at 1.77% interest from JPMorgan Chase.
- The board authorized the loan in December 2020 and required discussion of costs and benefits (final vote of three yes, one no, and one absent).

LOAN AGREEMENT

This Loan Agreement (this "Loan Agreement"), dated as of December 1, 2020, is between JPMorgan Chase Bank, N.A., a national banking association organized and existing under the laws of the United States of America (the "Lender"), and CARPINTERIA SANITARY DISTRICT, a sanitary district duly organized and existing under the laws of the State of California (the "District").

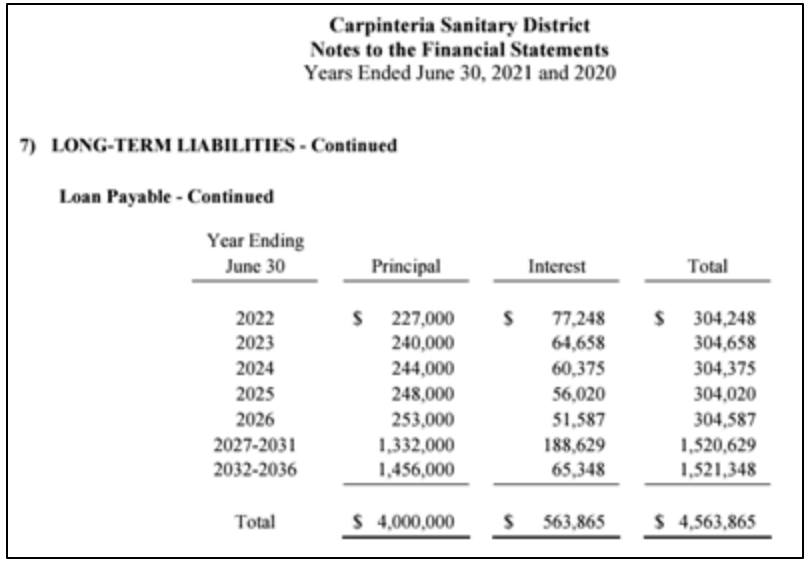
BACKGROUND:

1. The District presently operates facilities and property for the collection, treatment and disposal of wastewater within its service area (the "Enterprise").

2. The District is proceeding to acquire and construct certain improvements consisting of a new administrative office and board meeting room located at 5300 Sixth Street, Carpinteria, California (as further defined below, the "Project").

3. For the purpose of raising funds necessary to finance the Project, the District has determined to borrow an amount up to $4,000,000 (the "Loan") from the Lender under this Loan Agreement, and to make Loan Repayments (as defined below) to the Lender, to be secured by a pledge of and lien on the Net Revenues of the Enterprise (as defined below), as set forth in this Loan Agreement.

Source: California Debt and Investment Advisory Commission, DebtWatch Database



Carpinteria Sanitary District
Notes to the Financial Statements
Years Ended June 30, 2021 and 2020

7) LONG-TERM LIABILITIES - Continued

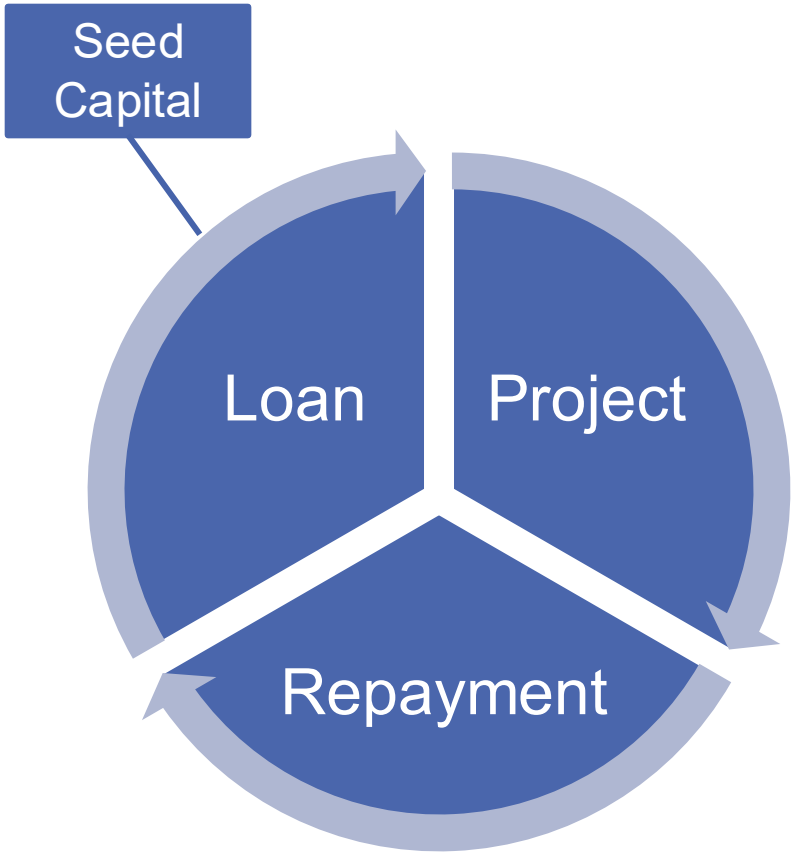
Loan Payable - Continued

Year Ending June 30	Principal	Interest	Total
2022	$ 227,000	$ 77,248	$ 304,248
2023	240,000	64,658	304,658
2024	244,000	60,375	304,375
2025	248,000	56,020	304,020
2026	253,000	51,587	304,587
2027-2031	1,332,000	188,629	1,520,629
2032-2036	1,456,000	65,348	1,521,348
Total	$ 4,000,000	$ 563,865	$ 4,563,865

Source: Carpinteria Sanitary District, Comprehensive Annual Financial Report, 2021

Revolving Loan Funds (RLFs)

- Seeded with initial capital source (public sector RLFs are likely to be publicly funded and managed).
- Repayments used to replenish the fund.
- Creates a self-sustaining source of capital.
- Flexibility with rates, terms, and project types if initial capital is flexible.
- May need additional capital if demand grows beyond capital supply.



To find a revolving loan program near you, check out National Association of State Energy Offices, State Revolving Loan Funds and Credit Enhancement Mechanisms.

Example: Texas LoanSTAR RLF

Purpose of Revolving Loan Funding

Improve Texas public institution use of energy and water with low-interest-rate loans to finance energy-related cost-reduction retrofit projects.

