

Rapidly Scaling Water Reuse Across Texas Using Property Assessed Clean Energy (PACE) Financing

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National Wildlife Federation
Texas Coast and Water Program



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Logistics

Audience is in *Attendee Mode* – microphone and camera are off

Please type your questions in the Q&A tab.

We have allotted plenty of time for Q&A after the speakers

Webinar recording and slides will be posted online



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What is reuse and why is it important?

Sources

Rainwater
AC Condensate
Gray Water
Black Water

Uses

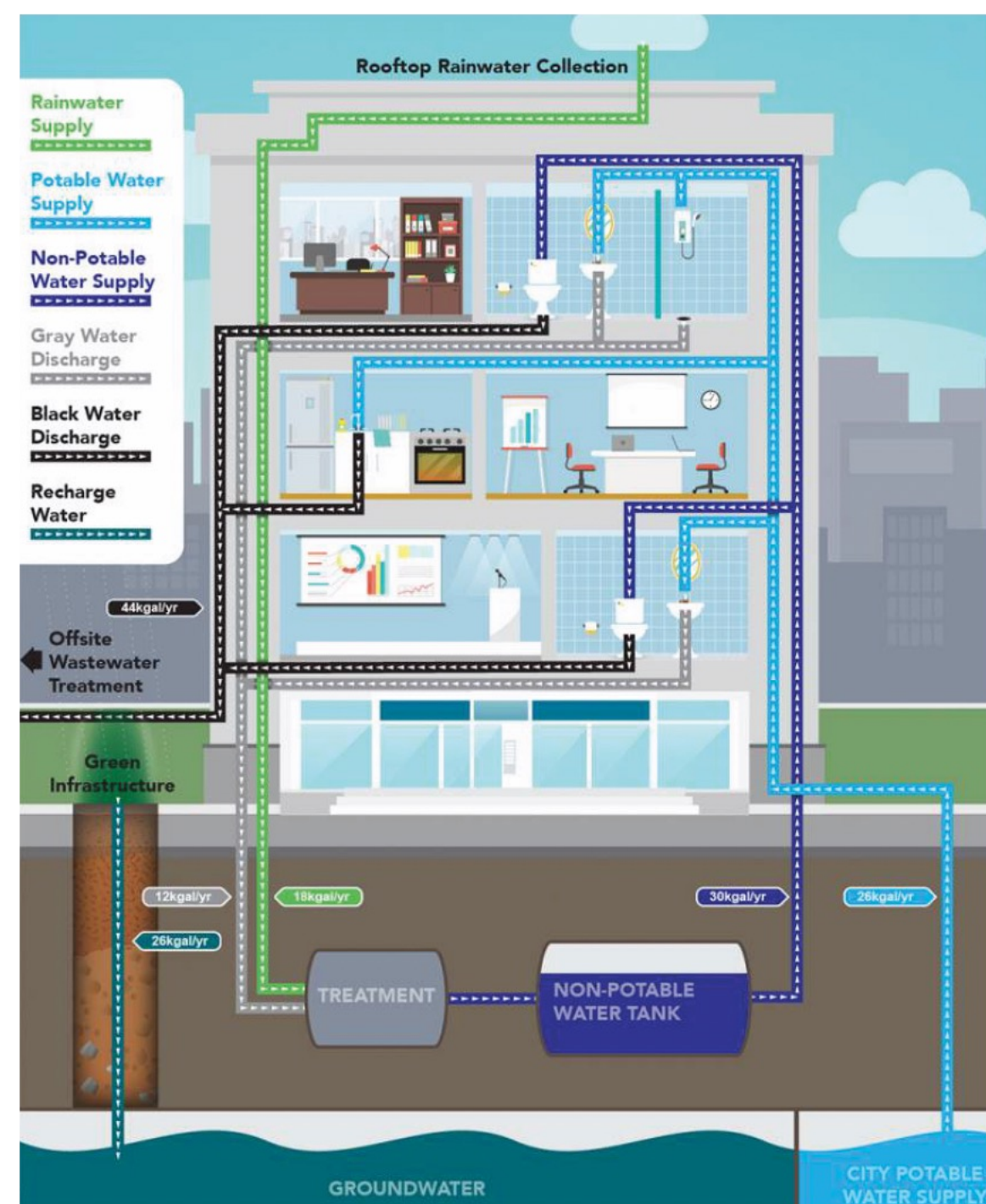
Irrigation
Toilet Flushing
AC Make-up Water

These uses make up a significant portion of most buildings water use profile.



