



**Puerto Rico Aqueduct and Sewer Authority**  
GOVERNMENT OF PUERTO RICO

## **2020 Fiscal Plan for the Puerto Rico Aqueduct and Sewer Authority (PRASA)**

# **Transforming PR's Water and Wastewater System**

**Fiscal Years 2021 to 2025**

**As certified by the Financial Oversight and Management Board for Puerto Rico**

June 29, 2020





# Table of Contents

<b>Disclaimer</b> .....	<b>1-x</b>
<b>Executive Summary</b> .....	<b>1-12</b>
<b>1 Introduction</b> .....	<b>1-17</b>
1.1 Purpose of the Fiscal Plan .....	1-17
1.2 Changes from Previous Fiscal Plan .....	1-17
1.3 Authority’s general information .....	1-18
1.3.1 Authority’s Mission and Vision .....	1-18
1.3.2 History of the Authority .....	1-18
1.4 Overview of the Authority’s system .....	1-21
1.5 Governance and Organizational Structure .....	1-24
1.5.1 Governing Board .....	1-25
1.5.2 Executive Officers .....	1-26
1.6 The Authority’s challenges .....	1-27
1.6.1 Infrastructure system challenges .....	1-27
1.6.2 Vulnerability due to climate change, natural disasters, and COVID-19 .....	1-30
1.6.3 Customer Demographic Challenges .....	1-33
1.6.4 Regulatory Challenge .....	1-33
1.6.5 Financing Challenges .....	1-34
<b>2 Pre-Measures Financial Results</b> .....	<b>2-35</b>
2.1 Main Assumptions .....	2-35
2.2 Revenues .....	2-37
2.2.1 Customers and Revenue Base .....	2-37
2.2.2 Service Revenue .....	2-38
2.2.3 Miscellaneous Income .....	2-40
2.2.4 Insurance Proceeds .....	2-40
2.2.5 Summary of Project Pre-Measures Revenues .....	2-40
2.3 Expenses .....	2-40
2.3.1 Payroll and Related .....	2-41
2.3.2 Electricity .....	2-42
2.3.3 Maintenance and Repair .....	2-43
2.3.4 Chemicals .....	2-43
2.3.5 Other Expenses .....	2-43
2.3.6 Summary of Projected Post-Measures Expenses .....	2-44
2.4 Capital Improvement Program .....	2-44
2.4.1 CIP Phases .....	2-45
2.4.2 CIP Cost Components .....	2-45
2.4.3 Emergency and Permanent works .....	2-46



2.4.4	Renewal and Replacement .....	2-46
2.4.5	Mandatory Projects .....	2-46
2.4.6	Project Execution and Metrics .....	2-47
2.4.7	CIP Pre-Measures Projections .....	2-48
2.5	<i>Debt Service and Other Deposits Required Under the Master Agreement of Trust (MAT)</i> ....	2-49
2.5.1	MAT Payment Priorities .....	2-49
2.5.2	Contractual Debt Service .....	2-51
2.5.3	Other Deposits Required by the MAT .....	2-53
2.6	<i>Pre-Measures Financial Results Summary</i> .....	2-53
<b>3</b>	<b>Fiscal Plan Measures and Post-Measures Financial Results .....</b>	<b>3-55</b>
3.1	<i>Recently Implemented Measures</i> .....	3-55
3.1.2	Implemented Revenue Enhancing Measures .....	3-56
3.1.3	Cost Saving Implemented Measures .....	3-58
3.1.4	Debt Service Reduction .....	3-60
3.2	<i>New Measures Summary</i> .....	3-62
3.2.1	Revenue Enhancement Measures .....	3-62
3.2.2	Expense Reduction and New Financing Measures .....	3-66
3.3	<i>Enabling Measures</i> .....	3-81
3.3.1	PMO Execution .....	3-81
3.3.2	Emergency Response Plan and Climate Risk Preparedness .....	3-84
3.3.3	10-year Master Plan .....	3-85
3.3.4	Asset Management and Maintenance .....	3-86
3.4	<i>Summary of Proposed New Measures</i> .....	3-87
3.5	<i>Post-Measures Financial Result</i> .....	3-88
<b>4</b>	<b>Long-Term Financial Sustainability .....</b>	<b>4-89</b>
4.1	<i>Plan for Restoring Long-Term Financial Sustainability</i> .....	4-89
4.2	<i>Debt Sustainability Analysis</i> .....	4-91
<b>5</b>	<b>Reporting Requirements .....</b>	<b>5-92</b>
5.1	<i>Monthly KPIs for Measures</i> .....	5-93
<b>6</b>	<b>Risks and Mitigating Strategies .....</b>	<b>6-96</b>
<b>7</b>	<b>Conclusion .....</b>	<b>7-100</b>
<b>8</b>	<b>Appendix .....</b>	<b>8-102</b>
	<i>Details on Consent Decree</i> .....	8-102
	<i>Consolidated Action Plan</i> .....	8-104
	<i>Additional Non-Financial Enabling Measures</i> .....	8-108