Revolving Loan Fund Capitalization

- $200 million loan fund
- Capitalized with the state's remaining Oil Overcharge and federal American Recovery and Reinvestment Act (ARRA)/stimulus funds

Program Results

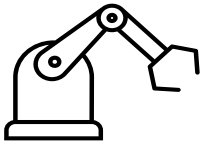
- As of September 1, 2023, LoanSTAR has funded more than 337 loans totaling more than $600 million.
- As a result of this financing, the LoanSTAR Program has achieved total cumulative program energy savings exceeding $810 million.

Source: Texas State Energy Conservation Office, "LoanSTAR Revolving Loan Program"

Leases

Offered by leasing companies, banks, and other financial institutions.

Sometimes available from a manufacturer, vendor, or installer, but a municipal advisor may be required.

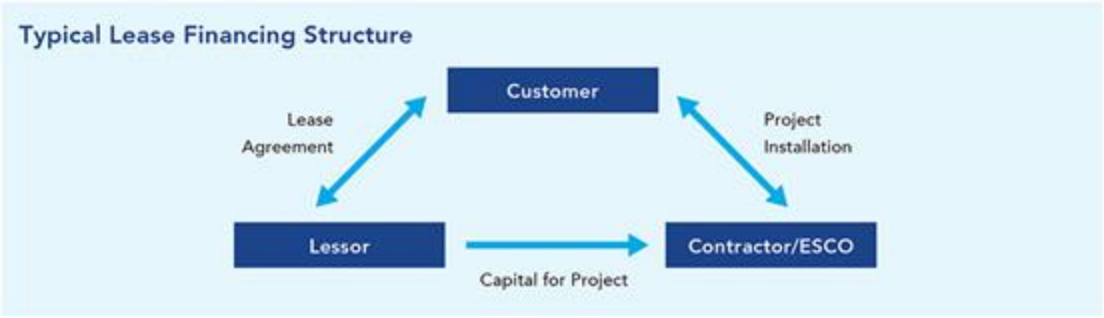


Offers 100% financing (no customer funding contribution required).

For municipal leases. interest income to lessor is tax-exempt, lowering the rate to lessee.

Full amount must be calculated and reported on the balance sheet.

Can typically move forward without voter approval.



Learn More

Graphic by DOE

Leasing Advantages

- **SIMPLE STRUCTURE**
  Leases are simple documents that require a low level of effort to execute and administer, particularly for smaller scale projects. They are well understood by most finance teams.
- **QUICK**
  Typically much shorter timeline to execute than bonds.
- **LOW UP-FRONT ISSUANCE COSTS**
  Simple structure requires less documentation and fewer involved parties vs. bonds.
- **MAY BE NON-DEBT UNDER STATE/LOCAL RULES**
  Treated as debt for balance-sheet reporting under accounting rules, but may not be treated as debt under state/local rules for other contexts, such as electorate voting approval or debt caps. Depends on language in the jurisdiction.

TAX-EXEMPT LEASING: LOWER COST THAN PRIVATE LEASING
Interest income received from public sector leasing is tax-exempt, allowing the lessor to charge a lower rate for the same value.

Learn more: Better Buildings Financing Navigator

Simple

Quick

Low Transaction Costs

May Be Non-Debt Under State/Local Rules

Leasing Disadvantages

GENERALLY SHORTER TERMS VS. GO BONDS

Municipal bonds often have terms of 20 years or more—which can be particularly advantageous for energy efficiency projects—in order to match energy savings with payment obligations. Most often, leasing providers offer terms of under 10 years (e.g., a 2022 survey by the Association for Governmental Leasing and Finance found 80% of respondents had an average portfolio maturity from origination of 10 years or less, though 20% of respondents averaged 15–20 years).

GENERALLY HIGHER INTEREST RATES VS. GO BONDS

Not guaranteed by full "faith and credit" (taxing authority) of the issuer, and less liquid than bonds (must be held to maturity to avoid classification as a regulated security, which comes with additional reporting costs). These factors can combine to produce higher borrowing rates and/or shorter terms. The rates differential may be small, depending on market trends, and may reverse in certain cases. The overall cost comparison depends on a combination of up-front transaction costs and the longer-term borrowing cost.

GENERALLY LIMITED TO SPECIFIC EQUIPMENT

Not as commonly used for full renovation projects including structural changes to the building.

Learn more: Better Buildings Financing Navigator

ACCOUNTING UPDATE (2019)

- A key advantage of municipal leasing in the past was off-balance-sheet accounting treatment, which circumvented debt limitations by including a "non-appropriations clause" in the lease agreement freeing the lessee from payment obligations if funds were not appropriated to pay leasing costs.

- However, the Government Accounting Standards Board has recategorized most leases as on-balance-sheet if the lease period is greater than one year and appropriations are reasonably expected, which applies to most energy conservation measures. Some state statutes may still allow municipal leasing without voter approval, despite accounting changes.*

Generally Shorter Repayment Period vs. Municipal Bonds

Generally Higher Rates than GO Bonds

Generally Limited to Equipment, not Structural Changes

**Consult your accounting professional before making any accounting decisions*

Municipal or "Muni" Leases

What is a Municipal Lease?

A lease/purchase agreement, pursuant to which:

- A state or local government as the lessee (also known as the "borrower")
    1) Purchases specific real or personal property from the lessor (also known as the "lender").
    2) Is the titled owner of the property (subject to the lessor's security interest) and maintains and insures the property.
    3) Makes periodic rental payments over an agreed-upon term.
    4) Has rental payments that are subject to annual appropriation (or abatement in California and Indiana).
    5) Receives lien-free ownership at the end of term after making all rental payments (i.e., conditional sale or installment sale financing).
- The interest portion of the rental payments is typically tax-exempt.
    - Section 103 of the Internal Revenue Service code.

Source: Association for Governmental Leasing and Finance, "The Basics of Municipal Leasing"

Tax-Exempt Lease-Purchase Agreement (TELP) Example St. Clair Shores, Michigan

First Michigan City to Use New Finance Program

- Authorized local governments to finance energy improvements using TELPs.
- Specified that TELPs would not be treated as debt under state legislation.
- Otherwise, state law allows voters to call for referendum and caps debt at 5% of assessed property values.

