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COUNCIL OF INFRASTRUCTURE FINANCING AUTHORITIES

2018 CIFA SRF Workshop

Keeping SRF Programs Competitive

November 5, 2018

Bank of America Merrill Lynch

pfm

S&P Global Ratings

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Agenda

DEFINING THE COMPETITION

- Competing demands for funding sources
- Competing financing alternatives

MEETING BORROWER NEEDS

- Funding purposes
- Funding Terms
- Transparent and Easy Process

MEETING INCREASED DEMAND

- Marketing the Benefits and Modernizing the Program Information
- Maximizing Availability of Resources

CREATING CO-FUNDING OPPORTUNITIES

Who do SRFs Compete with?

- Other Demands for SRF Funding Sources
    - Federal Allocations
    - Alternatives for State Match Funding Sources
    - Limited Local Repayment Resources and Borrower Capital Budget Demands

- Other Financing Options for our Program Borrowers
    - Other Federal Programs
    - Other State Programs
    - Self Financing Alternatives

Cooperative

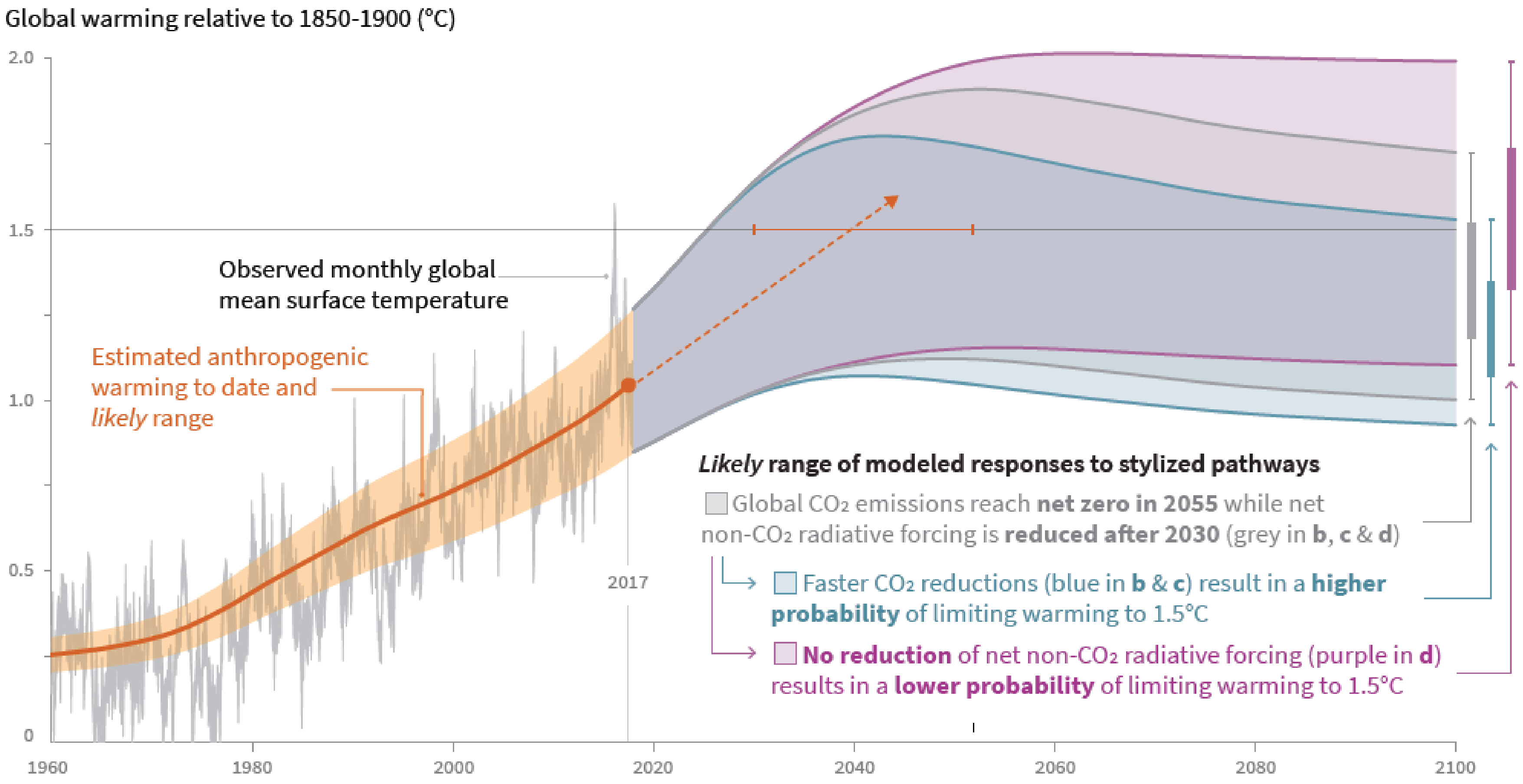
Potential ~~Competitors~~ Funding Partners

Regional/ State/ Federal	Non-Profit Partnerships/ Private
Clean Water State Revolving Fund	Developer Incentives
Drinking Water State Revolving Fund	ESCOs, ESAs, ESPCs
HUD Programs	Public-Private Partnerships
Rural Development Loans	Social/ Environmental Impact Bonds
Other Grants, Credits & Subsidized Loans CREBs, QECBs, (S)RECs	Catastrophe Bonds
Property Assessed Resiliency Program	Resiliency Bonds
Dam Safety & Flood Prevention Fund	Private Insurance Reduction
Water Infrastructure Finance and Innovation Act (WIFIA)	Foundations
Transportation Infrastructure Finance and Innovation Act (TIFIA)	Sponsorships

Understanding and Meeting Your Borrowers' Needs

- Providing for Expanded Uses
  - Disaster Mitigation/ Resilience
  - Consent Decrees
  - Planning and Development
  - Stormwater Management/ Drainage
- Low Borrowing Rates
- Flexible Lending Terms
  - Diversified Security Structures
  - Short Term Lending Programs
  - Longer Term Loan Structures
  - Prepayment Allowances