# Exhibits

Exhibit 1-1: The Authority’s Historical Background Timeline ..... 1-19

Exhibit 1-2: Customer Breakdown by Category..... 1-22

Exhibit 1-3: Overview of the Authority’s Infrastructure System ..... 1-23

Exhibit 1-4: PRASA Water Treatment Plants ..... 1-23

Exhibit 1-5: PRASA Wastewater Treatment Plants ..... 1-24

Exhibit 1-6: Organizational Structure..... 1-25

Exhibit 1-7: System Complexity For Combined Water and WasteWater (Utilities In The U.S. With More Than One Million Customers)..... 1-28

Exhibit 1-8: Capital Improvement Program Funding (FY2009-FY2019, In \$’ Millions) ..... 1-34

Exhibit 2-1: FY2019 Customer Breakdown by Category ..... 2-37

Exhibit 2-2: FY2019 Revenue Breakdown by Customer Category ..... 2-37

Exhibit 2-3: Residential Accounts Trend..... 2-38

Exhibit 2-4: Industrial Accounts and Nominal GNP Growth Rates..... 2-39

Exhibit 2-5: Pre-Measures Billings and Collections (In \$’ Millions) ..... 2-39

Exhibit 2-6: Expense Breakdown by Category, % ..... 2-41

Exhibit 2-7: Projected Inflation Rate..... 2-41

Exhibit 2-8: Projected Electricity Costs and Consumption (Pre-Measure) ..... 2-43

Exhibit 2-9: Other Expenses Breakdown (FY2020)..... 2-44

Exhibit 2-10: CIP Phases & Activities ..... 2-45

Exhibit 2-11: PRASA Scoring Criteria For Mandatory Projects..... 2-47

Exhibit 2-12: CIP Breakdown by Category (FY2020-FY2025)..... 2-48

Exhibit 2-13: MAT Payment Priorities ..... 2-50

Exhibit 3-1: Modifications to Federal Debt Terms ..... 3-61

Exhibit 3-2: Rate Adjustment Projected Benefits (In \$’ Millions) ..... 3-63

Exhibit 3-3: Action Plan For Rate Adjustment Measure ..... 3-64

Exhibit 3-4: Goals for Metering & Customer Service Optimization Measure ..... 3-64

Exhibit 3-5: Expected Benefits For Metering And Customer Service Optimization Measure (In \$’ Millions)..... 3-65

Exhibit 3-6: Action Plan For Metering And Customer Service Optimization Measure ..... 3-66