Project Scope ($5.7 million):

- City-wide upgrades:
  - Heating, ventilation, and air conditioning (HVAC) replacement
  - Building automation
  - Lighting
  - Water Improvements
- Civic Center
  - HVAC
  - Controls
  - Dimmable light-emitting diodes (LEDs)
  - Roof repairs
  - New cooling tower
  - Information technology (IT) upgrades

Sources:
- Energy Services Coalition
- ACHR News

TELP Treatment—City Debt Limit Under State Law

City of St. Clair Shores
Computation of Legal Debt Margin
Last Ten Fiscal Years

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Calculation of Debt Limit -										
State equalized valuation	$ 2,667,699,408	$ 2,502,780,412	$ 2,389,663,600	$ 2,184,602,009	$ 1,994,444,092	$ 1,890,019,900	$ 1,762,062,800	$ 1,596,257,900	$ 1,428,822,100	$ 1,378,913,150
Debt limit (10% of equalized value)	266,769,941	250,278,041	238,966,360	218,460,201	199,444,409	189,001,990	176,206,280	159,625,790	142,882,210	137,891,315
Calculation of Debt Subject to Limit										
Total debt	31,395,881	35,964,520	33,775,433	36,933,307	40,391,908	42,121,488	45,282,062	40,700,502	43,594,737	46,759,269
Less debt not subject to limit:										
Revenue bonds	993,421	1,059,215	1,123,374	1,185,897	1,248,420	1,280,210	1,163,303	643,494	725,063	945,063
LTGO bonds	3,548,860	4,078,120	4,548,000	5,016,000	5,468,000	5,908,000	6,336,000	6,735,000	7,085,000	7,465,000
Michigan transportation bonds	1,711,140	1,890,880	1,995,000	2,140,000	2,280,000	2,415,000	2,545,000	2,675,000	2,805,000	2,930,000
HUD section 108 loan	1,338,000	1,426,000	1,514,000	1,602,000	1,690,000	-	-	-	-	-
TELP financed purchase	3,937,310	4,294,056	4,630,661	4,947,968	5,216,564	5,469,067	5,697,356	-	-	-
Net debt subject to limit	19,867,149	23,216,249	19,964,398	22,041,442	24,488,924	27,049,211	29,540,403	30,647,007	32,979,674	35,419,206
Legal debt margin	**$ 246,902,791**	**$ 227,061,792**	**$ 219,001,962**	**$ 196,418,759**	**$ 174,955,485**	**$ 161,952,779**	**$ 146,665,877**	**$ 128,978,783**	**$ 109,902,536**	**$ 102,472,109**
Net debt subject to limit as percent of debt limit	7.45%	9.28%	8.35%	10.09%	12.28%	14.31%	16.76%	19.20%	23.08%	25.69%

Image from City of St. Clair Shores, Michigan

"A lease-purchase agreement issued pursuant to this subsection shall not be subject to the revised municipal finance act … and shall not be a municipal security or a debt as those terms are defined in that act." (Michigan Public Act 119 of 2016)

TELP Treatment – Accounting Rules

City of St. Clair Shores
Notes to the Financial Statements
For the Year Ended June 30, 2023

Note 10 - Long-Term Debt

	Amount of Issue	Maturity Date	Interest Rate Ranges	Principal Maturity Ranges	Beginning Balance	Additions	Reductions	Ending Balance	Due Within One Year
Governmental activities									
Bonds and notes payable									
General obligation bonds									
2013 Court Building Capital Project Bonds (unsecured)	$ 1,885,000	2038	2.10% - 3.375%	$70,000 - $100,000	$ 1,320,000	$ -	$ 70,000	$ 1,250,000	$ 70,000
2021 Capital Improvement Bonds (unsecured)	6,600,000	2041	2.00% - 4.00%	$250,000 - $410,000	6,280,000	-	240,000	6,040,000	250,000
					7,600,000	-	310,000	7,290,000	320,000
Bonds and notes payable from direct borrowings and direct placements									
8 1/2 Mile Relief Drainage Debt (unsecured)	2,566,584	2029	2.50%	$6,283 - $93,011	751,909	88	79,155	672,842	81,673
2001 Lake St. Clair Clean Water Initiative (unsecured)	5,878,889	2029	2.50% - 5.00%	$160,103 - $178,776	1,517,213	-	335,964	1,181,249	160,103
2021 Refunding Bonds (unsecured)	1,890,880	2031	1.19%	$181,260 - $200,640	1,890,880	-	179,740	1,711,140	181,260
Section 108 HUD	1,690,000	2038	2.54% - 3.635%	$18,000 - $88,000	1,426,000	-	88,000	1,338,000	88,000
Notes payable	1,499,999	2039	4.4%	$1,499,999	1,499,999	-	-	1,499,999	-
Financed purchases	4,246,673	2033	2.48%	$60,244 - $338,391	2,948,821	-	244,985	2,703,836	259,418
					10,034,822	88	927,844	9,107,066	770,454
Business-type activities									
Bonds and notes payable									
2015 Water LTGO Refunding Bonds	$ 2,280,000	2026	2.54%	$247,000 - $258,000	$ 993,000	$ -	$ 236,000	$ 757,000	$ 247,000
Bonds and notes payable from direct borrowings and direct placements									
2001 Lake St. Clair Clean Water Initiative (unsecured)	45,690,317	2029	2.50% - 5.00%	$1,250,498 - $1,393,171	11,847,128	-	2,624,067	9,223,061	1,250,498
2013 Drinking Water Revolving Fund (DWRF) & Clean Water State Revolving Funds (SRF/SWQIF) (unsecured)									
Issue 5360-01	421,465	2032	2.50%	$20,000 - $26,465	241,465	-	20,000	221,465	20,000
Issue 5605-01	250,778	2036	2.50%	$47,430 - $63,781	817,749	-	45,794	771,955	47,430
2021 Refunding Bonds (unsecured)	3,085,120	2031	1.19%	$295,740 - $327,360	3,085,120	-	293,259	2,791,861	295,740
Financed purchases	1,450,683	2033	2.48%	$27,485 - $154,372	1,345,235	-	111,761	1,233,474	118,345
					17,336,697	-	3,094,881	14,241,816	1,732,013

Image from City of St. Clair Shores, Michigan. Note: A different section of the same document is cited on the previous slide.