The Crisis of Global Climate Change – A Looming Issue



Source: Intergovernmental Panel On Climate Change

SRF Program Overview

SRF Program	Ratings (M/S/F)	Direct State Support	SRF Leveraging Structure	Bonds Outstanding	Number of Borrowers	Top Three Borrower Information			Prepayment Policy/Guidelines	Borrower Loan Rate/Subsidy Levels
						Name	% of Loan Pool	Ratings (M/S/F)		
California Infrastructure and Economic Development Bank (1999)	Aaa/AAA/AAA	None	Cash Flow	$1,299,610,000	85	1. Orange County Water District 2. LA County Sanitation District 3. City of Vacaville	9.5% 8.1% 5.8%	Aa1/AAA/AAA Aa1/AA+/NR NR/NR/NR	Permissible with Board approval	Borrower rates may be no greater than half the interest rate of the most recent State G.O. bonds. (rounded to the nearest 0.01%)
State of Connecticut (1992)	Aaa/AAA/AAA	None	Cash Flow	798,255,483	105	1. Metropolitan District (Hartford) 2. GNHWPCA 3. Torrington	39.3% 4.3% 4.2%	Aa3/AA-/NR A1/NR/A+ NR/AA-/NR	Permissible	Legislatively-established 2% Loan Rate
Indiana Finance Authority (1993)	Aaa/AAA/AAA	None	Reserve/Hybrid	1,475,145,000	347	1. City of Fort Wayne 2. Indianapolis Sanitation District 3. CWA Authority	17.5% 7.9% 7.4%	Aa1/AA/NR NR/NR/NR A2/NR/A	Generally, loans cannot be prepaid for a 10 year period. Afterwards, a prepayment premium may be charged by the Authority.	Interest range form 2.00% to 2.75% and depend on the borrower's Median Household Income and User Rates. The base rate is calculated each quarter and is equal to 90% of the avg 20yr MMD for the most recent calendar month
Iowa Finance Authority (1989)	Aaa/AAA/AAA	None	Cash Flow	1,192,350,000	668	1. Des Moines Wastewater Red. Auth. 2. Sioux City 3. Dubuque	16.2% 8.8% 6.4%	Aa3/AA/NR Aa2/AA/NR Aa2/NR/NR	Permissible with Authority approval	Planning and design loan rate at 0% for up to 3 years; SRF construction loan rates 1.75% to 2.75% for up to 30 years
Massachusetts Clean Water Trust (1993)	Aaa/AAA/AAA	None	Reserve/Hybrid	2,932,678,000	286	1. MWRA 2. Fall River 3. Chipopee	24.6% 3.8% 3.4%	Aa1/AA+/AA+ A3/A-/NR NR/AA-/NR	Permissible with Trust approval	Borrower rates for loan terms less than 20 years may not exceed 2%
Michigan Finance Authority (1995)	NR/AAA/AAA	None	Reserve/Hybrid	1,357,690,000	262	1. Great Lakes Water Authority 2. Oakland-Macomb Drainage District 3. City of Dearborn	16.0% 7.9% 7.8%	A3/A-/NR Aa1/NR/NR Aa3/AA-/NR	Permissible with Authority approval	Current borrower interest rate 2.00% for 20yr loans and 2.50% for 30yr loans
Missouri Envir. Improvement & Energy Res. Auth. (1996)	Aaa/NR/AAA	None	Reserve/Hybrid	729,220,000	263	1. St. Louis MSD 2. St. Joseph 3. Liberty	28.0% 16.0% 9.7%	Aa1/AAA/AA+ NR/A+/NR NR/AA/NR	Permissible with Authority approval	Borrower interest rates established at approximately 30% of Bond cost of funds
New York Environmental Facilities Corporation[1] (1991)	Aaa/AAA/AAA	None	Cash Flow	1,385,590,000	310	1. Westchester County 2. Onondaga County 3. Rockland County	14.1% 11.0% 6.6%	Aa1/AAA/AAA Aa2/AA+/AAA Baa1/BBB+/NR	Permissible with Corporation approval	Borrower interest rates capped at 50% and 33.3% of Bond funds for clean water and drinking water borrowers, respectively
Ohio Water Development Authority (1993)	Aaa/AAA/NR	None	Reserve/Hybrid	744,080,000	336	1. City of Columbus Sewer Enterprise 2. City of Akron 3. NE Ohio Regional Sewer District	22.0% 12.4% 12.1%	Aa1/AA+/NR NR/AA-/A+ Aa1/AA+/NR	Not allowed	Borrower interest rate is set quarterly and calculated based upon most recent 8 week average of The Bond Buyer 20-Bond GO index minus 95 or 100 basis points, depending on loan term
Oklahoma Water Resources Board (2003)	Aaa/AAA/AAA	None	Reserve/Hybrid	589,285,000	159	1. OKC Water Utilities Trust 2. Tulsa Metropolitan Utility Authority 3. Broken Arrow Municipal Authority	16.0% 10.8% 5.2%	Aaa/AAA/NR Aa1/AA+/NR NR/NR/NR	Permissible with Authority approval (coincides with underlying Bond call provisions)	Borrower interest rate at approximately 60% of "comparable market rates" and 70% of the "applicable bond interest rate" for clean water and drinking water borrowers, respectively
Texas Water Development Board (1992)[2]	NR/AAA/AAA	None	Cash Flow	452,405,000	170	1. Trinity River Authority 2. Houston 3. San Antonio Water System	20.9% 15.7% 10.5%	Aa2/AA/AA NR/AA+/AA Aa2/AA/AA	Permissible at anytime	1.30% or 1.65% interest rate subsidy off of the municipality's alternative cost of funds (depending upon project type)
Virginia Resources Authority (1999)	Aaa/AAA/NR	None	Reserve/Hybrid	700,565,000	121	1. Arlington County 2. Hampton Roads Sanitation District 3. City of Lynchburg	12.8% 9.8% 6.7%	Aaa/AAA/AAA NR/AA+/AA+ Aa2/AA+/AA+	Prepayment guidelines coincide with underlying Bond call provisions	Loan rates set to be approximately 100 bps below the all-in true interest cost of underlying Bonds less discounts based upon affordability standards

(1) NYS EFC maintains a separate resolution exclusively for New York City Municipal Water Authority ($4,342MM bonds outstanding)

(2) TWDB has other financing programs including the following (outstanding balances in parentheses): EDAP ($213MM); WIF ($581MM); WDF ($1,259MM); State Participation ($104MM); SWIRFT ($1,393MM)

Source: Official Statements, Financial Statements and Rating Reports

A Municipality's Own Toolbox- Allowing Flexibility in Security Terms

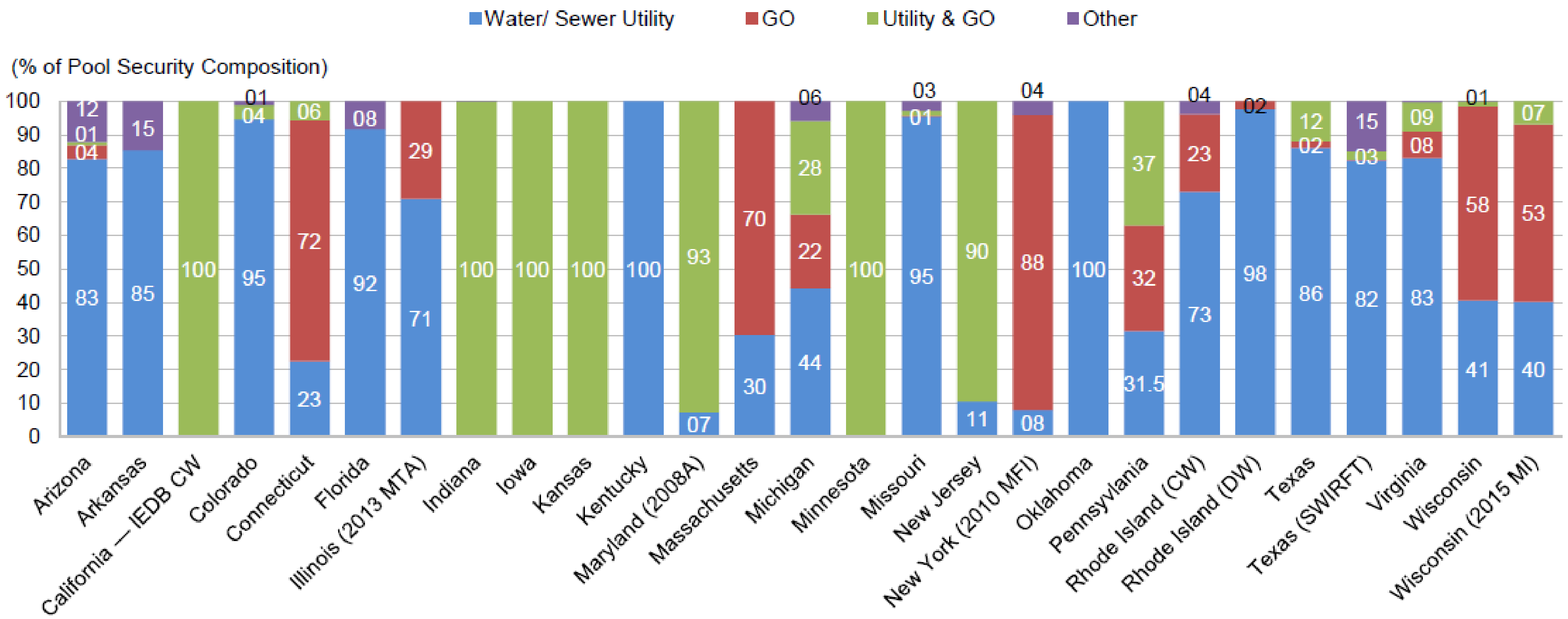
- Water Revenue Bonds
- Wastewater Revenue Bonds
- Stormwater Revenue Bonds
- Tax Increment Financing
- Special Services Districts
- Sanitary Districts
- Resilience / Protection Zone Districts
- Community Development Authorities
- Assessments for Local Improvements
- Tax Credits

Some SRF programs allow for only GO backed loans to participate in their program.

