

*Charting a Path to the Utility of the Future
Web Seminar Series*

Innovative Financing & Rates — Finding New Revenue & Stretching Each Dollar



Today's Speakers



Andrew Sawyers
Office of Wastewater Management
U.S. Environmental Protection Agency, DC



Peter Lucchetti
Table Rock Capital LLC, CA



Tom Kunetz
Metropolitan Water Reclamation District of Greater Chicago, IL



Mark Kim
DC Water, DC



Water Infrastructure Finance and Innovation Act (WIFIA)

Andrew Sawyers
Director, Office of Wastewater Management
Environmental Protection Agency



Background

- Water Resources Reform and Development Act (WRRDA) of 2014 was signed by the President on June 10, 2014
- Title V of WRRDA contained the Water Infrastructure Finance and Innovation Act (WIFIA)
- WIFIA is modeled on the Transportation Infrastructure Finance and Innovation Act (TIFIA) of 1998
- TIFIA provides federal credit assistance in the form of loans, guarantees, or lines of credit for eligible transportation projects
- TIFIA has provided over \$16 billion in assistance since 1999 to projects costing nearly \$60 billion



WIFIA Funding

- No funding has yet been appropriated for WIFIA
- Authorization for Appropriations:
 - Amounts:
 - FY2015 \$20,000,000
 - FY2016 \$25,000,000
 - FY2017 \$35,000,000
 - FY2018 \$45,000,000
 - FY2019 \$50,000,000
 - EPA may use up to \$2,200,000 of the annual appropriation to cover administrative costs
- EPA is also authorized to collect fees to cover services of expert firms and servicing of Federal credit instruments.



Development of WIFIA

- Innovative financing mechanism for water-related infrastructure
- National or Regional significance
- Attempts to fill in a perceived gap left open by the SRF programs by providing subsidized financing for large projects
- Funds are appropriated to provide a reserve subsidy for credit assistance, not for direct outlays to projects (TIFIA averages 10:1)
- Credit assistance can be in the form of loans or guarantees



Development of WIFIA

- Challenges ahead:
 - Defining eligible projects
 - Determining criteria
 - Develop project ranking system
 - Create subsidy model
 - Develop method for determining creditworthiness
 - Answering questions about tax-exempt status of certain types of complimentary funding sources
 - Contracting for expert services
 - Rollout of guidance



Potential for P3

- Eligible recipients of WIFIA financing:
 - **Corporations**
 - **Partnerships**
 - **Joint ventures**
 - **Trusts**
 - Federal, State, or local government entities, agencies, or instrumentalities
 - Tribal governments or consortiums of tribal governments
 - State infrastructure financing authorities.

Potential for P3



- Tax-Exempt Financing:
 - Not allowed as part of the finance package
 - Does taxable debt or private equity fill the gap?
- Typically 49% of costs will be the maximum WIFIA involvement



The Role of SRFs

- How will WIFIA interact with the SRFs
- Right of first refusal
 - EPA must notify SRF programs about applications for project funding through WIFIA
 - SRF programs have 60 days to respond showing intent to fund the project at or over the amount requested from WIFIA
 - SRF programs have 180 days to close the deal
 - Rates and terms must be at least as favorable as WIFIA
- Credit review of proposed WIFIA projects
 - EPA responsible for credit review of applicants
 - Will want to take advantage of lessons learned by state SRF programs



The Role of SRFs

- WIFIA **and** SRF may be able to jointly fund a project
- Possible opportunities include:
 - Co-fund WIFIA projects with EPA
 - Maximum WIFIA participation generally 49% (limited opportunity to go to 80%)
 - WIFIA funded projects cannot use tax-exempt debt
 - Can repayments or funds from SRF corpus be used in conjunction with WIFIA?
Hopefully
 - Does the 80% cap on federal involvement prevent use of SRF funds to reach 100% of project costs? **Probably not**
 - SRFs are eligible to borrow from WIFIA to finance a combination of projects under a single application
- These approaches could allow SRFs to reach borrowers and/or help finance projects they might not otherwise be able to



Appropriations Process

- House and Senate committee markups do not mention WIFIA
- House committee report includes the following request:
 - Recognizing that these new authorities will require resources prior to implementation, EPA is directed to submit to the Committee a detailed plan for how full funding of the WIFIA provisions would be implemented
 - The plan shall discuss all aspects of implementation, including:
 - Agency personnel and expertise needs
 - Types of eligible projects
 - Criteria for selecting specific projects for financing
 - The steps and general schedule of a potential application process
 - Expected administrative costs



Next Steps

- Listening Sessions:
 - EPA is hosting listening sessions across the country through December
 - Hear stakeholders' views on numerous topics
 - Present EPA ideas as they develop
 - Market the program
 - Dates:
 - Chicago: 7/22
 - New York: 9/22
 - Los Angeles: 10/17
 - Atlanta: 10/29
 - Dallas: 10/30
 - San Francisco: 11/17
 - Washington: December
- Develop guidance including critical documents
- Barriers:
 - Limited resources
 - No appropriations/funding uncertain