"Business-type" activities may include, for example, improvements to a skating rink operated by the city in the Civic Arena.

Total issuance: $4,246,673 + $1,450,683 = **$5,697,356**
Ending Balance Outstanding (2023): $2,703,836 + $1,233,474 = **$3,937,310**

Takeaways:

1) TELP is **removed from city debt limit calculation under state law**.
2) TELP is **still included as debt in basic financial statements**, governed by generally accepted accounting standards, as published by the Governmental Accounting Standards Board and adopted by the Michigan Legislature separately from legislation regarding TELP treatment under state debt limit.

Master Leases

Overview

- Agreement between two parties containing the basic terms of an overarching leasing arrangement.
- Can be amended to add additional leased equipment by adding a supplemental leasing schedule.
- Streamlines leasing process by reducing the need to alter or approve new financing terms for each leasing schedule.
- Can be used for multiple projects over time.
- May also be structured as a program administered by a centralized agency that aggregates leasing schedules from other partner agencies.
- Centralized agency may offer a higher credit rating and be able to secure lower-cost leasing arrangement.
- Reduces the administrative costs of negotiating separate leases.

South Carolina Master Lease Program

About the Program

The establishment and maintenance of the State Treasurer's Office Master Lease Program is authorized through Section 1-1-1020, SC Code of Laws.

The State Treasurer's Office Master Lease Program provides cost-effective financing arrangements to South Carolina's state agencies, colleges, and universities for the purpose of acquiring equipment needed to effectively improve and execute services on behalf of the state. The program provides accepted applicants with financial assistance in obtaining:

- Office equipment
- Telecommunications equipment
- Energy conservation equipment
- Medical equipment
- Data processing equipment
- Related software.

Since 2017, the State Treasurer's Office has facilitated **more than $122 million** in master lease contracts benefiting 11 public agencies and institutions.

Source: South Carolina Office of the State Treasurer, Master Lease Program

Certificates of Participation

Overview

- Shares of municipal lease revenue are sold to multiple investors.
- Shares can be bought and sold on the financial markets, reducing the cost in exchange for investor flexibility to hold or offload.
- Up-front costs are higher than typical leases, more akin to bond sales, requiring the involvement of the same financial professionals.
- Certificate of Participation (COPs) are typically used for larger issuances, either for single larger projects or for pooled projects (e.g., Washington state program).
- Historically they have not been considered debt, so have not required voter approval.
- Accounting standards now classify them as debt, but voter requirements have not necessarily caught up.

Example: Washington State

LEASE/PURCHASE STRUCTURE
CERTIFICATES OF PARTICIPATION

- The agency enters into a financing contract (lease) with the Office of the State Treasurer (OST) via a nominal lessor (Washington Finance Officers Association).
- OST pools the various lease agreements across all agencies, and packages them as a security called a COP.
  - COPs are similar to municipal bonds in that they are structured with regular principal and interest payments and sold to investors.
  - Investors that purchase the COP are guaranteed an income stream from the lease payments to be made by the agencies for the life of the loan.
- After the individual lease expires, ownership of the financed piece of property is retained by the agency.

Source: Washington Office of the State Treasurer, "The State Lease/Purchase COP Program"

Bonds

Debt issued to investors in fixed increments, with a promise to repay the face value. May be sold at a discount and/or come with coupon payments.

Can be traded on the financial markets.

More complex and higher cost than alternatives, requiring bond counsel, underwriters, etc.

For large enough transactions, higher up-front cost can be outweighed by lower payments over time.

GO bonds backed by all revenue sources.

Revenue bonds backed by specific revenue source.

Individual projects from multiple agencies can sometimes be rolled up into a single overall bond issuance.

Bond Advantages

LOW-COST, SCALABLE CAPITAL

The sale of bonds can generate significant capital at low rates to enable capital-intensive projects or portfolios of smaller projects.

LONGER TERM LENGTHS

Issuers can set the repayment period as appropriate. Terms are commonly 20 years or above, which can have the advantage of better matching energy-saving projects with longer payback periods and lower annual savings.

Learn More: Better Buildings Financing Navigator

Low-Cost Capital

Scalable

Longer Terms Available

Bond Disadvantages

ADDED TRANSACTION COSTS

The issuance process requires engaging and coordination with many parties, including credit underwriting and bond reviewers, a burden that can impact the economic impact of smaller bond sales. Establishing a reusable framework can decrease this burden on subsequent bonds.

COUNT AGAINST DEBT CAPS (GO BONDS)

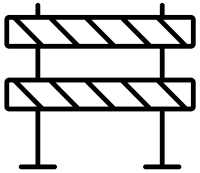
May be limited by jurisdictional-specific debt limitations.

VOTER APPROVAL REQUIREMENTS

Bonds that are backed by the taxing authority of the issuer must be approved by a vote of the public in some jurisdictions.

Learn More: Better Buildings Financing Navigator

High Transaction Costs
(up-front issuance costs)



Counts Against Debt Caps
(GO Bonds)