Expanding the possibilities for borrowers to use different and creative repayment sources can increase program demand.

Primary Pool Security Pledge – Leveraged Bonds

State Revolving Funds



Note: Numbers may not add due to rounding.
Source: Fitch.

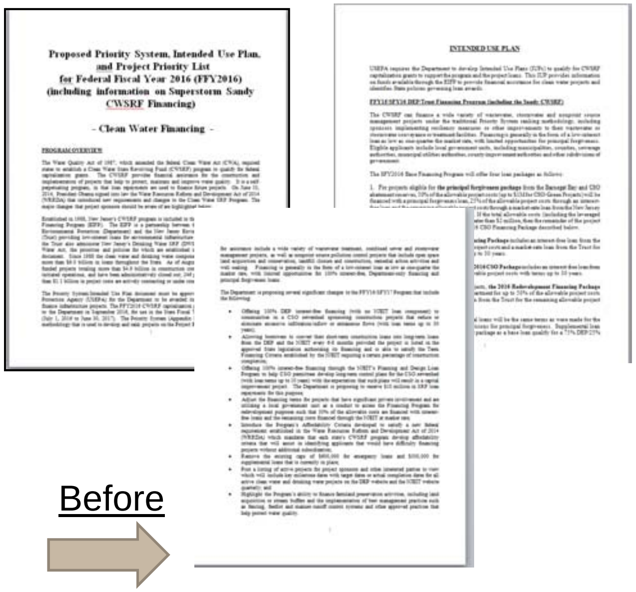
Transparent and Easy Process

- Marketing the Benefits and Modernizing the Program Information
    - Savings Calculator
    - Marketing Collateral
    - Streamlined Application Process

New Jersey: Improved Intended Use Plan (IUP):

- EPA Requirement
- Drinking Water and Clean Water Combined

- Increased Readability
  - Condensed Information
  - Interactive Links
  - Clear Sections
  - Pictures, charts, and graphics



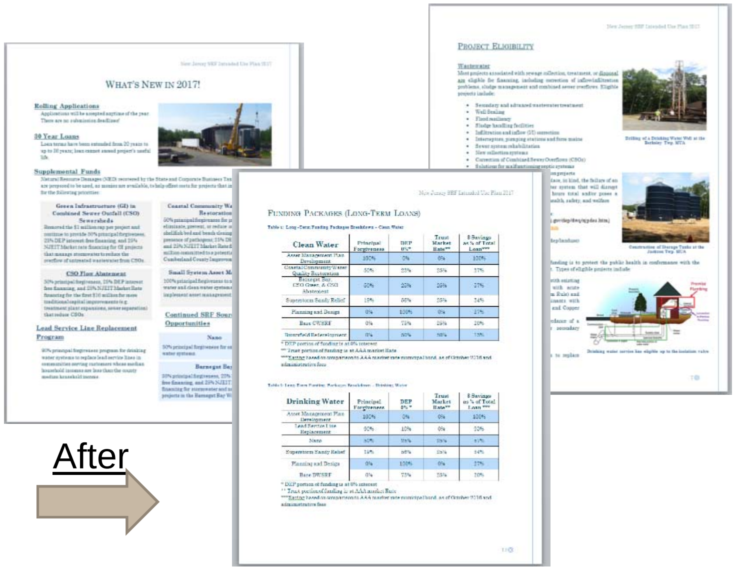
Proposed Priority System, Intended Use Plan, and Project Priority List for Federal Fiscal Year 2016 (FFY2016) (including information on Superstorm Sandy CWSRF Financing)

- Clean Water Financing -

PROGRAM OVERVIEW

INTENDED USE PLAN

Before



WHAT'S NEW IN 2017!

PROJECT ELIGIBILITY

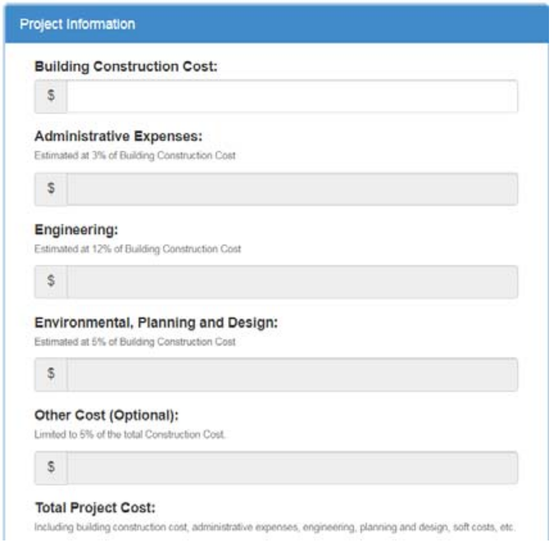
FUNDING PACKAGES (LONG-TERM LOANS)

After

New Jersey: Putting Technology to Work for SRF Programs

Savings Calculator:

Allowing borrowers to estimate savings through the program



Project Information

Building Construction Cost:

$

Administrative Expenses:

Estimated at 3% of Building Construction Cost

$

Engineering:

Estimated at 12% of Building Construction Cost

$

Environmental, Planning and Design:

Estimated at 5% of Building Construction Cost

$

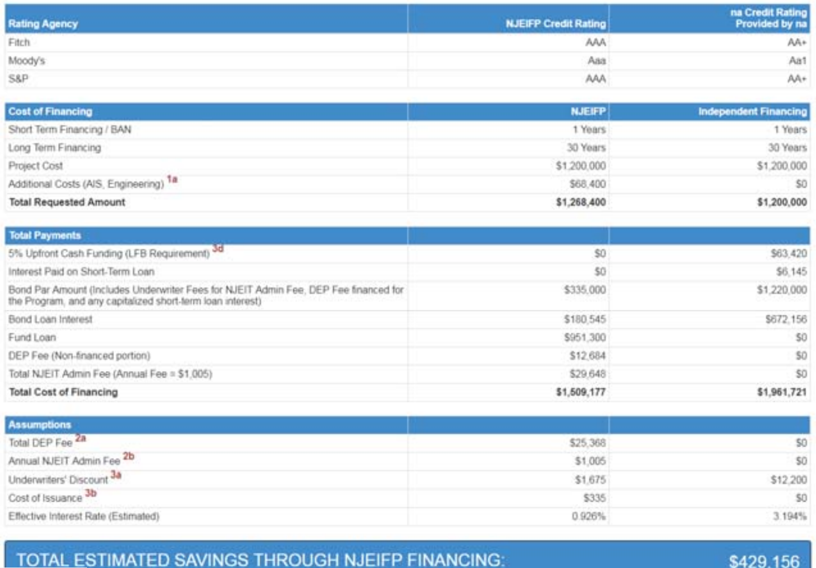
Other Cost (Optional):

Limited to 5% of the total Construction Cost.

$

Total Project Cost:

Including building construction cost, administrative expenses, engineering, planning and design, soft costs, etc.