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Do we really need to scale reuse in Texas? Yes!

Reuse is an important component of Texas's future water supply.

- “Other Direct Reuse” - 179,000 acre-feet/year (4.4% of projected new water supply in 2030!)
- Includes purple pipe and onsite reuse
- 11 out of 16 of the state's planning regions include these strategies

Other Reuse Strategies

- Direct Potable Reuse - 34,000 acre-feet/year
- Indirect Reuse - 209,000 acre-feet/year

What does this mean for Austin?

Austin's Water Forward plan counts on generating significant water supply via the implementation of onsite reuse systems as well as through connections to the centralized reclaimed water system aka “purple pipe”



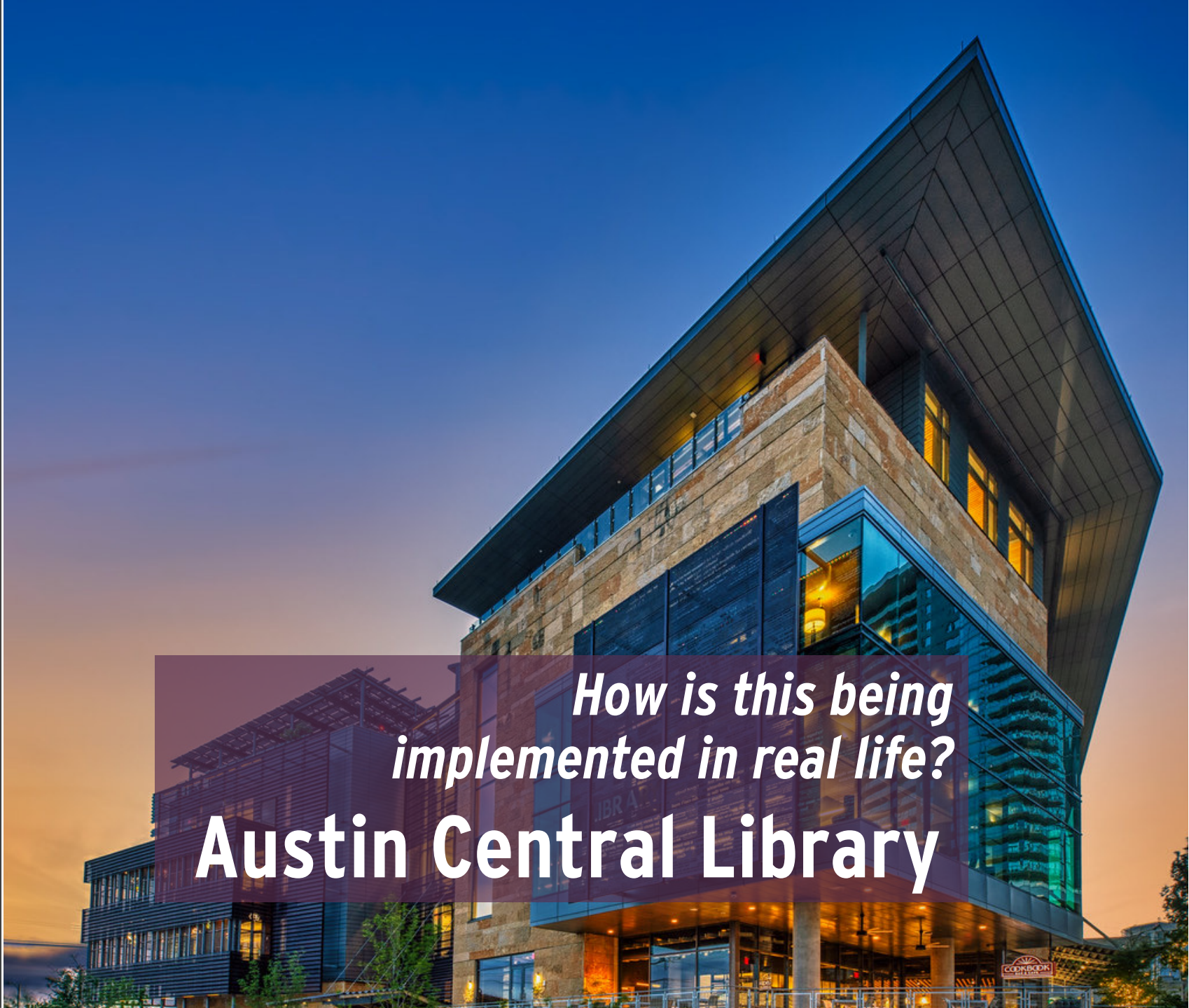
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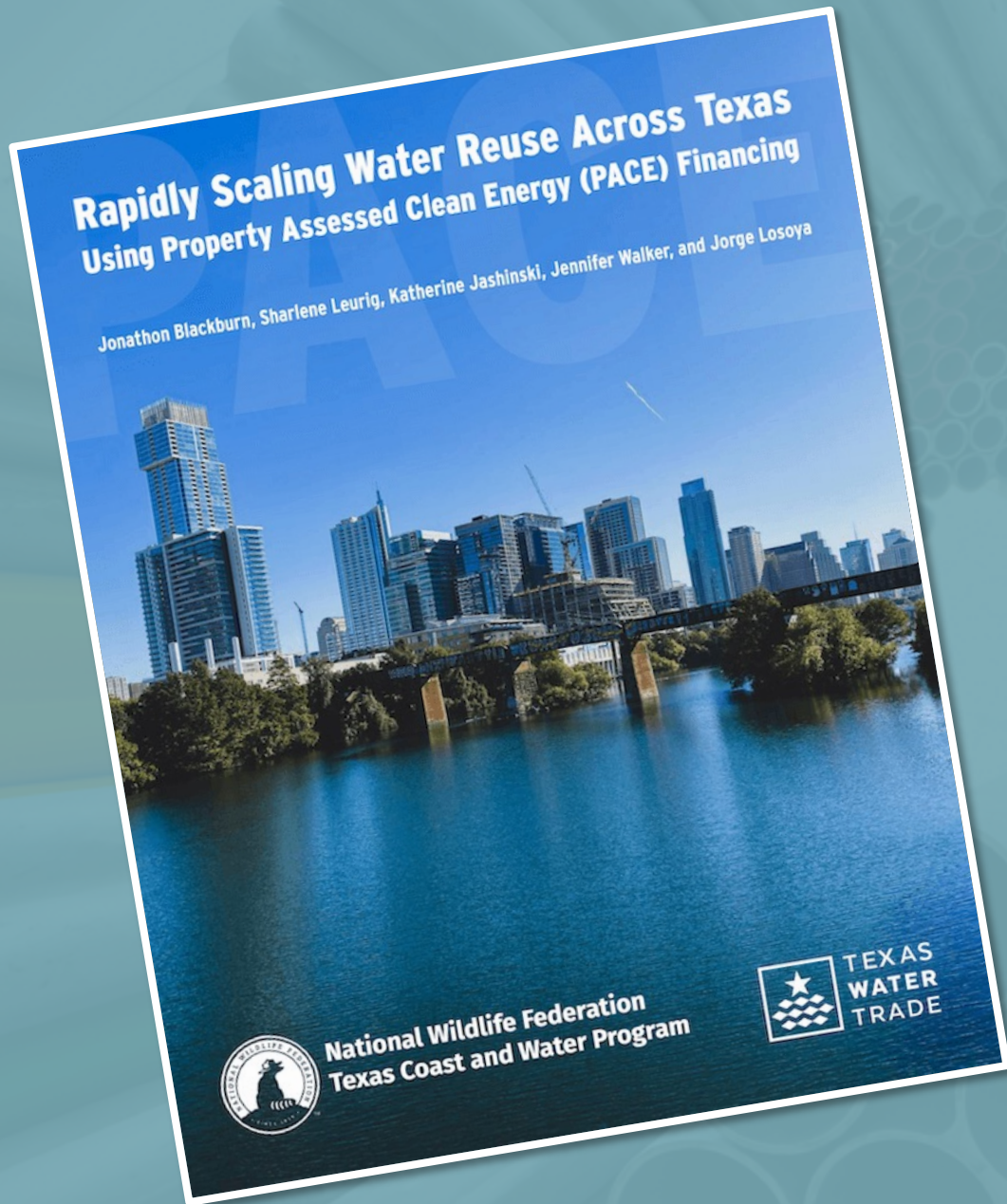


*How is this being
implemented in real life?*
Austin Central Library



*How is this being
implemented in real life?*

**Credit Human,
San Antonio**



Rapidly Scaling Reuse Across Texas Using PACE

The upfront cost of including onsite reuse and/or connecting to the centralized reclaimed water line is higher than traditional development.