Voter Approval
Requirements

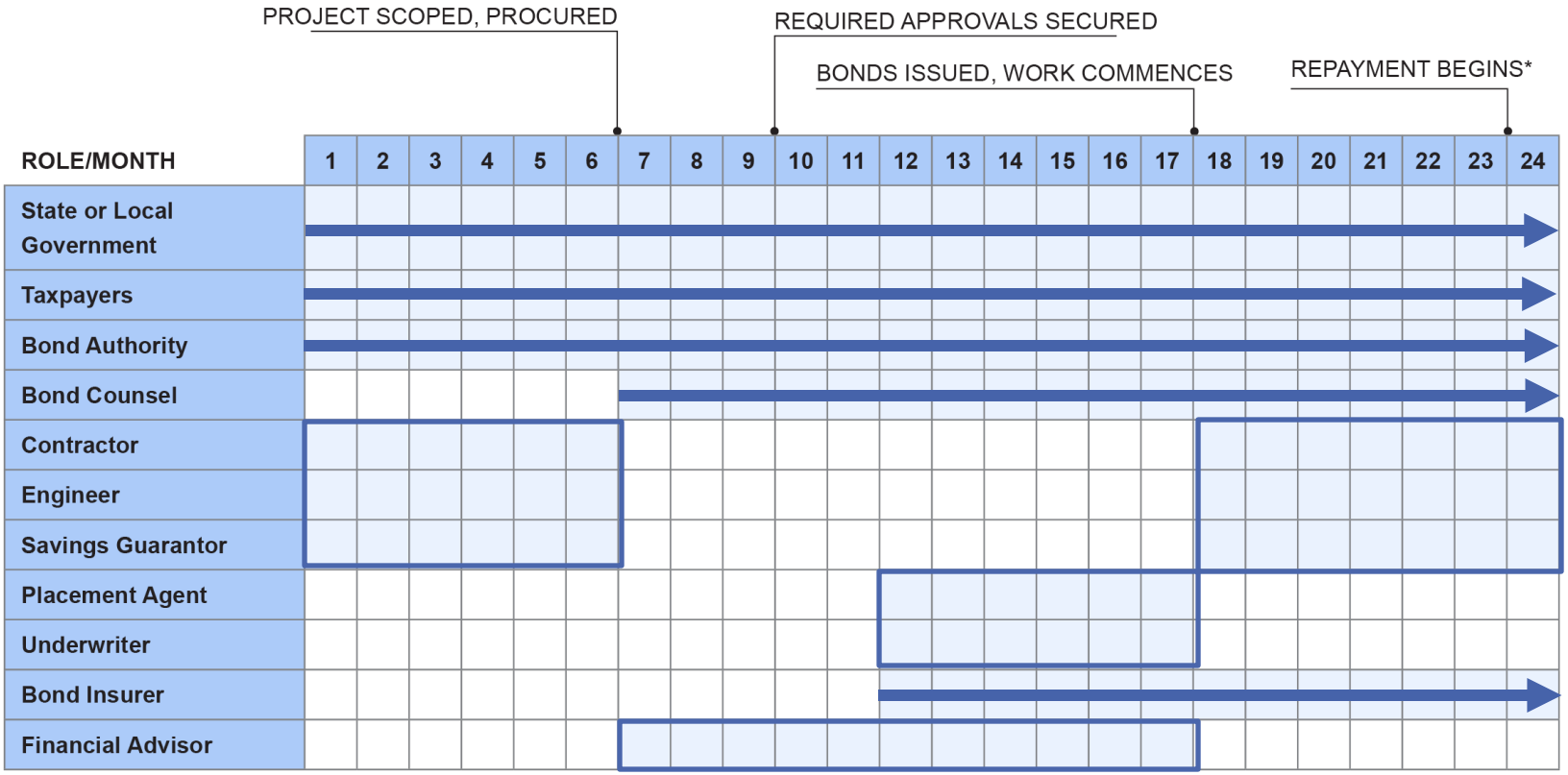
Municipal Bonds

- **Municipal bond**: Bond issued by a public agency. Although called "municipal," this includes state agencies, regional governments, and other public institutions.
- Interest received is typically exempt from federal, state, and local taxes, which lowers the interest rate that agencies must pay to investors.

Role	Responsibilities
State or Local Government	Identifies financing need; passes resolution approving issuance (if required); procures needed services (e.g., contractor, engineer, bond counsel, municipal advisor, and so on).
Taxpayers	Vote whether to approve issuance (if required); pay taxes that support government's ability to issue (and pay interest on) bonds (pertains only to GO bonds).
Ultimate Obligor	Repays principal and interest on the bonds. Note: The ultimate obligor may be the bond issuer or the conduit beneficiary.
Bond Authority	Facilitates issuance; aggregates bonds for pooled issuances; provides technical assistance.
Bond Counsel	Advises on legal and tax issues related to issuance; provides opinion as to interest tax exemption.
Contractor	Completes the financed construction or improvements.
Engineer	Assists in planning work to be financed and oversees contractor's progress; provides opinion as to satisfactory completion; may certify energy savings/guarantee if applicable.
Savings Guarantor	Pays the guarantee beneficiary if actual savings are less than guaranteed.
Energy Savings Guarantee Provider	Makes payments in the event that some or all of a specified level of savings is not achieved (i.e., energy performance guarantee). Note: This is only if the bond is being used to finance improvements that are expected to reduce energy costs.
Municipal Advisor (SEC-Registered Financial Advisor)	Advises the issuer as to the various options, structures, and partners; assists in reviewing documents, negotiating terms, and making decisions.

Source: DOE, "Leveraging Bond Financing to Support Energy Efficiency and Renewable Energy"

Municipal Bond Timeline (Best Case)



*Assumes a typical semi-annual bond repayment schedule. ■ Cells filled in light blue indicate an active role for actor during that period.

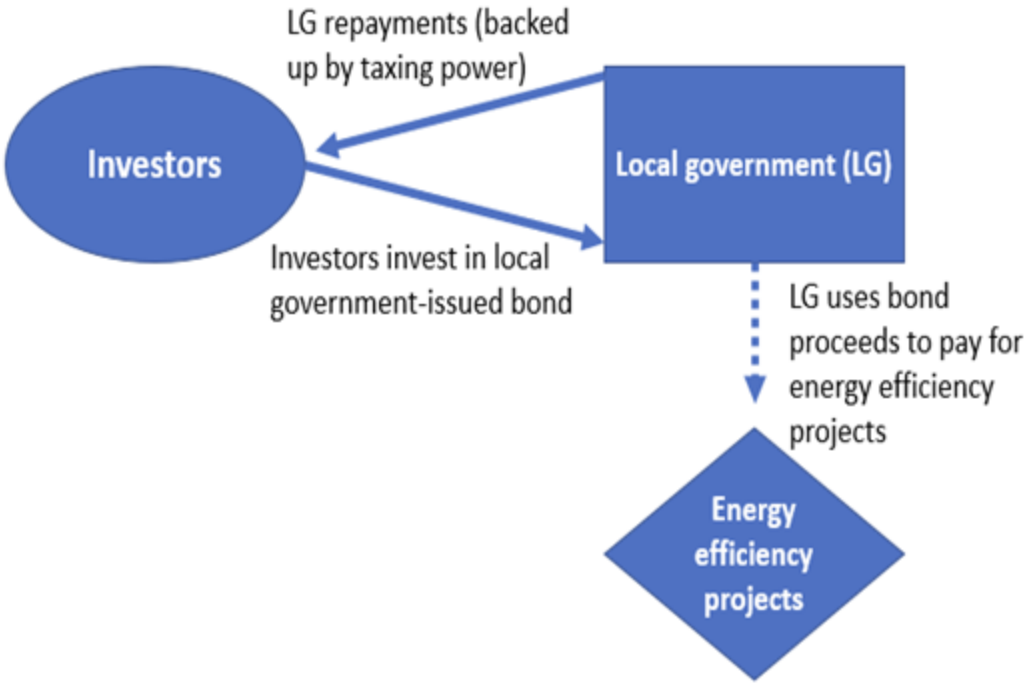
Image by DOE, "Leveraging Bond Financing to Support Energy Efficiency and Renewable Energy"

General Obligation Bonds

Key Points

- Backed by "full faith and credit" (obligation to use full taxing authority as necessary to make repayments).
- May require voter approval.
- Low borrowing cost.
- Longer term (20+ years), can be helpful in matching saving with repayments.
- High transaction costs.
- May be issued by a state or local agency on a regular schedule. Agencies may have a regular process and timeline for submitting proposed projects to be included.