Exhibit 3-7: Projected Impact from Chemical Savings (In \$’ Millions) ..... 3-68

Exhibit 3-8: Action Plan For Chemical Expense Reduction Measure ..... 3-68

Exhibit 3-9: Pension Reform Savings (In \$’ Millions) ..... 3-69

Exhibit 3-10: Action Plan For Pension Reform Measure ..... 3-69



Exhibit 3-11: Christmas Bonus Elimination Savings (In \$' Millions).....	3-69
Exhibit 3-12: Action Plan For Christmas Bonus Elimination Measure.....	3-70
Exhibit 3-13: Uniform Healthcare Projected Savings (In \$' Millions) .....	3-70
Exhibit 3-14: Action Plan For Uniform Healthcare Measure .....	3-70
Exhibit 3-15: PRASA Headcount FY2008-FY2019 .....	3-71
Exhibit 3-16: Headcount Cap projected savings (In \$' Millions) .....	3-72
Exhibit 3-17: Action Plan For Headcount Cap Measure.....	3-72
Exhibit 3-18: Projected Electricity Cost Reduction (In \$' Millions).....	3-73
Exhibit 3-19: Action Plan For Electricity Cost Reduction Measure .....	3-74
Exhibit 3-20: Physical Water Loss reduction Projected Initiative Impact (In \$' Millions) .....	3-76
Exhibit 3-21: KPIs for NRW Measure.....	3-76
Exhibit 3-22: Action Plan for Physical Water Loss Reduction Measure .....	3-78
Exhibit 3-23: Projected Capital Delivery Optimization Savings (In \$' Millions).....	3-79
Exhibit 3-24: Action Plan for Capital Delivery optimization measure.....	3-79
Exhibit 3-25: Projected New Net Federal Funds Measure (In \$' Millions).....	3-80
Exhibit 3-26: Action Plan for New Financing For CIP .....	3-81
Exhibit 3-27 Responsibilities of the PMO .....	3-82
Exhibit 3-28: PMO Structure.....	3-83
Exhibit 3-29: Action Plan for PMO Execution .....	3-84
Exhibit 3-30: Action Plan for Emergency Response Plan and Climate Risk Preparedness Measure.....	3-85
Exhibit 3-31: Action Plan for Master Plan Measure .....	3-86
Exhibit 3-32: Action Plan for Asset Management and Maintenance measure .....	3-87



# Tables

Table 0-1: Post-Measures Financial Results for FY2020-FY2025, (in \$' Millions).....	1-15
Table 1-1: Water Balance Components (AWWA m36 Manual).....	1-29
Table 2-1: Specific Assumptions to Develop the Fiscal Plan .....	2-36
Table 2-2: Pre-Measures Projected Revenues (In \$' Millions).....	2-40
Table 2-3: Pre-Measures Projected Expenses (In \$' Millions).....	2-44
Table 2-4: Projected CIP (In \$' Millions) .....	2-48
Table 2-5: Required Sources for CIP (In \$' Millions).....	2-49
Table 2-6: Outstanding Debt as of December 31, 2019 (In \$' Millions).....	2-52
Table 2-7: Projected Debt Service (In \$' Millions) .....	2-52
Table 2-8: Other Deposits Required by the MAT (In \$' Millions).....	2-53
Table 2-9: Summary of the Pre-Measures Financials Assumptions .....	2-53
Table 2-10: Pre-Measures Financial Projections Results (In \$' Millions) .....	2-54
Table 3-1: Financial Results of Implemented Measures (FY2018-FY2020, In \$' Millions) .....	3-56
Table 3-2: Implemented & Projected Rate Increases.....	3-57
Table 3-3: Facilities with Solar Energy.....	3-59
Table 3-4: New Projected PPAs .....	3-73
Table 3-5: Expected MGD Reduction .....	3-77
Table 3-6: Federal Funding Programs.....	3-80
Table 3-7: Expected Federal Funding and Cost (In \$' millions) .....	3-80
Table 3-8: New Measures Projected Benefit (In \$' Millions) .....	3-87
Table 3-9: Post-Measures Financial Results (In \$' Millions).....	3-88
Table 4-1: Plan to Restore Cost-Effective Capital Market Access.....	4-90
Table 4-2: Sensitivity Analysis – Implied Debt Capacity (In \$' Millions).....	4-91
Table 5-1: Reports to be Presented .....	5-92
Table 5-2: New Measure KPIs .....	5-94
Table 6-1: Risks to Fiscal Plan Implementation and Mitigating Strategies .....	6-96
Table 8-1: Projected Resiliency Projects.....	8-110