“Subsidy Level” Reflects Default Rates

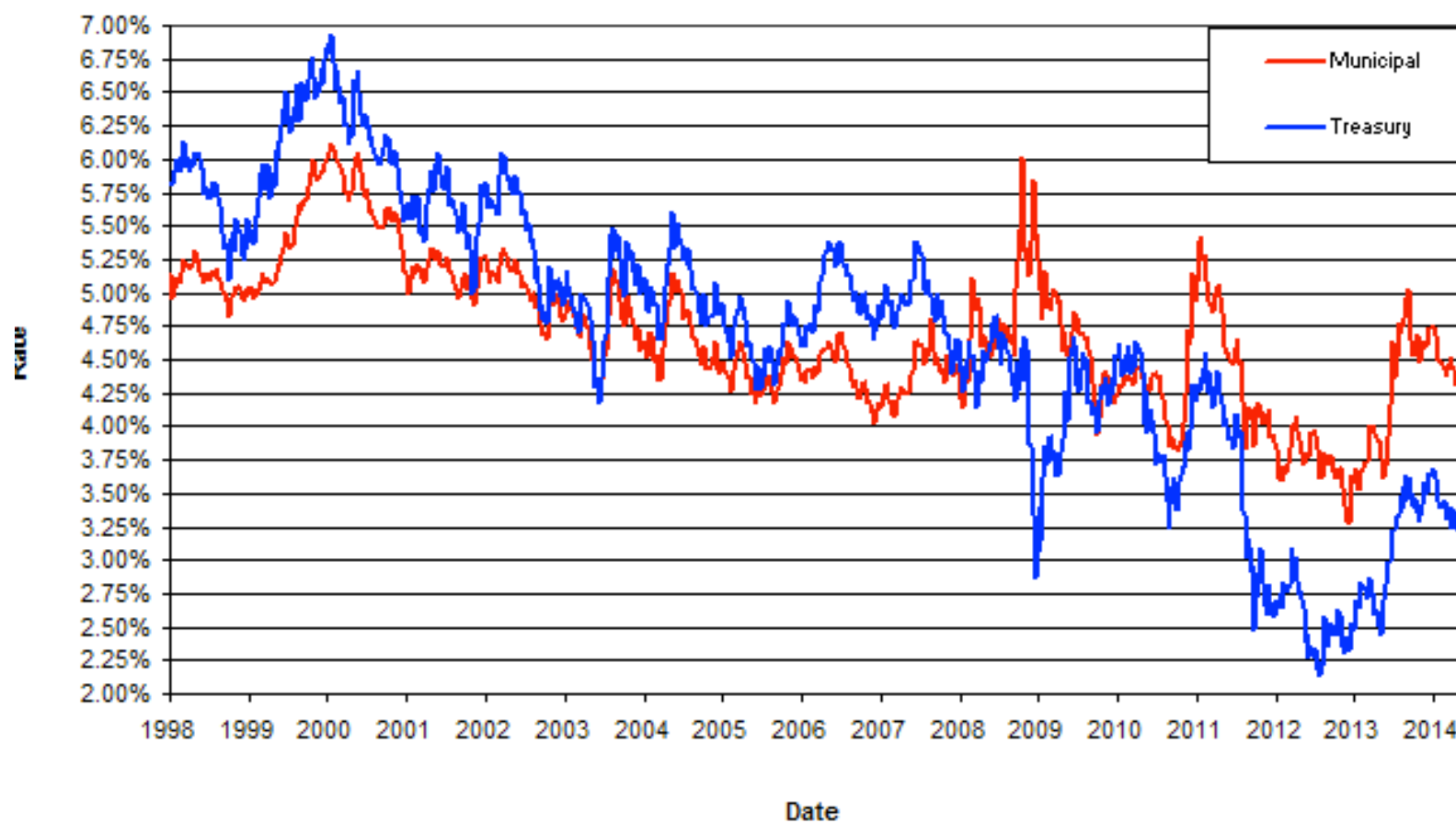


Average Cumulative Default Rate of Moody's-rated Municipal Bonds – 1970-2009:

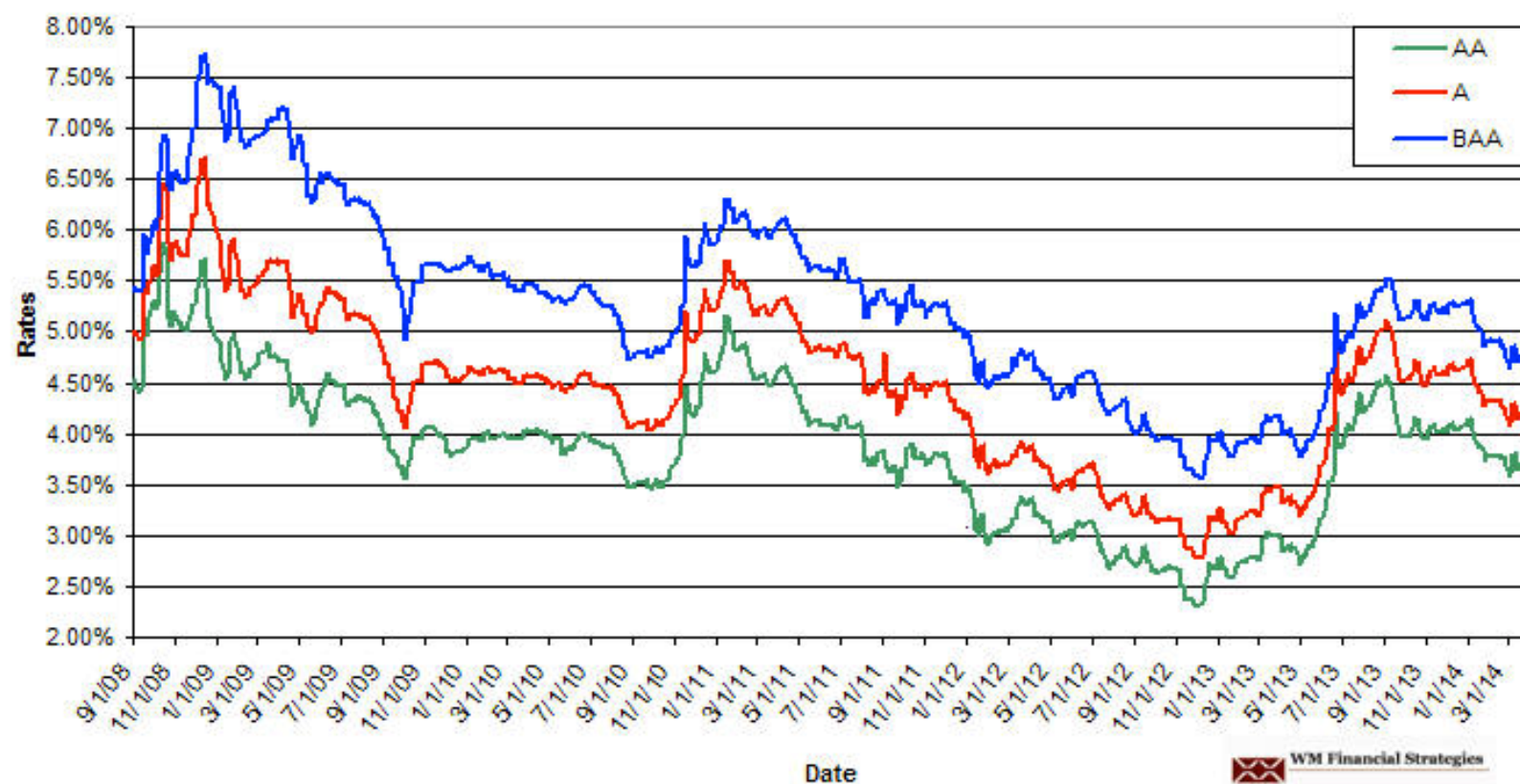
ALL MUNICIPALS

RATING	1	2	3	4	5	6	7	8	9	10
Aaa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aa	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%	0.03%
A	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%
Baa	0.01%	0.02%	0.04%	0.06%	0.08%	0.10%	0.11%	0.13%	0.14%	0.16%
Ba	0.22%	0.71%	1.06%	1.33%	1.57%	1.91%	2.27%	2.52%	2.71%	2.80%
B	3.65%	6.00%	7.88%	9.91%	11.73%	12.40%	12.40%	12.40%	12.40%	12.40%
CaaC	7.07%	8.97%	11.03%	11.60%	11.60%	11.60%	11.60%	11.60%	11.60%	11.60%
Inv. Grade	0.00%	0.01%	0.01%	0.02%	0.03%	0.03%	0.04%	0.05%	0.05%	0.06%
Spec. Grade	1.05%	1.86%	2.49%	3.00%	3.43%	3.79%	4.10%	4.32%	4.47%	4.55%
Allrated	0.01%	0.02%	0.03%	0.04%	0.05%	0.06%	0.07%	0.07%	0.08%	0.09%