How It Works



Revenue Bonds

How It Works

1. State or local government issues the bond to investors.
2. Proceeds are used to pay for projects (e.g., an efficiency project).
3. Typically, the project itself generates revenues that are used to make repayments.
4. In some cases, revenues that are not directly tied to project income may be pledged as a source of repayment.

Key Points

- Backed by designated revenue stream.
- Generally, no voter approval required.
- Historically higher borrowing cost (yield) than a GO bond. Still true overall, but smaller differential since Detroit bankruptcy and default on GO bonds in 2014.
- As of January 2023, electric utility revenue bonds had approximately the same yield (3.05) as local general obligation bonds (3.02).
- Requires defining revenue stream, which can be complex in the context of energy efficiency (where “revenues” come from savings).

Learn More: California Legislative Analyst’s Office

Example:
Albuquerque GO Bond Program

§ 2-12-1 Capital Improvements

The 3% for Energy Conservation and Renewable Energy Set-A-Side for Capital Improvements

- "(J) Three percent of each biennial Capital Improvements Program shall be reserved to fund the design, installation, purchase, user training and monitoring of Energy Conservation and/or Renewable Energy projects that reduce fossil fuel-based energy costs for General Fund and Enterprise Fund Programs and that will demonstrably reduce energy consumption. This fund shall be known as the 3% for Energy Conservation and Renewable Energy Set-A-Side for Capital Improvements."

- "(K) The Department of Finance and Administrative Services will budget 3% of the General Obligation Bond Program for the 3% for Energy Conservation and Renewable Energy Set-A-Side for Capital Improvements."

- "(L) Departmental applications for the 3% for the Energy Conservation and Renewable Energy Set-A-Side for Capital Improvements shall be submitted to the Facility, Energy & Security Management Division. A committee of City fiscal and technical staff shall approve selected projects based on established criteria. The committee may consult with subject matter experts outside of the City Government in the selection of projects."

Note: Originally set at 1% in 2001; increased to 3% in 2007.

Albuquerque Energy Efficiency Projects Supported Through Bond Set-Aside

City Wide Lighting Upgrades

- Total Annual Electrical avoided use: 7,550,291 kWh
- Annual Reduction in CO_2emission equivalents: 11,477,274 pounds (5,206 metric tons)
- Annual avoid cost of Electrical Purchases: $701,847.
- Budget: $1,335,871.
- Annual reduced maintenance costs associated with LED light installation: $53,333.
- PNM energy efficiency incentives: $69,599 (A year? Total?)
- Funding Source: 1% and 3% for Energy Conservation Set-A-Side for Capital Improvements
- Payback: 1.9 years (no inflation)

Locations:

- Citywide Traffic signal energy efficiency upgrade to LED lights
- LED Modules for Traffic Signal upgrade
- Lighting upgrades City / County Underground Parking lot
- Lighting & Sensor installation in City Hall 7th Floor
- Lighting upgrade in 5th & Copper Parking Structure
- Parking Structures LED sign upgrades
- City/County Hallway lighting efficiency upgrade
- Thomas Bell Gym Day/Solar Lighting
- Records Center Lighting Efficiency Upgrades
- Los Volcanes Senior Center Lighting Efficiency Upgrades
- Fire Station #1 Lighting Efficiency Upgrades
- Bear Canyon Community Center Lighting Efficiency Upgrade
- West Mesa Community Center Lighting Efficiency Upgrades
- 4th Street Fuels Lighting Efficiency Upgrades
- Parks Maintenance Services Lighting Efficiency Upgrades
- Vehicle Maintenance Complex Lighting Efficiency Upgrades
- Senior Affairs Lighting Efficiency Upgrades
- East Central Multi Cultural Center Lighting Efficiency Upgrades
- Solid Waste Edith Facility Building Lighting Efficiency Upgrades
- 4th Street General Services Lighting Efficiency Upgrades
- South Broadway Cultural Center Lighting Efficiency Upgrades 7355182
- Acropolis Parking Structure Lighting Efficiency Upgrade LED
- 4th and Lead Parking Structure Lighting Efficiency Upgrade LED

Total Cumulative light upgrade Electrical Avoided use 37,680,761 kWh
Total Cumulative avoided cost $3,441,132
Total Cumulative Reduction in CO2 emission equivalents: 57,282,670 pounds (25,983 metric tons)

HVAC Energy Efficiency upgrades

- Total Annual Electrical avoided use: 2,290,192 kWh
- Total Annual heating oil avoided use: 500 gallons.
- Annual Reduction in CO_2 emission equivalents: 5,301,101pounds (1,579 metric tons)
- Annual avoid cost of Electrical Purchases: $240,968.
- Budget: $1,270,044.
- Funding Source: 1% and 3% for Energy Conservation Set-A-Side for Capital Improvements
- Simple payback: 5.3 years (no inflation)

Locations:

- Pino Yards Used oil heater
- Arroyo del Oso Well VF motor
- Main Library Chiller
- Solid Waste maintenance facility used oil heater
- Transit Chiller
- HVAC Old City Hall
- Golf Center A/C efficiency upgrade
- Balloon Fiesta HVAC Replacement
- COA Police Department Forensic HVAC
- Upgrade Automated Controls
- COA Police Department Automated Controls & A/C replacement
- LEC Automated Controls
- LEC Air Conditioning Unit Replacement
- Thomas Bell Gym BAS/DDC
- Bio Park HVAC Efficiency Upgrade
- Library HVAC Efficiency Upgrade
- Design / Engineering West Side Animal HVAC Upgrade
- Design / Engineering Solid Waste HVAC Upgrade

Key Takeaway: Although bonds are typically used for larger projects, they can also support smaller and more distributed projects that receive a portion of overall bond funding.