Rating Agency	NJEIFP Credit Rating	na Credit Rating Provided by na
Fitch	AAA	AA+
Moody's	Aaa	Aa1
S&P	AAA	AA+

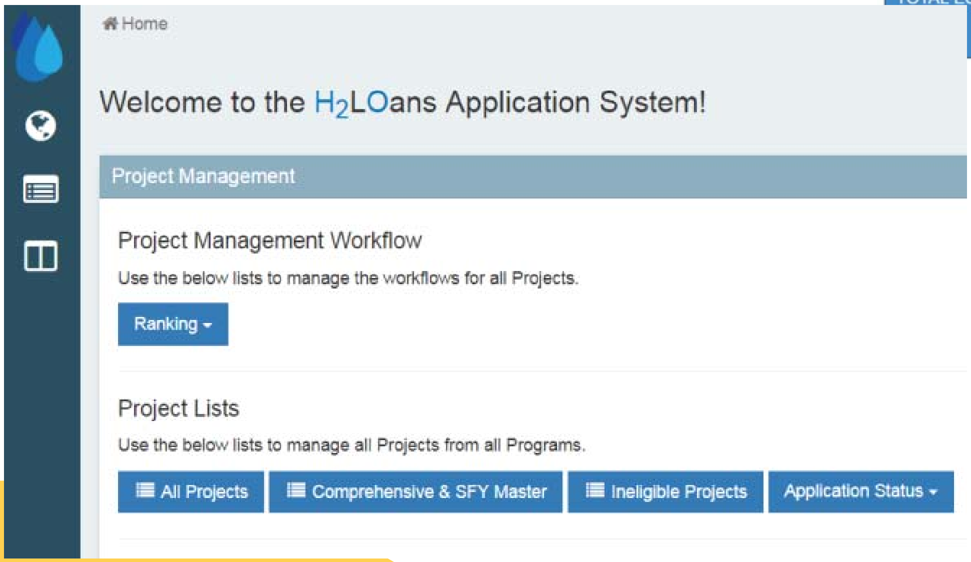
Cost of Financing	NJEIFP	Independent Financing
Short Term Financing / BAN	1 Years	1 Years
Long Term Financing	30 Years	30 Years
Project Cost	$1,200,000	$1,200,000
Additional Costs (AIS, Engineering) [1a]	$68,400	$0
Total Requested Amount	**$1,268,400**	**$1,200,000**

Total Payments		
5% Upfront Cash Funding (LFB Requirement) [3d]	$0	$63,420
Interest Paid on Short-Term Loan	$0	$6,145
Bond Par Amount (Includes Underwriter Fees for NJEIT Admin Fee, DEP Fee financed for the Program, and any capitalized short-term loan interest)	$335,000	$1,220,000
Bond Loan Interest	$180,545	$672,156
Fund Loan	$951,300	$0
DEP Fee (Non-financed portion)	$12,684	$0
Total NJEIT Admin Fee (Annual Fee = $1,005)	$29,648	$0
Total Cost of Financing	**$1,509,177**	**$1,961,721**

Assumptions		
Total DEP Fee [2a]	$25,368	$0
Annual NJEIT Admin Fee [2b]	$1,005	$0
Underwriters' Discount [3a]	$1,675	$12,200
Cost of Issuance [3b]	$335	$0
Effective Interest Rate (Estimated)	0.926%	3.194%

TOTAL ESTIMATED SAVINGS THROUGH NJEIFP FINANCING: $429,156

(35.76% of Requested Amount)



Welcome to the H_2LOans Application System!

Project Management

Project Management Workflow

Use the below lists to manage the workflows for all Projects.

Project Lists

Use the below lists to manage all Projects from all Programs.

H2LOANS: Online Applications

- Status bar of project with milestones
- Documents uploaded for mobile access
- Contact information

Meeting Program Demand

- Maximizing the Availability of Resources
  - Leveraging to access more capital
  - Investing to maximize return
  - Managing arbitrage rebate liabilities

Interest Rates: Current Market Themes

- U.S. economic conditions are characterized by:
    - Strong growth fueled by tax cuts and increased spending
    - Solid job growth with a low unemployment rate of 3.7%
    - Record corporate profits, driven in part by tax cuts
    - Core inflation reaching the Fed's long-term target of 2% for the first time since 2012
    - Potential headwinds in the form of tariffs, slower housing market momentum and rising interest rates
- U.S. Treasury yields surged in September, continuing the year-long path toward higher rates. The yield curve remains quite flat relative to historical averages.
- The Federal Reserve raised rates again in September, their third hike of 2018. The federal funds rate moved to a new target range of 2.00% to 2.25%. An additional ¼ percent rate hike is expected in December, with two to four more hikes possible in 2019.
- U.S. equities broke records in September as the S&P 500 and Nasdaq indices hit new all-time highs on tailwinds from robust economic fundamentals, strong corporate earnings, and business optimism. The S&P 500 index is now up 10.6% for the year while the tech-heavy Nasdaq is up 17.5%.
- U.S., Canada, and Mexico reached an agreement to update NAFTA. The deal revises the country of origin rules, increases intellectual property protections, improves labor and environmental rights, and includes concessions on dairy products.

Interest Rates: Fed Raises Rates Again in September

September

26

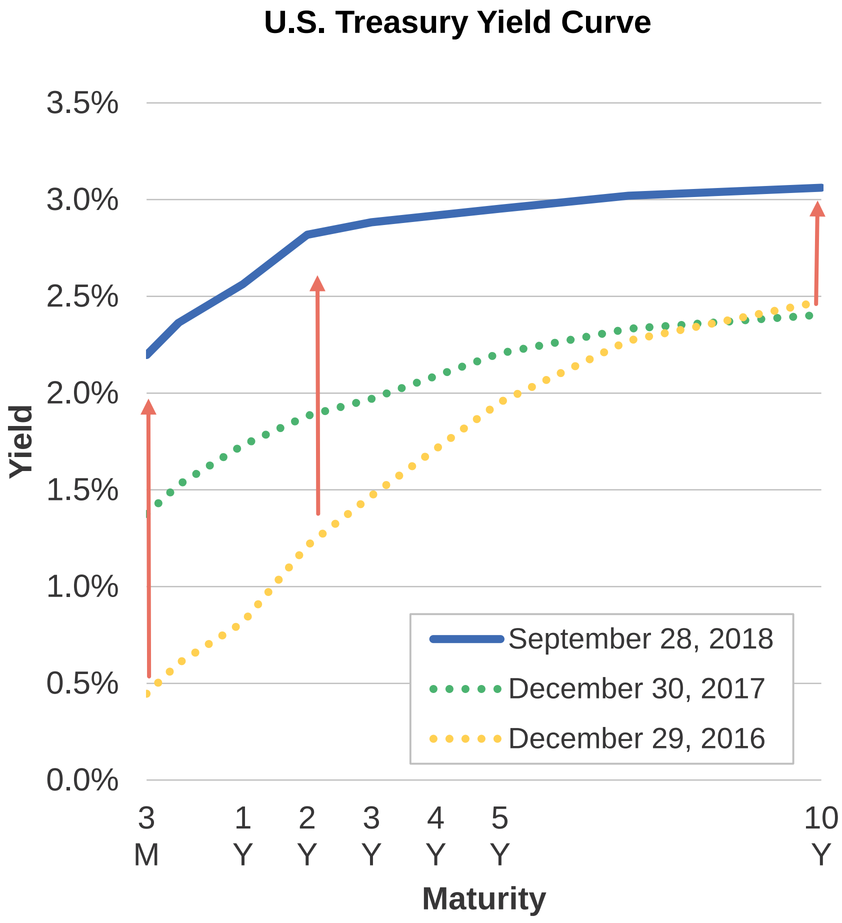
- Information received since the FOMC met in August indicates that the labor market has continued to strengthen and **economic activity has been rising at a strong rate.** Job gains have been strong, on average, in recent months, and the **unemployment rate has stayed low. Household spending and business fixed investment have grown strongly**.
- On a 12-month basis, both overall inflation and inflation for items other than food and energy remain near 2 percent. Indicators of longer-term inflation expectations are little changed, on balance.
- In view of realized and expected labor market conditions and inflation, the Committee decided to raise **the target range for the federal funds rate to 2 to 2¼ percent.**

- Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that further gradual increases in the target range for the federal funds rate will be consistent with **sustained expansion of economic activity**, **strong labor market conditions**, and **inflation near the Committee's symmetric 2 percent objective** over the medium term. Risks to the economic outlook appear roughly balanced.
- The Fed **removed the "accommodative" language** to describe its monetary policy, signaling that the Fed will continue to be data-dependent going forward and will reassess economic conditions to affirm they are consistent with their economic forecast.