20-BOND BUYER INDEX COMPARED TO 20 YEAR TREASURY BONDS



MUNICIPAL MARKET DATA INDEX 20th YEAR MATURITY BY RATING GRADE



For More Information



Contact:

Andrew Sawyers

sawyers.andrew@epa.gov

wifia@epa.gov



Public-Private Financing of Water/Wastewater Infrastructure

SEPTEMBER 2014

What motivated Rialto?

Inland Empire town of 110,000

- Like many cities, the '08-'09 recession hit Rialto hard
- California's dissolution of Redevelopment stranded Rialto projects & funds

Water & Wastewater systems run down, understaffed

- Rialto hadn't upgraded its systems in years, had moved wastewater to a private operator, cut staffing dramatically, faced compliance issues
- Rialto had no credit rating nor record of self-financing CIP

Privatization, Public, or P3 Concession compared

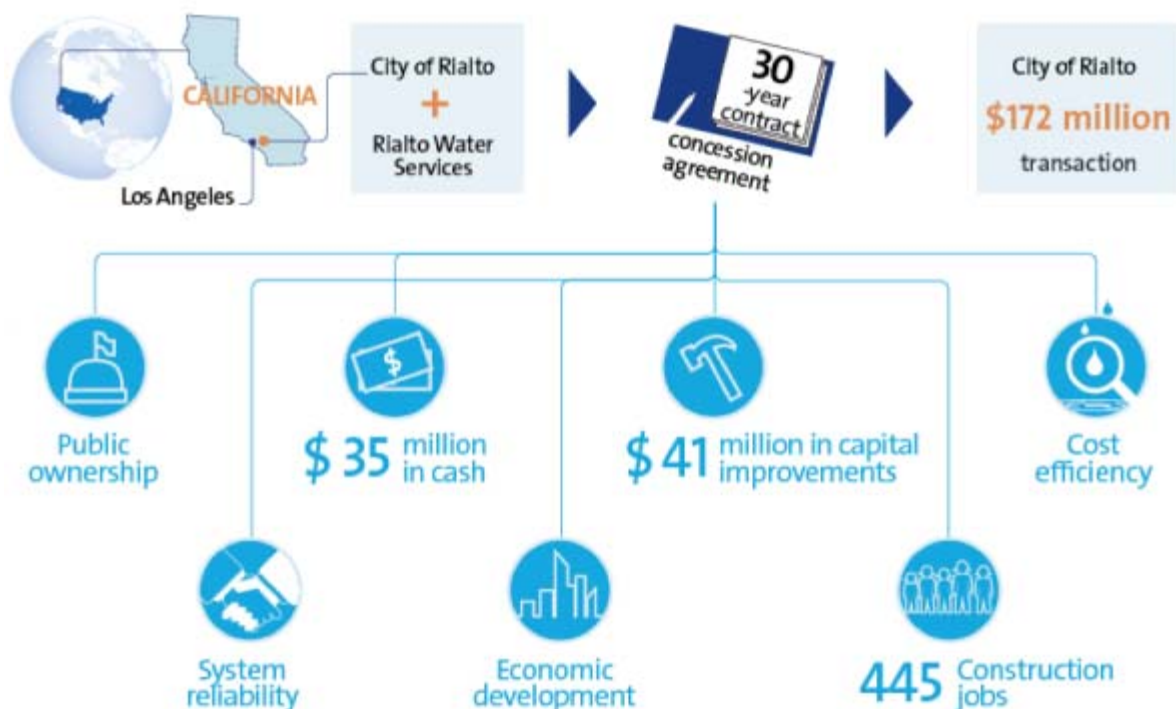
- City committed to getting off the bankruptcy path early, took many measures
- Compared privatization to traditional public route to concession, chose concession

Labor Considerations

- Jobs growth in CIP and upfront redevelopment payment gained Trade support
- Public employees written into Concession Agreement for guaranteed transition