Images from the city of Albuquerque

Traditional Product Comparison by Product Features

	Loans	Tax Exempt Leases	Bonds
Low Up-Front Transaction Costs	✓	✓	X
Low Cost of Capital	~	~	✓
Longer Term Lengths	X	X	✓
Supports Non-Equipment Projects	✓	~	✓

✓ Feature is inherent to this product.

~ Feature may or may not be part of a particular offering of this product type.

X Feature is not a part of this product and may be a barrier to its use.

Traditional Product Comparison
Barriers Arising from Classification as "Debt"

Barrier	Loans	Leases	Bonds	Notes (See Module 2 for further explanation of each barrier)
Competition for Capital (Agency Decision-Making)	X	X	X	Bonds and loans: Included within capital budgets, so efficiency projects using these products will compete for capital. Leases: Must now be accounted for as long-term debt in most cases under new accounting standards, so more likely to be included in capital budget, as well.
Voter Approval Requirements (Public Policy)	✓	✓	X	Bonds: GO bonds frequently require voter approval. Leases: Generally not required, especially if they contain a "non-appropriations" provision. Loans: Generally not required, as many state and local jurisdictions focus voting requirements on GO bonds.
Cumulative Debt Caps (Public Policy)	~	~	X	Bonds: Generally, count against public debt caps. Leases: Depends on policy language. May not count against debt caps if there are "non-appropriation" provisions. Loans: Depends on policy language.
Debt Covenants (Preexisting Financing Agreements)	~	~	~	Depends on language of any preexisting financing agreements.
Investor Tolerance of Balance Sheet Debt Levels (Generally Accepted Accounting Principals/Governmental Accounting Standards Board)	X	X	X	Bonds and loans: Must be disclosed as balance-sheet debt. Leases: Must now be disclosed as balance-sheet debt in most cases under new accounting standards. Previously could be treated as part of the operating budget, if agreement included a "non-appropriation" clause.

X Barrier is inherent to product. ~ Depends on jurisdiction. ✓ Product generally will not face this barrier.

Additional Resources

- Current Practices in Efficiency Financing: An Overview for State and Local Governments
- Better Buildings Financing Navigator
- Leveraging Bond Financing to Support Energy Efficiency and Renewable Energy Goals: A Resource Summary for State and Local Governments
- Bond Financing for Energy Efficiency and Renewable Energy: Overview for State and Local Leaders
- Government Financing Officers Association Best Practices
- National Association of State Budget Officers, Capital Budgeting in the States
- Governmental Accounting Standards Board
- Association of Government Leasing and Finance, Fifty State Survey

Glossary

- **Bond**: Contract under which investors provide money to an issuer in exchange for an agreed-upon series of repayments. Bond contracts represent a fractional share of the overall amount an issuer is seeking to raise, and investors may purchase all or a portion of the bonds that make up an issuance. Each bond is typically tradeable together or separately. Bonds that are purchased by a single investor or small group are generally called "**private placements**" and are subject to fewer regulations than bonds sold on the open market.

- **Certificates of participation**: Leasing structure in which investors may purchase a certificate entitling them to a share of leasing proceeds, which is typically tradeable. Frequently used for larger leasing transactions. May result in lower cost of capital due to increased liquidity (i.e., ease of trading fractionalized interests).

- **General obligation bond**: Bond issued by a public agency requiring the issuer to use its "**full faith and credit**" (i.e., its full taxing authority and any other assets or revenue sources) to support repayment obligations.

- **Lease**: Contract in which one party (the "lessee") agrees to pay another party (the "lessor") for the use of real property or equipment for a specified period of time. Under a traditional lease, the lessor retains the title to the property evidencing ownership rights and retakes full control of the property at the end of the lease period, unless the lessee exercises an option to pay the lessor the remaining "**fair market value**" of the asset. Under a **lease purchase agreement**, the title and all other rights to the property transfer to the lessee in exchange for a nominal payment to the lessor at the end of the lease period.

- **Leasing schedule**: Document containing a list of the equipment leased, a payment schedule, and any terms or modifications specific to the particular schedule, if different from those contained in a master lease to which it is appended.

Glossary

- **Loan**: Contract in which a one party (the "lender") provides funding on behalf of another party (the "borrower") to cover the up-front costs of the borrower's purchase of property or equipment, in exchange for the borrower's promise to repay the funds over time, typically with interest.

- **Master lease**: An agreement between two parties containing the basic terms of a leasing arrangement, which can be amended to add additional leased equipment by adding a supplemental leasing schedule without the need to alter or approve new financing terms.

- **Municipal bonds**: Bonds issued by state or local governments. Sometimes referred to as "**munis**." Often used to fund public infrastructure projects, which may include building construction and renovation. Interest that investors receive on these bonds is tax free in most cases, which lowers the rate investors require.

- **Municipal lease**: Contract in which a public agency or authority, as the lessee, pays the lessor over time for the purchase of specified property or equipment. At the end of the lease period, the lessor releases any rights to the property and transfers the title, if it has not already transferred at the beginning of the transaction. Interest income the lessor receives on the lease payments is exempt from federal taxes. This is also known as a "**tax-exempt lease purchase**" (TELP) agreement or "**tax-exempt lease**."

- **Revenue bond**: Bond backed by a specific revenue source, such as the cash flows from a financed project.

- **Title**: Collection of rights associated with full property ownership. May be tangible, as evidenced by a title document that may be found in public records, or intangible but legally recognized. In either case, the process and timing of title transfer from one party to another, and relinquishment of any property rights, may be spelled out in a contract, such as a lease purchase agreement.

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Appendix:
Product-Specific Terminology for Core Financing Components

Rates

Loans

Interest Rate

- **ANNUAL PERCENTAGE RATE (APR)** : Lending costs may also include one-time up-front fees, which can vary by lender. The **APR** accounts for these fees and allows for comparisons across lenders.
- **COST OF CAPITAL**: Interest rates vary depending on the rate of return needed. Public/ratepayer funds can be lent at lower rates than private capital but are typically in shorter supply**.**
- **INTEREST RATE BUYDOWNS**: Some programs "**buy down**" private capital rates by paying part or all of the interest income using program funds.
- **CREDIT ENHANCEMENT**: Programs may also lower private capital rates by reducing credit risk through "**credit enhancement**" strategies (e.g., by establishing a "**loan loss reserve fund**" to make lenders whole on unpaid loans).