Source: Federal Reserve.

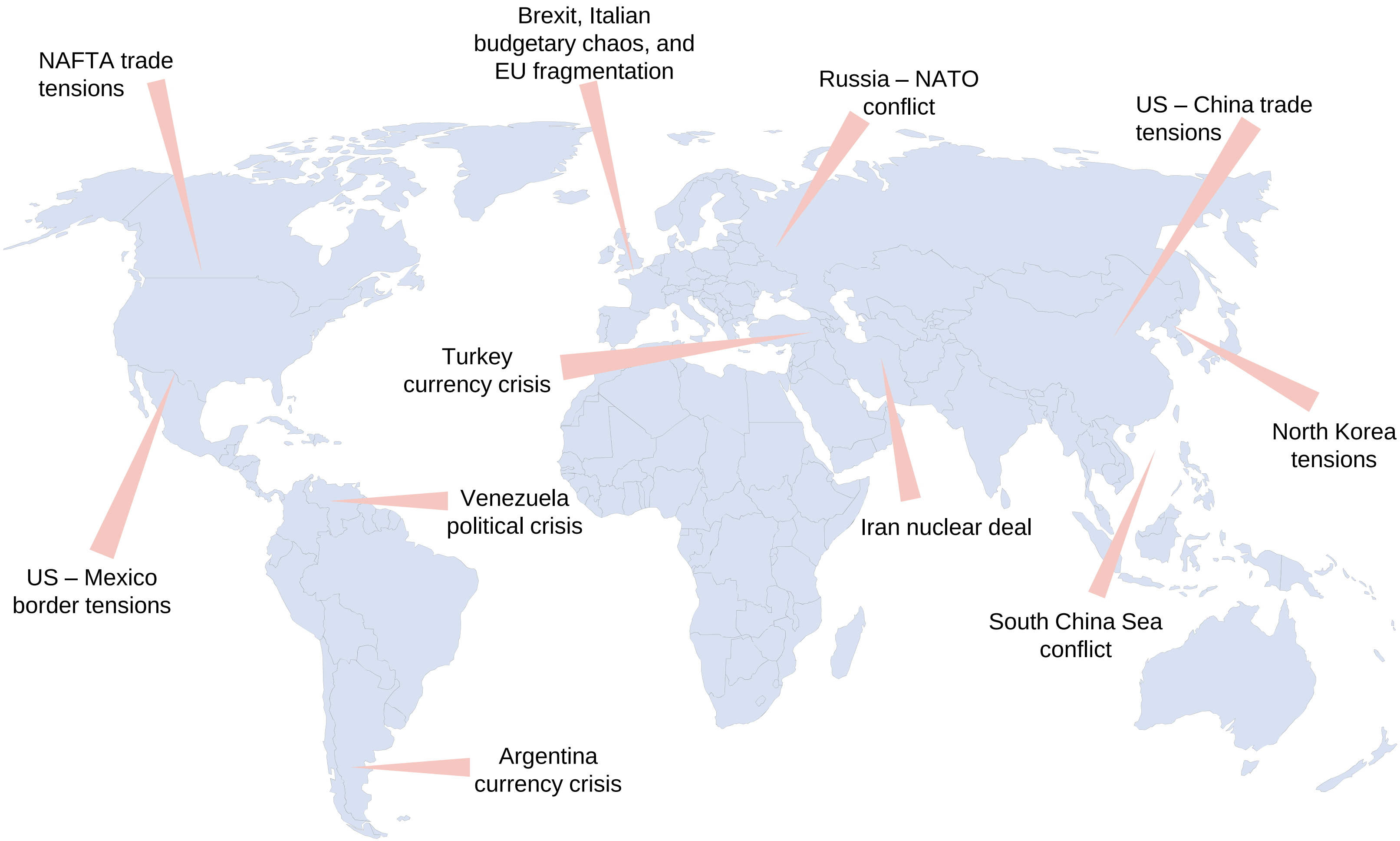
Interest Rates: U.S. Yield Curve Has Flattened

Tenor	Current 9/28/18	Year-End 12/31/2017	Year-End 12/31/16
3 month	**2.20%**	1.38%	0.45%
6 month	**2.36%**	1.53%	0.61%
1 year	**2.56%**	1.73%	0.82%
2 year	**2.82%**	1.88%	1.21%
3 year	**2.88%**	1.97%	1.47%
5 year	**2.95%**	2.21%	1.95%
10 year	**3.06%**	2.41%	2.48%



Source: Bloomberg, as of 9/28/2018.

Geopolitical Risks Persist Around the Globe



NAFTA trade tensions

Brexit, Italian budgetary chaos, and EU fragmentation

Russia – NATO conflict

US – China trade tensions

Turkey currency crisis

North Korea tensions

Venezuela political crisis

Iran nuclear deal

US – Mexico border tensions

South China Sea conflict

Argentina currency crisis

Cooperative, Not Competing, Infrastructure Financing Plans

- WIFIA + SRFs
- I-BANK Loan Programs
- Resiliency – Project Financing
- Environmental Impact Bonds

Thank you.

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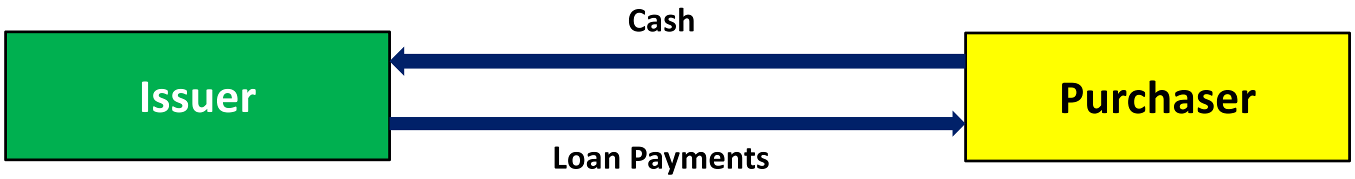
Keeping SRF Programs Competitive

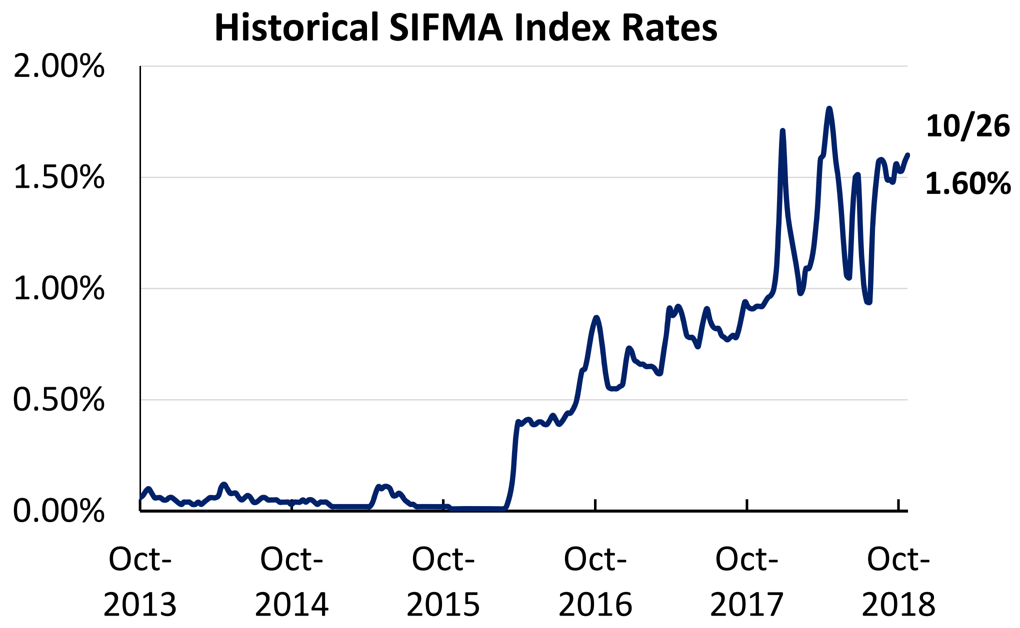
Financing Considerations – Direct Purchases