Case Study: The Facts from Rialto

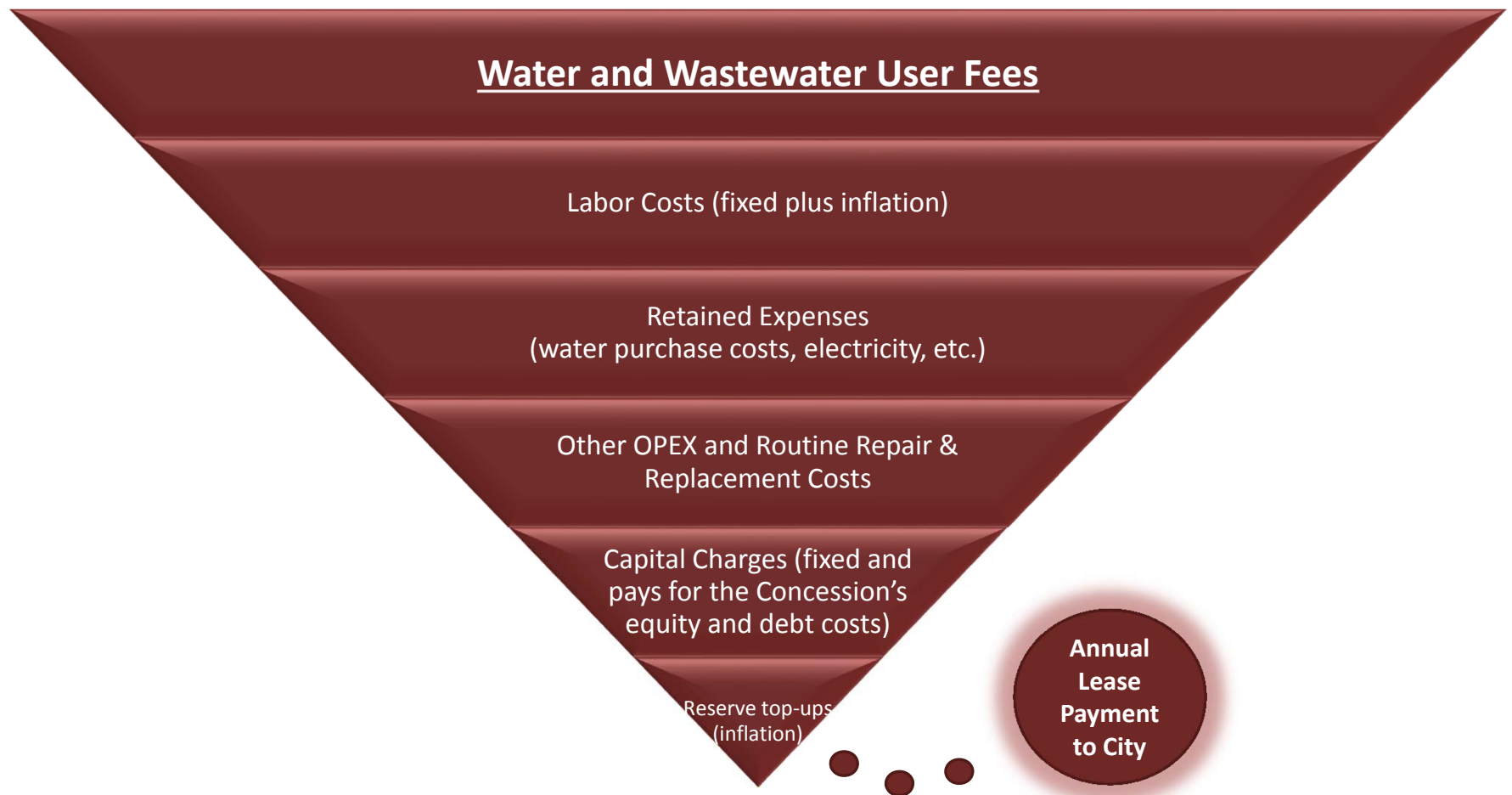
The City of Rialto had deep needs on both the Enterprise and City side. Rialto's public-private solution generates 445 jobs and **\$2 million** in annual payments:



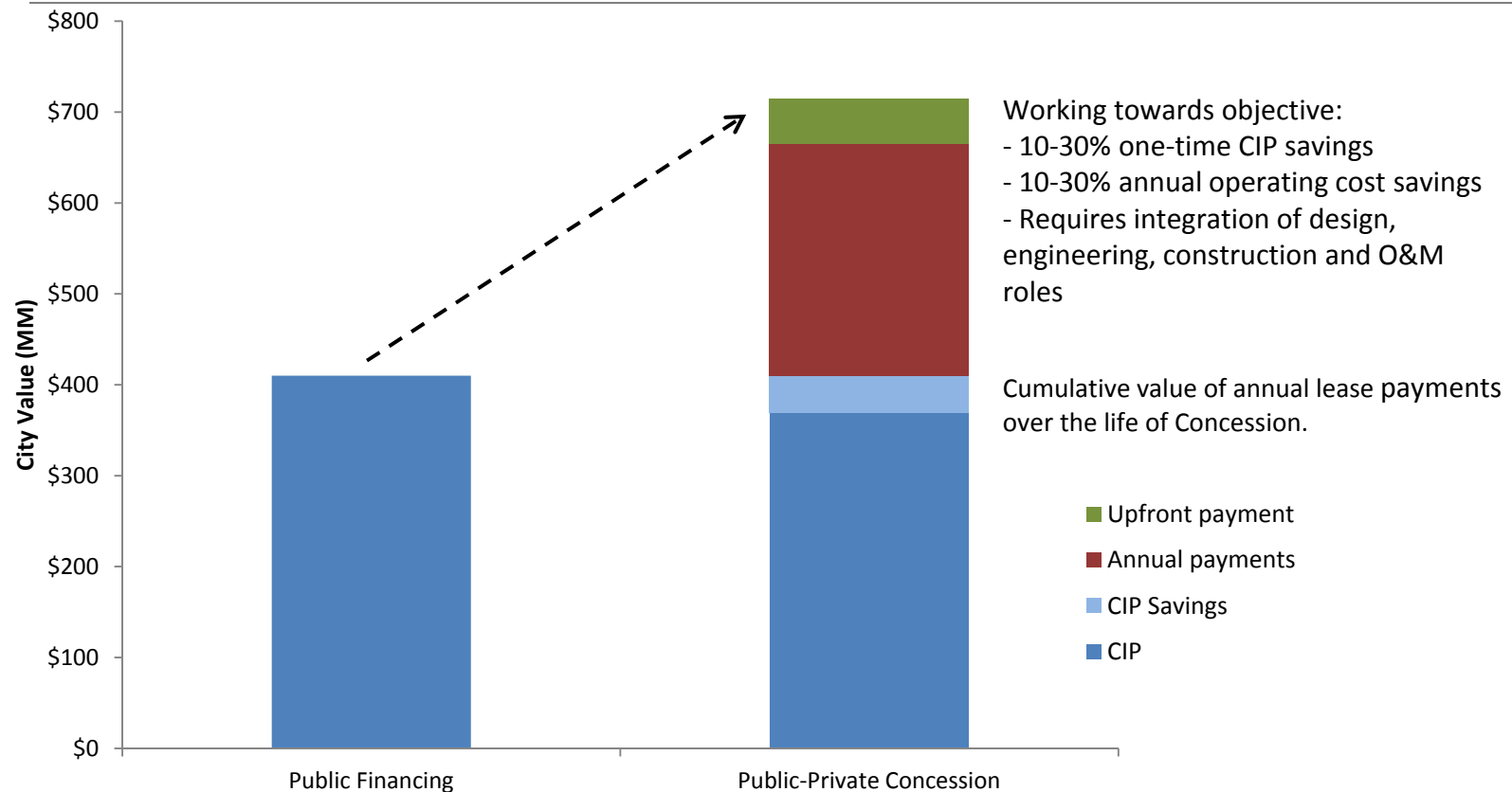
"The partnership ensures that the city's water and wastewater infrastructure is upgraded and run in the most cost-efficient manner, while also laying the groundwork for new economic development."