We wanted see if these types of project qualified for PACE and if utilizing the program could effectively offset the upfront costs for these types of projects.

Water supply development is important and implementation costs are real.

Download the report at texaslivingwaters.org/pace

Report Findings

Our analysis makes clear that Property Assessed Clean Energy (PACE) can help scale water reuse on redeveloped land.

Important because:

- PACE is now a mature financing vehicle—mobilized \$155 million for energy and water conservation efforts in Texas
- Enables investments in energy and water conservation without draining developers' working capital

LoanSTAR Revolving Program can make this same financing tool available for public projects:

- Schools
- Government buildings



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Making PACE/LoanSTAR Work for Water Reuse

Low price of water and high cost of water reuse projects make it harder for water reuse to pencil.

This can be overcome by co-financing with energy efficiency measures, thanks to higher price of electricity.

Utility incentives—such as rebates—can also help water reuse projects meet financing criteria.

Report authors also recommend that the Legislature amend PACE enabling statute to allow for use on greenfield developments.



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What is PACE (Property Assessed Clean Energy)?

PACE is a financial tool that allows Texas property owners to upgrade facility infrastructure with little or no capital outlay, similar to a loan.

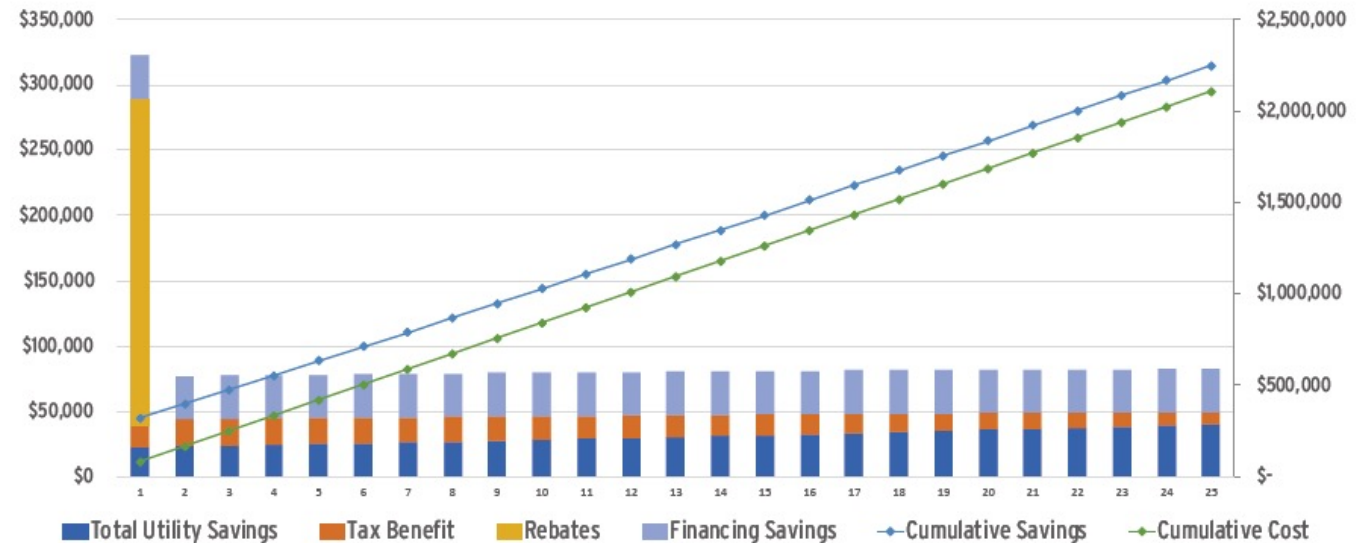
To be approved for PACE, an economic test is required:

- **Savings to Investment Ratio (SIR) must be greater than 1**
 - **Savings** - Cash flow benefits of a project such as energy/water bill reduction, tax savings, rebates, avoided cost of capital
 - **Investment** - Cost of the project including financing (i.e. principal + interest)
- Savings should be greater than the cost over the life of the project



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YEARLY SAVINGS BREAKDOWN



Report Financial Evaluation Methodology

We analyzed the financial implications of using PACE for water reuse projects, choosing five real world building types as examples.