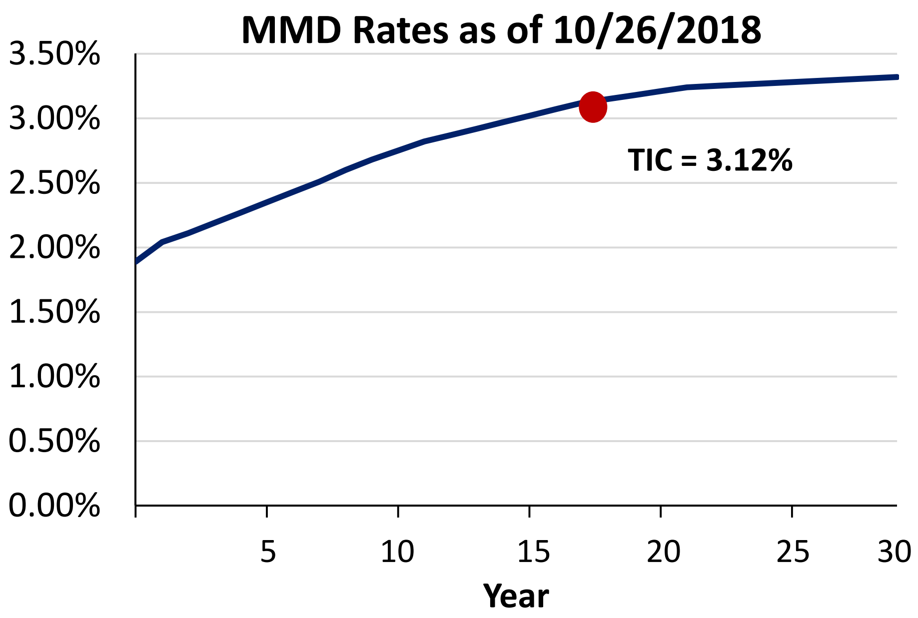


- Bank Direct Purchases are the purchase of tax-exempt or taxable bonds by a bank (the purchaser) that does not involve an underwriting or public offering
- Terms are negotiated directly with the purchaser of the bond including the interest rate (fixed or floating)
    - Suited to maturities 10 years or less, however, longer terms have been offered especially when coupled with a sinking fund schedule
    - Purchaser may be agreeable to flexible optional redemption provisions
- Since there is not a public offering, there is no marketing period or an Official Statement
    - Reduces the amount of time required to issue a transaction
    - Reduces the issuance cost
- Due to the Tax Cut and Jobs Act of 2017, a very limited number of banks participate in this market

Keeping SRF Programs Competitive

Financing Considerations – Short-Term Market





- Short-term products can allow an issuer to take advantage of short-term rates to lower the overall cost of financing on a programmatic basis
- Most short-term tax-exempt products are influenced by the SIFMA Municipal Swap index which is a 7-day high-grade market index comprised of tax-exempt Variable Rate Demand Obligations
- The SIFMA index can be subjected to market volatility for short periods of time

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Sources: Bloomberg and Thomson Reuters as of 10/26/18.

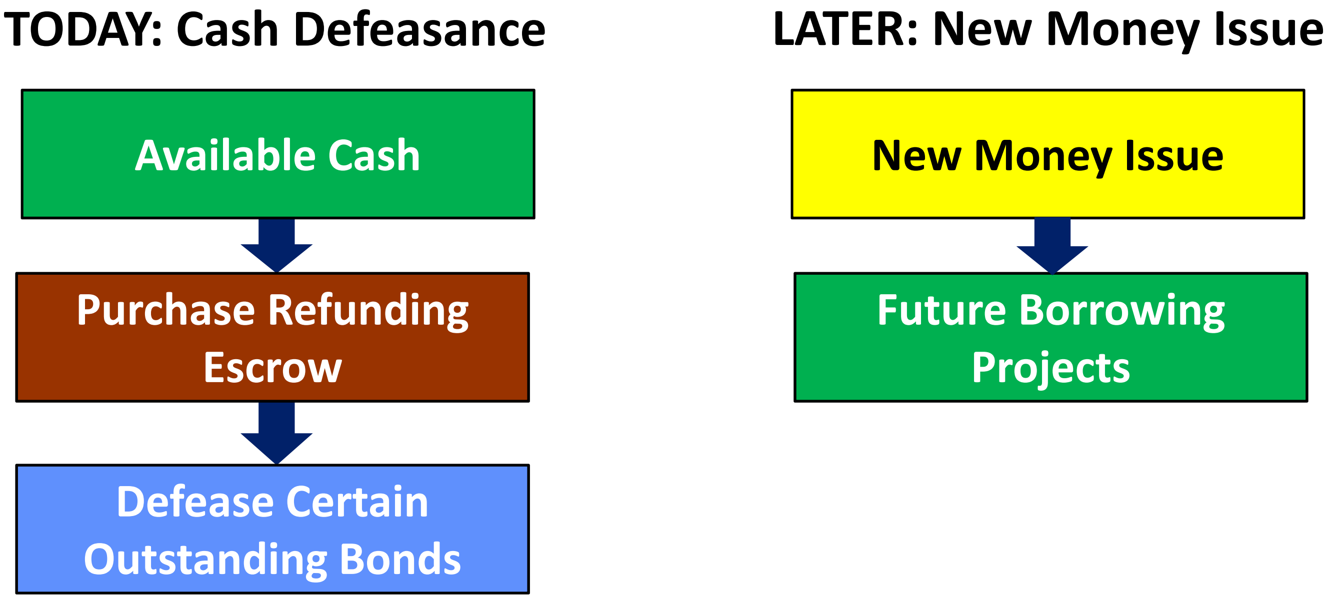
Keeping SRF Programs Competitive

Financing Considerations – Short-Term Products

- **Variable Rate Demand Notes** are long-dated securities that reset on a daily, weekly or monthly basis that are supported by a bank liquidity facility
  - Offers refinancing flexibility and an extensive investor pool
  - Exposure to the credit rating of the liquidity provider
- **Commercial Paper** are short-dated notes (typically maturing in 30 to 90 days) backed by either bank or self liquidity
  - Liquidity-backed CP has a deep investor base and offers issuers flexibility in issuance and redemption
  - Extendable CP programs have an extension period to allow additional time for redemption; however, there is a limited investor base for these notes
- **Floating Rate Notes** are long-dated securities that can be indexed to SIFMA (or a percentage of LIBOR) plus a spread that resets on a daily, weekly or monthly basis and have a put or tender date
  - Limited market but increasing investor demand
  - However, the issuer retains exposure to index risk (index volatility) and refinance risk (ability to refinance the security at the tender date)

Keeping SRF Programs Competitive

Financing Considerations – Cash Optimization Strategy



TODAY: Cash Defeasance

Available Cash

Purchase Refunding Escrow

Defease Certain Outstanding Bonds

LATER: New Money Issue

New Money Issue

Future Borrowing Projects

- Cash optimization uses available cash to purchase an escrow to defease certain callable outstanding bonds
- The issuer then issues a tax exempt new money transaction to fund borrower projects; new debt service can be structured similarly to the prior debt service
- In the aggregate, this strategy may allow an issuer to achieve tax-exempt advance refunding results
- However, bond counsel needs to opine on this structure and the possible need to separate the cash defeasance from the new money issue