Mike Story , Rialto City
Administrator

The Concession's Cash Flow



Comparison of Infrastructure Financing – Public vs. P3 in a CA City

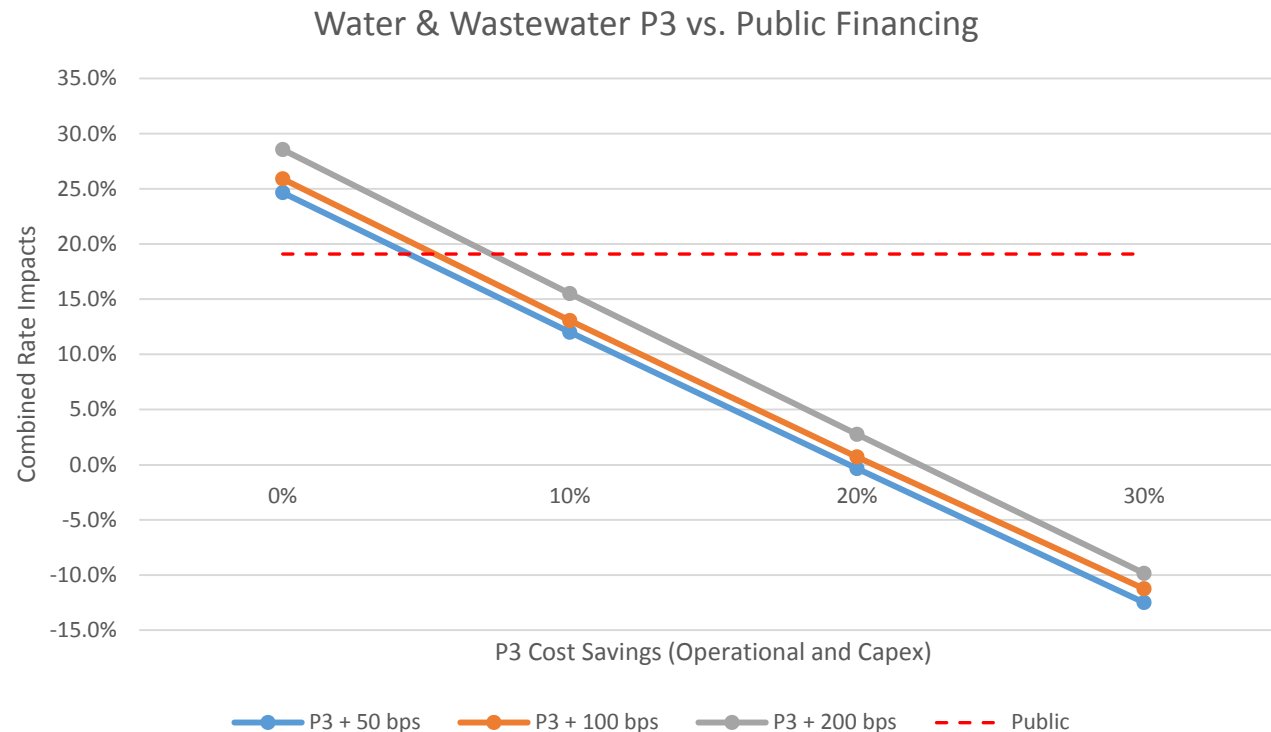


Tax Exempt vs. Taxable Financing Differentials

There is an obsession in the U.S. around the argument that tax exempt financing unilaterally shuts off alternative procurement methods that rely on taxable financing.

- Take a project and breakdown lifecycle costs on and NPV basis;
- You will find that financing costs make up approximately 20% to 25% of total project lifecycle costs;
- Now consider the typical spread between tax exempt and taxable financing is .50% to 2.0% depending on credit quality;
- A .50% to 2.0% difference in financing cost by rough approximation translates into a 1% to 5% difference in total project cost on a lifecycle basis;
- If a lease, concession or P3 can produce savings that exceed the difference in financing cost there may be an advantage to adopting one of these methods;
- The best way to make clear and transparent decisions in this context is to use a public-private sector comparator;
- And in the majority of comparators we find objectively evaluated alternative procurement methods win.

Comparison of Rate Impacts – Public vs. P3 Over 60 US Cities



- Based on a hypothetical water and wastewater utility with \$60 MM in revenues and a \$100 MM capital improvement program.
- P3 provides superior value where it achieves a conservative 5%-10% or greater savings even with higher financing costs.

What is a Public Sector Comparator (PSC)

Assessment of whether a PPP offers value of money entails comparing the proposed PPP with the cost of the public sector procuring the project on a like-for-like basis. The PSC is an estimate of the net present cost to government if it was to deliver the project under a more traditional procurement method.

Key attributes of a PSC include:

- It is forecast based on the cost to government of delivering the infrastructure and services to the same standards as being procured from the private sector under the most likely traditional procurement model if not a PPP;
- It is expressed in net present cost (NPC) terms;
- It is based on life-cycle costing – i.e. the whole of life cost of providing the services and maintaining the infrastructure to standard prescribed for the PPP; and
- It is risk-adjusted.

Public Private Partnerships, Public Sector Comparator Policy, Additional Policy Guidance, Government of Australia Department of Treasury, January 2013.

From Rags to Resources

*NACWA's Utility of the Future:
"Innovative Financing and Rates"*

September 23, 2014

The Metropolitan Water Reclamation District of Greater Chicago

--Improving Our Environment

Resource Recovery Legislation

- Resource Recovery Bill signed into law in July 2014
- Grants the Metropolitan Water Reclamation District of Greater Chicago the authority to capture recovered resources and produce renewable energy resources.
- “The District has the opportunity and the ability to change the approach to wastewater treatment from that of a waste material to be disposed of to one of a collection of resources to be recovered, reused, and sold, with the opportunity to provide the District with additional sources of revenue and reduce operating costs.”

Nutrients—Phosphorus Recovery

- World's largest phosphorus recovery system at a wastewater treatment plant
- Produce up to 7,700 tons/year of slow-release fertilizer for agriculture use
- Ultimately remove over 5,000 lb/day of soluble phosphorus from the liquid stream



- Begin operation late 2015
- Ostara will market product under 20-year agreement
- District revenue: ~ \$400/ton of product

Photos: Ostara



Nutrients— Sidestream Ammonia Removal

- Dewatering centrifuge centrate stream high in ammonia
- Constructing sidestream treatment system to reduce ammonia using Anita Mox™ process.
- \$120,000/yr savings in power costs over using conventional activated sludge to nitrify ammonia
- Generates less solids than conventional activated sludge