We then calculated water balances for each building. A water balance is a comparison of the water that a building has available to it for reuse and the building's non-potable demands which could be met by those water reuse sources.

The water balance calculation is a critical step to quantifying the water savings for a given project.



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Typology	Number of Units	Sq. Footage	Year Built	Stories
Hotel high-rise	150 guest rooms	125,525	2016	17
Office mid-rise	1,000 employees	250,000	2019	4
Municipal building	25 courtrooms	391,012	2019	12
High-rise apartment	221 apartments	221,438	2013	24
Mixed use	150 apartments with ground floor retail	212,053	2007	4

Report Financial Evaluation Methodology

We then chose three scenarios of possible water reuse projects:

first, a partial offset of non-potable water needs from an onsite collection and reuse system,

second, a full offset with onsite water resources (when sufficient supplies are available³),

and third, a full offset via connection to a public reclaimed water system

While actual costs were not available for all water reuse features of each building, where available, we assembled actual costs from filings with the City of Austin and supplemented those cost data with estimates based on consultations with real estate, engineering and water professionals

Typology	Scenario 1	Scenario 2	Scenario 3
Hotel high-rise	Rainwater Harvesting and A/C Condensate Collection for Laundry + Irrigation Uses	Graywater Collection for Toilets, Laundry + Irrigation Uses	Municipal reclaimed water extension and connection for Toilet, Laundry + Irrigation Uses
Office mid-rise	Rainwater Harvesting and A/C Condensate Collection for Irrigation Use	Rainwater Harvesting and A/C Condensate Collection for Irrigation Use + Blackwater Collection for Toilet/Urinal Use	Municipal reclaimed water extension and connection for Toilet/Urinal + Irrigation Uses
Municipal building	Rainwater Harvesting and A/C Condensate Collection for Irrigation + Cooling Uses	Rainwater Harvesting, A/C Condensate and Blackwater Collection for Irrigation + Cooling Uses	Municipal reclaimed water extension and connection for Toilet/Urinal, Irrigation + Cooling Uses
High-rise apartment	Rainwater Harvesting and A/C Condensate Collection for Toilet + Irrigation Uses	Graywater Collection for Toilet, Laundry + Irrigation Uses	Municipal reclaimed water extension and connection for Toilet, Laundry + Irrigation Uses
Mixed use	Rainwater Harvesting and A/C Condensate Collection for Irrigation Use	Rainwater Harvesting and A/C Condensate Collection for Irrigation Use + Graywater Collection for Toilet + Laundry Uses	Municipal reclaimed water extension and connection for Toilet, Laundry + Irrigation Uses

Report Findings, Conclusions, and Financial Takeaways

Key Finding: Water Reuse projects paired with energy efficiency projects tend to generate the best ROIs and PACE eligibility, and hence property owners should consider holistic retrofit and redevelopment projects.

Key Finding: Rebates can be an essential way to incentivize reuse projects, as the low cost of water makes reuse projects by themselves difficult economically. Where no utility incentives are available, combining energy efficiency and water reuse will frequently be essential to meet PACE criteria.

Projects	Scenario 1	Scenario 2	Scenario 3
Hotel High Rise	0.89	1.01	0.87
Office Mid Rise	0.71	0.88	0.84
Municipal Building	1.58	1.12	0.95
High Rise Apartments	0.96	1.07	0.87
Mixed Use	0.97	0.96	0.87

Projects	Scenario 1	Scenario 2	Scenario 3
Hotel High Rise	1.84	1.34	1.54
Office Mid Rise	1.68	1.34	1.83
Municipal Building	2.34	1.92	2.05
High Rise Apartments	2.14	1.72	1.79
Mixed Use	2.32	1.43	1.73

Austin Water Onsite Water Reuse Program

Water Forward Plan Implementation Ongoing

Long Range Integrated Water Resources Plan

Alternate Water prioritized

New Onsite Water Reuse System Pilot Incentive Program

\$250k for 1 MGY or more of potable offset

\$500k for 3 MGY or more of potable offset

Non-Traditional Incentive Development

Alternate Financing Options

Utility Service Unit Credits

Overlapping Regulatory Requirements

Mandatory Onsite Reuse on the horizon

Council mandated by 2023



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