Keeping SRF Programs Competitive

Financing Considerations – Shorter Par Call Options

Select Issuers Utilizing Short Calls in 2018

Issuer	Call (Years)	Issuer	Call (Years)
California, State of (3/12/2018)	5-8	NYC Transitional Finance Authority (7/18/2018)	3
California Statewide CDA (5/14/2018)	3	NYC Municipal Water Finance Authority (3/8/2018)	8
Eastern Michigan University (5/10/2018)	1	NYC Housing Development Corporation (4/18/2018)	5
Iowa State Board of Regents (6/1/2018)	7	Ohio, State of (5/4/2018)	6-7
Kansas Development Finance Authority (9/13/2018)	5	San Francisco, City and County of (5/8/2018)	6
Lower Colorado River Authority (6/14/2018)	7	Tallahassee, City of (6/13/2018)	6-7
Massachusetts, Commonwealth of (4/27/2018)	5	Wichita, City of (9/6/2018)	3
Massachusetts School Building Authority (1/30/2018)	5-6	Wisconsin, State of (2/28/2018)	5

- Shorter par call options are market driven
- Additionally, shorter calls provide for an earlier window for current refundings (financial flexibility)
- Relatively deep investor base, though more limited than that for a standard 10-year par call

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Source: Bloomberg as of 10/26/18; short call charts include only tax-exempt, fixed rate, par call bonds.

Keeping SRF Programs Competitive

Financing Considerations

Other Considerations

Product/Structure	Uses	Analysis
Insurance	Can be used to support "weaker" credits in a pool financing	• Can help elevate the overall credit rating of an underlying pool • May add an additional layer of cost to a borrower's loan
Guaranteed Investment Contracts	Cash Accounts and Reserve Funds	• May be utilized for future reserve fund financing structures (if needed)
Medium Term Notes	Achieves a lower cost of funds compared to long-term fixed financing by issuing 10 year bullet maturity (typically) structured with a 7 year par call	• Lower cost than long-term fixed-rate bonds • Offers predictable debt service payments for a certain period
Extended Term Financing	Allows for lower annual loan repayments	• Reduces pressure of potential rate increases • Slows the rate of loan recycling

Risk Disclosures

Variable Rate Demand Bonds[1]

Material Risk Consideration	Description of Risk	Potential Consequences
Interest Rate Risk	Possibility that the interest rate may increase on an interest reset date	• Increase in debt service costs (up to maximum rate) • Lower debt service coverage • Lower cash reserves
Liquidity Risk	Possibility that VRDOs cannot be successfully remarketed, resulting in Bank Bonds	• Increase in debt service costs due to higher bank bond rate and accelerated principal repayment • May be required to refinance or term out the VRDOs • Inability to refinance or possibly higher interest rates
Remarketing Agent Risk	Possibility that the remarketing agent does not perform its duties in a satisfactory manner or may resign or cease its remarketing efforts	• Higher interest rates • Difficulty remarketing the VRDOs • May require appointment of a successor remarketing agent
Refinancing Risk	Possibility that VRDOs cannot be refinanced	• Inability to refinance or possibly higher interest rates
Liquidity Facility Renewal Risk	Possibility that the liquidity facility will not be extended for a successive commitment period or not be replaced at a reasonable cost	• Issuer required to repay principal and accrued interest on tender date if Issuer is not able to refinance • Increase in debt service costs
Liquidity Provider Default Risk	Possibility that the bank providing the liquidity facility supporting the VRDOs defaults in its obligations under the liquidity facility	• Issuer required to repay principal and accrued interest if Issuer is not able to refinance • Increase in debt service costs
Liquidity Provider Ratings Downgrade	Possibility that a downgrade of the liquidity provider's rating(s) may result in optional tenders	• Ratings change covered impact remarketing which could cause increase in debt serve costs

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(1) You should consult with your financial and/or municipal, legal, accounting, tax and other advisors, as applicable, to the extent you deem appropriate concerning such risks.

Risk Disclosures

Variable Rate Demand Bonds – Continued(1)

Material Risk Consideration	Description of Risk	Potential Consequences
Issuer Default Risk	Possibility that the Issuer defaults under the authorizing documents or the liquidity agreement with the bank supporting the VRDOs	• Range of available remedies may be brought against Issuer (e.g., forcing Issuer to raise taxes or revenues) • Credit ratings negatively impacted • Default could impact remarketing which could cause increase in debt service costs • Access to capital markets impaired • Possibility of receivership or bankruptcy for certain issuers
Issuer Ratings Downgrade Risk	Possibility that a downgrade of the Issuer's rating(s) may result in optional tenders or an increase in fees payable to the bank providing the liquidity facility	• Ratings change could impact remarketing which could cause increase in debt service costs • Higher liquidity facility fees resulting in higher cost of funds
Regulatory Risk	Possibility that prospective regulatory requirements increase cost of obtaining and maintaining liquidity facility	• Increase in debt service costs • Higher liquidity facility fees resulting in higher cost of funds
Reinvestment Risk	Possibility that the Issuer may be unable to invest unspent proceeds at or near the interest rate on the bonds	• Negative arbitrage resulting in higher cost of funds
Tax Compliance Risk	For tax-exempt bonds, possibility that failure to comply with tax-related covenants result in the bonds becoming taxable obligations	• Increase in debt service costs retroactively to date of issuance • Possible mandatory redemption of bonds affected • Risk of IRS audit • Difficulty in refinancing the bonds • Access to tax-exempt market impacted • Difficulty in issuing future tax-exempt debt

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Risk Disclosures

Fixed Rate Bonds[1]

Material Risk Consideration	Description of Risk	Potential Consequences
Issuer Default Risk	Possibility that the Issuer defaults under the authorizing documents	• Range of available remedies may be brought against Issuer (e.g., forcing Issuer to raise taxes or revenues) • Credit ratings negatively impacted • Access to capital markets impaired • Possibility of receivership or bankruptcy for certain issuers
Redemption Risk	The ability to redeem the bonds prior to maturity may be limited	• Inability to refinance at lower interest rates
Refinancing Risk	Possibility that the bonds cannot be refinanced	• Inability to refinance at lower interest rates
Reinvestment Risk	Possibility that the Issuer may be unable to invest unspent proceeds at or near the interest rate on the bonds	• Negative arbitrage resulting in a higher cost of funds
Tax Compliance Risk	For tax-exempt bonds, possibility that failure to comply with tax-related covenants results in the bonds becoming taxable obligations	• Increase in debt service costs retroactively to date of issuance • Possible mandatory redemption of bonds affected • Risk of IRS audit • Difficulty in refinancing the bonds • Access to tax-exempt market impacted • Difficulty in issuing future tax-exempt debt

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Risk Disclosures

Commercial Paper[1]

Material Risk Consideration	Description of Risk	Potential Consequences
Interest Rate Risk	Possibility that the interest rate may increase for new CP	• Increase in debt service costs (up to maximum rate) • Lower debt service coverage • Lower cash reserves
Liquidity Risk	Possibility that maturing CP cannot be refinanced with new CP	• If no liquidity facilities, Issuer will be required to repay principal and accrued interest Increase in debt service costs due to higher bank rates and accelerated principal repayment • May be required to refinance or “term out” the CP
Commercial Paper Dealer Risk	Possibility that CP Dealer does not perform its duties in a satisfactory manner or may resign or close its remarketing efforts	• Higher interest rate • Difficultly remarketing CP • May require appointment of successor CP Dealer
Refinancing Risk	Possibility that CP cannot be successfully refinanced	• Inability to refinance or possibly higher interest rates
Liquidity Facility Renewal Risk	Possibility that the liquidity facility will not be extended for a successive commitment period or not be replaced at a reasonable cost	• Issuer required to repay principal and accrued interest on CP maturity date if Issuer is not able to refinance • Increase in debt service costs
Liquidity Provider Default Risk	Possibility that the bank providing the liquidity facility supporting the CP defaults in its obligations under the liquidity facility	• Issuer required to repay principal and accrued interest on CP maturity date or to refinance • Increase in debt service costs
Issuer Default Risk	Possibility that the funds pledged to secure the CP are not sufficient to pay debt service or the inability, to comply with covenants of the liquidity agreement.	• Range of available remedies may be brought against Issuer (e.g., forcing Issuer to raise taxes or revenues) • Credit ratings negatively impacted • Default could impact remarketing which could cause increase in debt service costs • Access to capital markets impaired • Possibility of receivership or bankruptcy for certain issuers