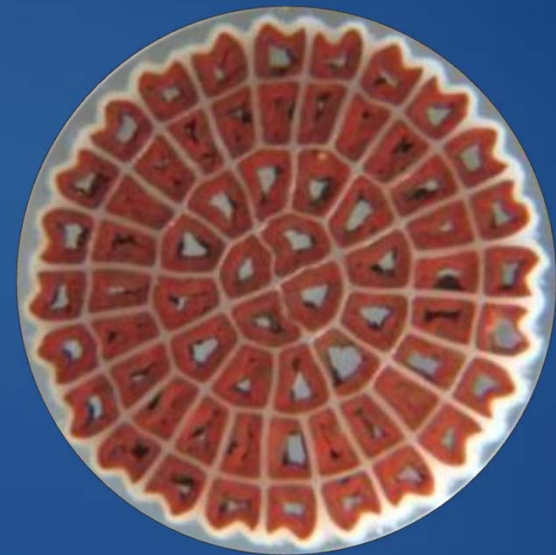


Photo: Kruger

Nutrients—Enhanced Biological Phosphorus Removal

- Accomplished by encouraging the growth of heterotrophic phosphate accumulating organisms (PAOs)
- Anaerobic zones installed in Battery D by turning down air
- Achieved below 0.5 mg/l total phosphorus
- In-house research project team
- Goal is to optimize the process using only existing infrastructure to avoid expenditure of capital outlay for new infrastructure
- Reduction in aeration costs due to anaerobic zone; however, increase in polymer costs due to reduced dewaterability of sludge



Nutrient Recovery with Algae

Building on-site research facility to develop algal-culture as a sustainable approach to nutrient removal from plant effluent and sidestreams

- Eliminate traditional use of chemical precipitants (TP) and carbon addition (TN)
- Uses solar energy
- Carbon dioxide capture
- Multiple uses of harvested algae as biomass, fertilizer, or bioplastic feedstock
- Eliminate cost for purchase of chemicals while generating revenue source



Renewable Energy— Biomethane Production

- Pressure Swing Absorption (PSA) process cleans digester gas. Expected operation: 2016
- Produce 1,500 mmBTU/day pipeline quality gas (“biomethane”)
- Biomethane sold to natural gas pipeline
- Sale price of biomethane connected to market RIN value of biofuel under EPA’s Renewable Fuel Standards program
- Potential revenue of \$7 million/yr, assuming recent RIN market prices and natural gas prices



Photo courtesy of Ameresco Inc.

Renewable Energy— Anaerobic Digestion of Organic Wastes



Organics extrusion press

Photo: Anaergia Services

- Processes wet commercial waste at a trash transfer station
- Recover 95% of organics
- Dry fraction to recycling
- Wet fraction trucked to wastewater treatment plant for digestion
- Also addition of FOG and liquid organic waste to digesters
- Increase biogas production by 160%
- Greater than \$1 million/yr revenue from tipping fees

Water Reuse

- Issued Request for Expression of Interest to identify interested parties in developing plant effluent water reuse system for commercial and industrial needs
- Up to 10 MGD to start, will expand if there is a market
- Potential for revenue
- Environmental benefit to the greater community through reduction of demand for potable water



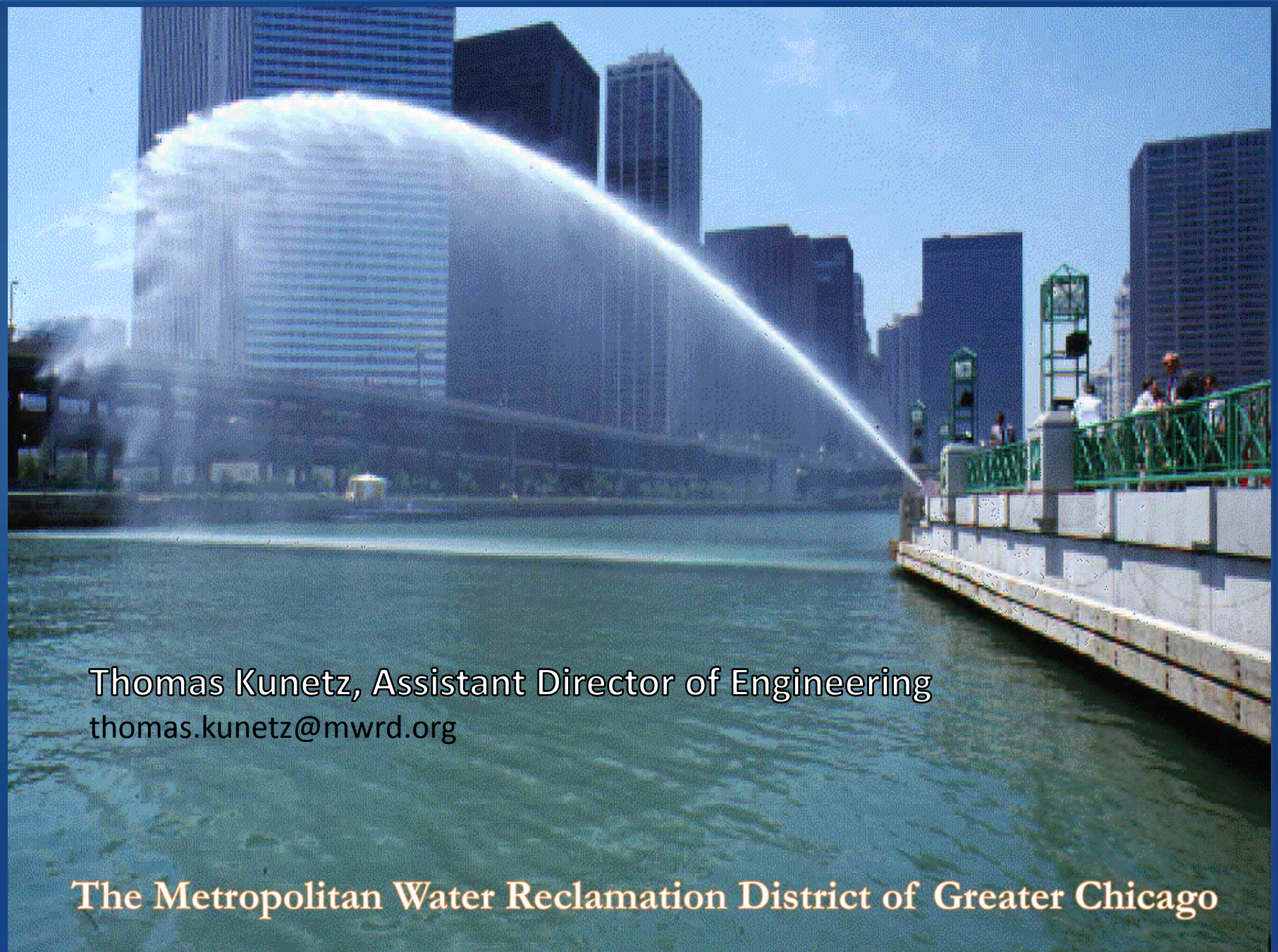
Biosolids Composting



- Co-Composting of Biosolids with wood chips from city of Chicago tree trimming operations
- Co-composted product makes excellent topsoil
- Can be used for brownfield remediation, parks, sod farms, etc.
- Reduction in costs vs. biosolids hauling and land application
- More product used locally—environmental benefit

The Future: Water Technology Hub?