Leases

Interest Rate

- **TAX-EXEMPT INTEREST**: The interest income that lessors receive on most public sector leases is not subject to taxes. Since the investors pocket more of the income, they can charge lower rates to lessees. These arrangements are called "**tax-exempt leases**" or "**tax-exempt lease purchase agreements**" (**TELPs**), because lessees agree to purchase the leased items at the end of the lease term. They are also called **"municipal leases**," though the term applies to state and regional government leases, as well.
- **IMPLIED INTEREST RATES**: Interest rates on municipal leases are generally advertised explicitly to help calculate the benefit of the tax exemption on interest income. Interest rates on other leases are typically "**implied**," with agreements spelling out term lengths and payment amounts instead. These amounts can be used to calculate the underlying interest rates.

Bonds

Yield to Maturity

- **YIELD TO MATURITY (YTM)**: The implied interest rate if all scheduled payments are made through the end or "**maturity**" date of a bond agreement. "Implied" because it is calculated from the projected payment stream, but unlike non-municipal leases, it is typically advertised.
- **YIELD TO CALL**: The implied interest rate if a bond is paid off at some point prior to its maturity.
- **BOND PRICE**: The actual amount an investor is willing to pay for an individual bond, given its projected future payments. Investors may be willing to pay a "**premium**" if the projected interest income compares favorably to alternative investment options or may expect a "**discount"** if alternative investments become relatively more attractive.
- **TAX-EXEMPT INTEREST**: As with municipal leases, municipal bonds are tax-exempt.

Term Lengths

Loans

Term

- **RANGE**: Can vary significantly, but overall are typically in the range of 5–15 years.

Significance:

- **REPAYMENTS**: Longer loan terms reduce periodic repayment amounts, helping required payments compare more favorably to projected savings.
- **INTEREST RATES**: Longer terms typically come with higher interest rates, due to the increased risk of nonpayment over a longer period of time.
- **TOTAL FINANCING COSTS**: Total financing costs are higher with longer terms, given debt accrues interest over a longer period of time. However, each individual payment is lower.

Leases

Lease Period

- **RANGE**: Typically in the range of 5–7 years, with variation.

Significance:

- **PROJECT ECONOMICS**: Given the relatively shorter term lengths typical of lease periods, payments may exceed savings during the term of the agreement. Some programs, however (e.g., Washington State) match the lease period to the life of the equipment.
- **CLASSIFICATION**: Any lease with a loan term of over one year, or with an expected purchase by the end of the lease term (as it the case with tax-exempt municipal leases), must be recorded as a capital lease, and therefore treated as debt.

Bonds

Maturity

- **RANGE**: Typically in the range of 20–30 years but can be as short as one year. Some municipal bond issuances are comprised of "serial" bonds, with groups of bonds maturing at different times, typically each year.

Significance:

- **CALL DATE**: Bond terms are defined with respect to their expected end date, known as their maturity date. Most municipal bonds are "**callable**," however, meaning they can be paid off early, generally if prevailing interest rates drop.
- **AFFORDABILITY**: The longer term typical of municipal bonds, as compared with loans and leases, can help make payments more affordable when compared with savings.

Repayments

Loans

Loan Payment

- **REPAYMENTS**: Longer loan terms reduce periodic repayment amounts, helping required payments compare more favorably to projected savings.
- **INTEREST RATES**: Longer terms typically come with higher interest rates, due to the increased risk of nonpayment over a longer period of time.
- **TOTAL FINANCING COSTS**: Total financing costs are higher with longer terms, given debt accrues interest over a longer period of time. However, each individual payment is lower.

Leases

Lease Payment

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- **TOTAL FINANCING COSTS**: Total financing costs are higher with longer terms, given debt accrues interest over a longer period of time. However, each individual payment is lower.

Bonds

Coupon

- **PAR VALUE**: The principal value of a single bond, usually set at $5,000. The total par value of all bonds in a single issuance is analogous to the loan amount borrowed from a lender.
- **COUPON RATE**: The rate used to calculate the required annual payment on each individual bond. Payment amounts on individual bonds are equal to the par value times the coupon rate.
- **COUPON**: The term used for the annual payment amount of each individual bond. Bonds often pay semiannually, at an amount equal to half the coupon.

Security

Loans

Lien

- **LIEN**: The documented legal right to collect and sell specific property in the case of borrower nonpayment of loan obligations or other violations of loan agreement terms.
- **COLLATERAL**: The property specified in the loan agreement on which the lender holds a lien. May be in the form of real or personal property.
- **SECURED/UNSECURED**: Loans based on agreements containing liens against collateral are classified as "secured" loans, while loans based on agreements containing no such provisions are classified as "unsecured." Secured loans typically carry lower interest rates than unsecured loans.

Leases

Security Interest

- **SECURITY INTEREST**: The lessee holds title to the assets subject to the leasing agreement, but the lessor maintains a right to repossess and sell the assets if the lessee violates the terms of the agreement. This is analogous to a secured loan. This type of arrangement generally characterizes municipal leases.
- **TRUE LEASE**: The lessor never transfers the title to the assets to the lessee. As a result, if the lessee goes bankrupt, the assets are not considered part of the bankruptcy estate, because they still belong to the lessor. Therefore, the lessor can avoid having to go through a complex, expensive bankruptcy process to repossess the assets. Most municipal leases are not structured this way, particularly for acquisition of long-term assets such as most energy efficient equipment.

Bonds

Obligation

- **OBLIGATION**: Municipal bonds are not generally secured by specific assets. Instead, they come with a government pledge to investors, called an "obligation."
- **GENERAL OBLIGATION**: Bonds backed by the government's pledge to use its taxing authority to raise sufficient funds to repay bondholders. Can be issued at lower rates but may be capped by government debt restrictions.
- **REVENUE BOND**: Backed by specific revenue sources typically related to the project, such as ongoing user fees. In some cases, energy efficiency revenue bonds have been issued and backed by savings generated from energy efficiency projects.