# Acronyms

AMWA	Association of Metropolitan Water Agencies
ASES	Administración de Seguros de Salud de Puerto Rico
AWIA	America Water Infrastructure Act of 2018
AWWA	American Water Works Association
Authority	Puerto Rico Aqueduct and Sewer Authority
CGI	Commonwealth Guaranteed Indebtedness
CIP	Capital Improvement Program
GSO	Government Supported Obligations
CWSRF	Clean Water State Revolving Fund
DOH	Department of Health
DOJ	Department of Justice
DSA	Debt Sustainability Analysis
DWSRF	Drinking Water State Revolving Fund Programs
EQB	Environmental Quality Board
EPCs	Energy Performance Contracts
ERPs	Emergency Response Plans
ERS	Employee Retirement System
FTE	Full-Time Employee
FY	Fiscal Year
GAAP	Generally accepted accounting principles
GDB	Government Development Bank for Puerto Rico
GIS	Geographical information system
Government	Government of Puerto Rico
Governor	Governor of Puerto Rico
HIEPAAA	Hermanidad Independiente de Empleados Profesionales de la Autoridad de Acueductos y Alcantarillados
KPIs	Key Performance Indicators
kWh	Kilowatt-Hours
MAT	Master Agreement of Trust
MGD	Million Gallons per Day
MHI	Median Household Income
NRW	Non-Revenue Water





OH	Overhead
OMB	Puerto Rico Office of Management and Budget
O&M	Operations and Maintenance
ORF	Operating Reserve Fund
Oversight Board	Financial Oversight and Management Board for Puerto Rico
P3	Public-Private Partnership
P3 Authority	Puerto Rico Public-Private Partnership Authority
PAN	Programa de Asistencia Nutricional
PayGo	Pay-as-you-Go
PFC	Puerto Rico Public Finance Corporation
PMCs	Project Management Consortium
PPAs	Power Purchase Agreements
PPE	Personal Protection Equipment
P3 Project	Metering System and Customer Service Optimization Project
PRFAFAA	Puerto Rico Fiscal Agency and Financial Advisory Authority
PRASA	Puerto Rico Aqueduct and Sewer Authority
PRDOH	Puerto Rico Department of Health
PREB	Puerto Rico Energy Bureau
PREPA	Puerto Rico Electric Power Authority
PRIFA	Puerto Rico Infrastructure Finance Authority
PROMESA	Puerto Rico Oversight, Management, and Economic Stability Act
PSI	Pounds per Square Inch
PWSIDs	Potable Water System Identification
Regions	Operational Regions
RD	Rural Development
RFC	Raftelis Financial Consultants
RRAs	Risk and Resiliency Assessments
RSA	Rate Stabilization Account
R&R	Renewal and Replacement Projects
SCADA	Supervisory Control and Data Acquisition
System	Authority's Public Water Supply and Wastewater System
SOOMP	Sewer System Operation and Maintenance Program
SOP	Standard Operating Procedure
SRF	State Revolving Fund



TANF	Puerto Rico Temporary Assistant for Needy Families
STS	Sludge treatment system
UIA	Unión Independiente Auténtica
US	United States of America
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
WRF	Water Research Foundation
WRO	Water Recovery Office
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plants



# Disclaimer

---

The Financial Oversight and Management Board for Puerto Rico (the “FOMB,” or “Oversight Board”) has formulated this 2020 Fiscal Plan based on, among other things, information obtained from the Commonwealth of Puerto Rico (the “Commonwealth,” or the “Government”).

This document does not constitute an audit conducted in accordance with generally accepted auditing standards, an examination of internal controls or other attestation or review services in accordance with standards established by the American Institute of Certified Public Accountants or any other organization. Accordingly, the Oversight Board cannot express an opinion or any other form of assurance on the financial statements or any financial or other information or the internal controls of the Government and the information contained herein.

This 2020 Fiscal Plan is directed to the Governor and Legislature of Puerto Rico based on underlying data obtained from the Government. No representations or warranties, express or implied, are made by the Oversight Board with respect to such information.

This 2020 Fiscal Plan is not a Title III plan of adjustment. It does not specify classes of claims and treatments. It neither discharges debts nor extinguishes liens.

This 2020 Fiscal Plan is based on what the Oversight Board believes is the best information currently available to it. To the extent the Oversight Board becomes aware of additional information after it certifies this 2020 Fiscal Plan that the Oversight Board determines warrants a revision of this 2020 Fiscal Plan, the Oversight Board will so revise it.