- Chicago's beginnings and its identity is defined by its location on the Great Lakes.
- Chicago's future, its businesses, industries, and the quality of life for its residents will be defined by how we continue to treat the Great Lakes.
- Chicago has the opportunity and ability to become a world leader and hub for:
 - Water conservation
 - Water technology
 - Water research
 - Water infrastructure
 - Investment and financing



Thomas Kunetz, Assistant Director of Engineering
thomas.kunetz@mwr.org

The Metropolitan Water Reclamation District of Greater Chicago



100-Year Green Bonds

*NACWA's Utility of the Future –
“Innovative Financing & Rates”*

September 23, 2014





Discussion Topics

- **2014 Plan of Finance**
 - **Rationale for the Plan**
 - **Financing Highlights**
-

DC Water's Plan of Finance



\$450,000,000

District of Columbia Water and Sewer Authority

\$350,000,000

**Public Utility Senior Lien Revenue Bonds,
Series 2014A
(Federally Taxable)
(Green Bonds)**

\$100,000,000

**Public Utility Subordinate Lien Revenue Bonds,
Series 2014B
(Tax-Exempt)
(Variable Rate Bonds)**

■ **“Century Bond”**

- First U.S. municipal water/wastewater utility to issue a bond with a 100-year final maturity

■ **“Green Bond”**

- First U.S. municipal water/wastewater utility to issue Green Bonds
- First “certified” Green Bond in the U.S. with an independent sustainability opinion provided by Vigeo

Clean Rivers Project Overview

■ **Clean Rivers Project is DC Water's long term control plan for combined sewer overflows (CSO's)**

- Federally mandated consent decree; \$2.6 billion; 20-year project (2025)
- Comprises a series of three tunnel systems designed to transport CSOs to Blue Plains for treatment
- When fully implemented, CSOs will be reduced by a projected 96%

■ **Investment in extraordinarily long-lived infrastructure assets**

- All three tunnel systems are designed to achieve a minimum 100-year service life
- Minimal mechanical equipment – tunnel systems are designed to operate by gravity
- Minimal maintenance required – inspection once every 10 years
- Useful life certified by Registered Professional Engineers and an Independent Engineering Opinion is 100 years

First Water/Sewer Utility to Issue a Century Bond

■ **Asset-liability matching**

- Financing targeted to a one-time expansion of system capacity
- Not routine repair and replacement of traditional infrastructure assets (e.g., pipes)

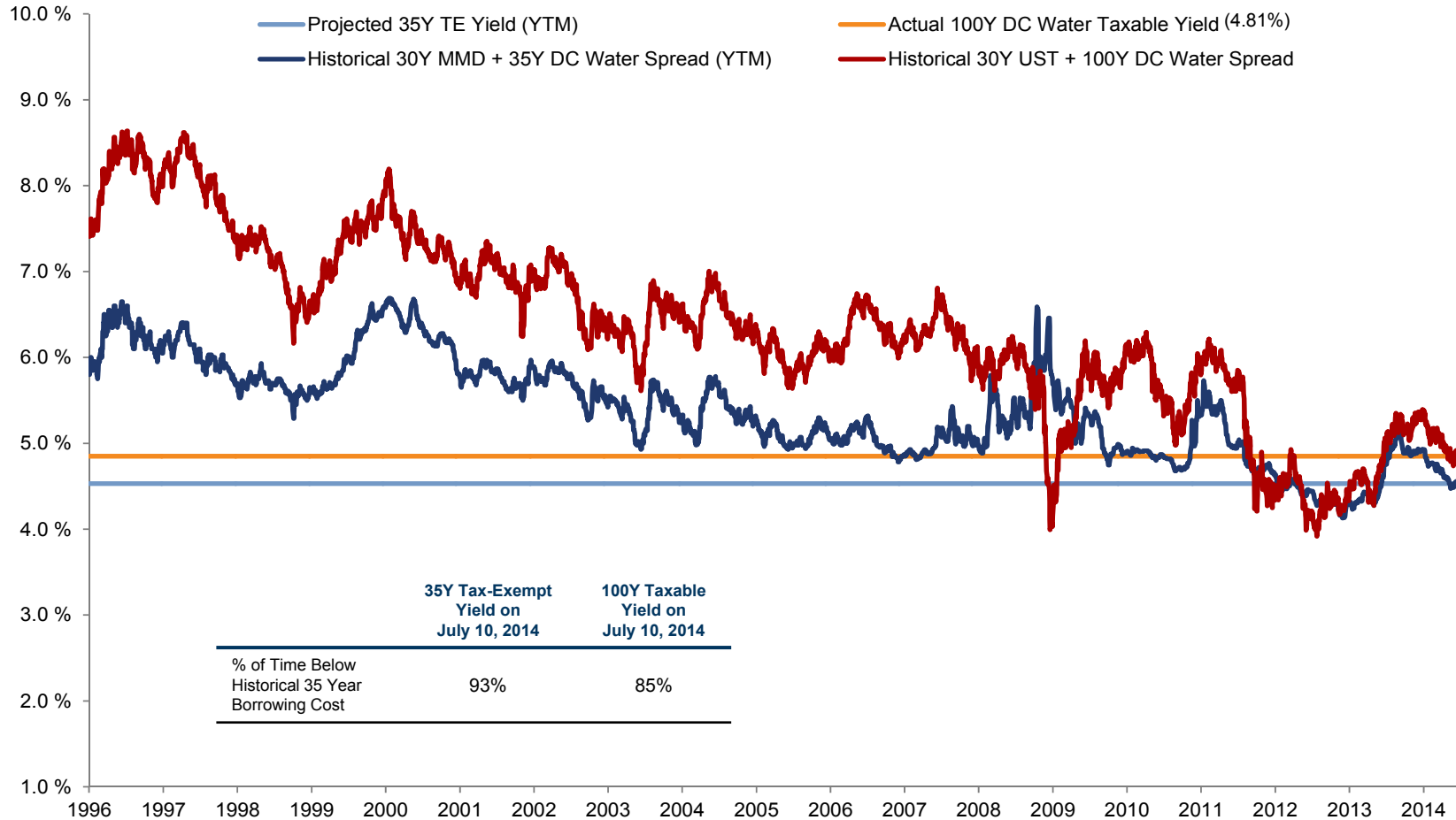
■ **Intergenerational equity and fairness**

- Financing plan amortizes the costs more affordably and fairly over the generations of customers and ratepayers who will benefit
- Potential for near-term cashflow savings versus more traditional financing structures

■ **Committed, long-term, low-cost capital**

- Absolute and relative interest rates remain at historic lows
- Eliminates interest rate and market access risk versus alternative options

Relative and Historic Cost of Capital for DC Water



Note: Rates as of July 10, 2014

Note: Century Bonds only have make-whole call

First “Certified” Green Bond in U.S.