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Risk Disclosures

Commercial Paper - Continued(1)

Material Risk Consideration	Description of Risk	Potential Consequences
Issuer Ratings Downgrade Risk	Possibility of a downgrade of the Issuer's ratings	• Ratings change could impact ability to sell new CP upon maturity which could cause increase in debt service costs due to likely higher interest rate • Higher liquidity facility fees resulting in higher cost of funds
Regulatory Risk	Possibility that prospective regulatory requirements increase cost of obtaining and maintaining liquidity facility	• Increase in debt service costs • Higher liquidity facility fees resulting in higher cost of funds
Reinvestment Risk	Possibility that the Issuer may be unable to invest unspent proceeds at or near the interest rate on the CP	• Negative arbitrage resulting in a higher cost of funds
Tax Compliance Risk	For tax-exempt CP, possibility that failure to comply with tax-related covenants results in the CP becoming taxable obligations	• Increase in debt service costs retroactively to date of issuance • Risk of IRS audit • Difficulty in selling new CP • Higher interest rate • Access to tax-exempt market impacted • Difficulty in issuing future tax-exempt debt • Possibility of mandatory retirement of the CP

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Risk Disclosures

Floating Rate Notes(1)

Material Risk Consideration	Description of Risk	Potential Consequences
Interest Rate Risk	Possibility that the interest rate may increase on an interest reset date	• Increase in debt service costs (up to maximum rate) • Lower debt service coverage • Lower cash reserves
Index Risk	Possibility that the method of determining the index could change or that the calculation of the index will be discontinued Indices may be affected by factors unrelated to FRNs or to the tax-exempt market	• Increase in debt service costs • Lower debt service coverage • Lower cash reserves • Provision should be made for alternate mechanism to determine rate
Refinancing Risk	Possibility that the FRNs cannot be remarketed or refinanced	• Hard Put: must repay principal and accrued interest or Event of Default • Soft Put: higher interest rate on FRNs and higher debt service costs up to maximum rate • Increase in debt service costs upon any refinancing
Issuer Default Risk	Possibility that the Issuer defaults under the authorizing documents	• Range of available remedies may be brought against Issuer (e.g., forcing Issuer to raise taxes or revenues) • Credit ratings negatively impacted • Default could impact remarketing which could cause increase in debt service costs • Access to capital markets impaired • Possibility of receivership or bankruptcy for certain issuers
Reinvestment Risk	Possibility that the Issuer may be unable to invest unspent proceeds at or near the interest rate on the FRNs	• Negative arbitrage resulting in a higher cost of funds
Tax Compliance Risk	For tax-exempt FRNs, possibility that failure to comply with tax-related covenants results in the FRNs becoming taxable obligations	• Increase in debt service costs retroactively to date of issuance • Possible mandatory redemption of FRNs affected • Risk of IRS audit • Difficulty in remarketing FRNs • Higher interest rate • Access to tax-exempt market impacted • Difficulty in issuing future tax-exempt debt

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Presentation agenda

- Explain linkages between S&P criteria for local water/sewer utilities and SRFs
- How borrower credit factors affect our analysis of SRF ratings
- S&P views on SRF sector credit strengths and challenges

Control of Operations: Utility Manager

Probably

- Operations
  - System Condition
  - Asset Management
- Risk Management
  - Environmental Stewardship
  - Resiliency
  - Cyber and Other Emerging Risks
- Financial Management
  - Cash Flow
  - Cash Reserves
  - Forward-Looking Plans
    - O&M
    - Cap-Ex
    - Future Rate Adjustments

Maybe

- Attracting and Retaining Staff
- Mentoring and Succession Planning
- Public Outreach and Support

Probably Not

- Weather/Climate/Hydrology
- Regulations
- Macroeconomic Conditions and Economic Development
- Demographics
- Trends in the Number of Metered Accounts

Control of Operations: SRF Manager

Probably

- Operations
  - IRS Compliance
  - IUP Coordination with Related Department
- Risk Management
  - Public Health and Environmental needs
  - Cyber and Other Emerging Risks
- Financial Management
  - Cash Flow Modeling
  - Cash Reserves
  - Investment Return
  - ULO Mitigation

Maybe

- Attracting and Retaining Staff
- Mentoring and Succession Planning
- Public Outreach and Support

Probably Not

- Weather/Climate/Hydrology
- Regulations/Political Climate
- Macroeconomic Conditions and Economic Development
- Demographics
- Trends in the capital markets

Cross-Criteria Management Policy Assessments

S&P's SRF/Pool Financial Policies and Practices Assessments

- Project review procedures
- Application process and standardization
- Degree of discretion to approve projects
- Review of borrowers' financial metrics
- Rate covenant verification for both borrowers and SRF
- Proactive management of potential delinquent payments
- Coordinating IUP and availability of funding
- Program marketing and streamlining initiatives
- Investment of cash and spend-down requirements

S&P's Operational and Financial Management Assessments

- Asset Adequacy/Identifying Operating Risks
- Organizational Effectiveness, Mgmt. Expertise
- Rate Setting Practices
- Revenue & Expense Assumptions
- Budget Monitoring & Interim Reporting
- Long-Term Financial Planning
- Long-Term Capital Planning & Asset Mgmt.
- Investments & Liquidity Policies
- Debt Mgmt. Policies
- Transparency & Accountability

Financial Performance: Balancing of Historical Performance and Future Expectations

Local Utilities:

- Will future debt plans significantly alter financial trends?
- Are cash draws necessary to fund capex? Will they be replenished?
- Rate affordability always an issue to consider.
- Point-in-time compared to near- and –mid term expectations.

SRF Programs:

- Will future loan demand significantly alter financial trends?
- Are cash draws necessary to fund direct loans to prevent over-leveraging?
- Rate affordability is always an issue to consider.
- Point-in-time compared to near- and mid-term expectations.

Overlaps in SRF Competitiveness and Financial Considerations in Ratings

- Continuation of capitalization grants and at what amount
- Fulfilling loan demand – but at what cost? (interest rates? principal forgiveness? loan amortization?)
- Ease and flexibility of application process – does that introduce additional risks? (mismatch of loan commitments and long-term debt issuance? lower average credit quality of borrowers? additional SRF cash or reserves required to mitigate financial risks?)

Links Between Bond Covenants and Ratings

Local Utilities:

- Managing to bond covenant minimums is typical
- Lien status matters unless certain liens are closed and de-minimus utilization.
- WIFIA, bank loans, liquidity facilities, CP, USDA, SRF loan provisions considered as part of the rating process.
- Credit risk with other governmental units considered.

SRF Programs:

- Bond covenant minimums are typically only utilized to meet indenture/resolution tests
- Lien status does not matter as long as stress tests are passed at all SRF debt lien levels, including any state match bonds.
- WIFIA, bank loans, liquidity facilities, CP provisions considered as part of the rating process.
- Credit risk with other unrelated programs general not considered

Authority/Bond Bank/State Pooled Financing Innovations

All of the aforementioned analytical concepts apply if new programs are rated, although they will not receive the rating criteria benefit of achieving support from multiple levels of government (i.e., federal and state statutory support)

Rating factors:

- Closed/open flow of funds
- Cross-collateralization
- Policies for pledged and upledged loans
- Sources of equity
- Borrower profile/ nature of the loan pledges

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