■ DC Water’s Inaugural Green Bond Issue

- Dedicated use of proceeds exclusively financing Clean Rivers Project
- Expand and diversify the Authority’s investor base by targeting SRI (socially responsible investment) funds
- Alignment with DC Water’s mission and purpose as a steward of the environment

■ Independent 3rd Party Opinion

- **Vigeo** is one of the leading sustainability consultants and Green Bond opinion providers
- Evaluated Clean Rivers Project eligibility against core outcomes:
 - **Water Quality** – projected 96% reduction in CSOs from current level of 2 billion gallons/year
 - **Climate Resilience** – overland flood mitigation in low lying areas of the District of Columbia (e.g., Bloomingdale)
 - **Quality of Life** – promotion of biodiversity, removal of harmful nutrients from waterways, waterfront restoration



Investor Outreach and Marketing

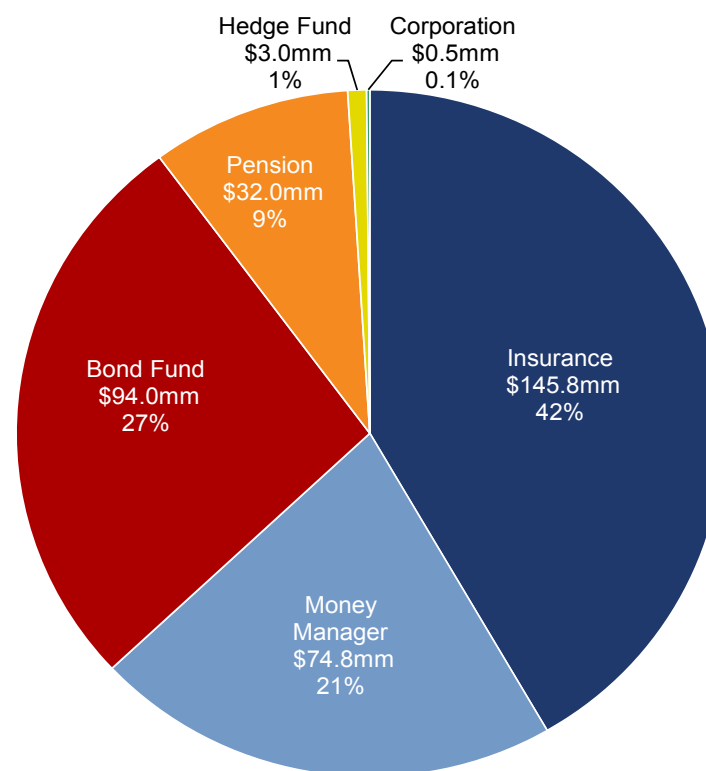
Marketing Strategy

- 6 “one-on-one” investor meetings
- 10 telephonic meetings
- Group presentation to 7 different investors
- 37 separate investors viewed Net Roadshow
- Types of investors include: bond funds, hedge funds, money managers, insurance companies, pension funds and corporations

Investor Highlights

- Over \$1 billion of orders from 36 investors
- Top 10 accounts (by order size) totaled \$751 million
- More than \$600 million of orders from non-traditional municipal investors
- Nearly \$100 million of orders from investors with Socially Responsible Investment (“SRI”) funds

Summary of Distribution



Media Coverage of DC Water's 100-Year Green Bond

Big Bids for 'Green' D.C. Bonds

Wall Street Journal, July 11, 2014

The District of Columbia Water and Sewer Authority had little trouble selling \$350 million in debt on Thursday, called "green bonds" because the proceeds will be used for environmentally friendly purposes. The deal was billed as the first-ever green bond to carry a 100-year maturity.

'Green' Bond Greeted With Strong Investor Demand

Wall Street Journal, July 10, 2014

"Right now I think there is greater demand than there is issuance for some of this green stuff," said Matthew Duch, portfolio manager at Calvert Investments, which put in an order for the bonds and runs a green bond fund. "Hopefully it's a sign of good things to come."

D.C. Water Considers First-Ever Century Bond by a Public Utility

Governing, July 20, 2014

"Investors are anxious to get exposure to municipal risk," said Matt Fabian, an analyst for Municipal Market Advisors.

Century-long Green Bond Bets on Washington Waste

Financial Times, July 10, 2014

Investors can now make a century-long return on effluent emanating from Washington following the sale of \$350m worth of ultra-long "green bonds" from the District of Columbia Water and Sewer Authority.

D.C. Water Bonds Ride Best Long-Debt Gain Since '12

Bloomberg, July 14, 2014

The offering from the District of Columbia Water & Sewer Authority was a first for a U.S. public utility. It issued \$350 million of taxable debt, with proceeds going toward a \$2.6 billion project to curb sewer overflows. With the U.S. facing a \$3.6 trillion bill for infrastructure work, more municipalities may consider using the securities to finance projects affecting generations of taxpayers, said George Hawkins, general manager of the agency.

DC Water Goes Long With Century Bonds

Bond Buyer, June 30, 2014

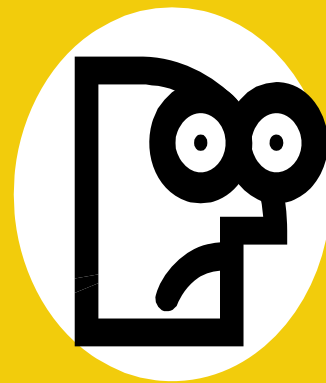
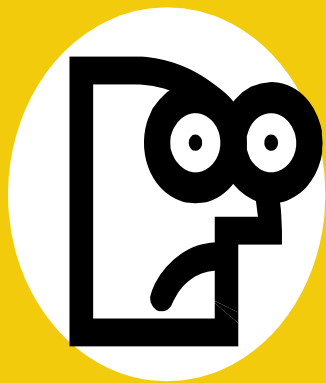
The District of Columbia Water and Sewer Authority is proposing to issue \$300 million of taxable fixed rate green bonds with a 100-year final maturity....There have been recent indications that green bonds attract a diverse range of investors including some who would not ordinarily buy munis...



Questions?

Mark T. Kim
Chief Financial Officer
mark.kim@dcwater.com





It's QUESTION TIME!!