For the avoidance of doubt the Oversight Board does not consider and has not considered anything in the 2020 Fiscal Plan as a “recommendation” pursuant to Section 205(a). Nevertheless, to the extent that anything in the 2020 Fiscal Plan is ever deemed by the Governor or Legislature or determined by a court having subject matter jurisdiction to be a “recommendation” pursuant to Section 205(a), the Oversight Board hereby adopts it in the 2020 Fiscal Plan pursuant to PROMESA Section 201(b).

Any statements and assumptions contained in this document, whether forward-looking or historical, are not guarantees of future performance and involve certain risks, uncertainties, estimates and other assumptions made in this document. The economic and financial condition of the Government and its instrumentalities is affected by various legal, financial, social, economic, environmental, governmental and political factors. These factors can be very complex, may vary from one fiscal year to the next, and are frequently the result of actions taken or not taken, not only by the Government and the Oversight Board, but also by other third-party entities such as the government of the United States. Examples of these factors include, but are not limited to:

- *The amount and timing of receipt of any distributions from the Federal Emergency Management Agency and private insurance companies to repair damage caused by Hurricanes María and Irma, earthquakes, and the COVID-19 pandemic;*
- *The amount and timing of receipt of any amounts allocated to Puerto Rico and provided under the Community Disaster Loans Program;*
- *The amount and timing of any additional amounts appropriated by the United States government to address the impacts of the COVID-19 pandemic;*



- *The amount and timing of receipt of any additional amounts appropriated by the United States government to address the funding gap described herein;*
- *The impact of the COVID-19 pandemic on the financial, social, economic, and demographic condition of Puerto Rico;*
- *The impact of the measures described herein on outmigration; and*
- *The impact of the resolution of any pending litigation in the Title III cases*

Because of the uncertainty and unpredictability of these factors, their impact cannot be included in the assumptions contained in this document. Future events and actual results may differ materially from any estimates, projections, or statements contained herein. Nothing in this document should be considered as an express or implied warranty of facts or future events; provided, however, that the Government is required to implement the measures in this 2020 Fiscal Plan and the Oversight Board reserves all its rights to compel compliance. Nothing in this document shall be considered a solicitation, recommendation or advice to any person to participate, pursue or support a course of action or transaction, to purchase or sell any security, or to make any investment decision.

By receiving this document, the recipient is deemed to have acknowledged the terms of these limitations. This document may contain capitalized terms that are not defined herein or may contain terms that are discussed in other documents or that are commonly understood. You should make no assumptions about the meaning of capitalized terms that are not defined, and you should refer questions to the Oversight Board at [comments@oversightboard.pr.gov](mailto:comments@oversightboard.pr.gov) should clarification be required.



## Executive Summary

**The Puerto Rico Aqueduct and Sewer Authority (“the Authority” or “PRASA”) is committed to providing reliable, affordable, and safe water and wastewater services to the people of Puerto Rico.** However, PRASA’s current financial and operational state requires sustained improvement in order to keep this commitment. Between 2012 to 2014, major credit agencies downgraded PRASA to below investment grade, citing high operational deficiencies, historically poor financial performance, and high capital requirements to conduct critical and mandated upgrades. This is not the first time that PRASA has been downgraded below investment grade by credit agencies (i.e., 1994), suggesting that these are longstanding challenges and deficiencies that have gone unaddressed.

Despite efforts to improve operations and become financially sustainable, many of PRASA’s historical challenges persist, including:

- **Non-revenue water:** PRASA estimates that 55% of the water its produces is lost before reaching its customers due to water leaks, overflows, theft, and faulty metering. PRASA’s high levels of non-revenue water presents a significant challenge to its financial sustainability and water availability, increasing rates and making Puerto Rico’s residents and businesses particularly vulnerable to droughts. PRASA has not made progress on implementing a program for reducing non-revenue water despite committing to doing so in past fiscal plans.
- **Accurate metering and effective customer service:** PRASA continues to depend on old mechanical meters that have an estimated error margin of up to 15%, forcing it to estimate system-wide consumption rather than using actual readings.<sup>1</sup> Inaccurate readings, combined with the fact that PRASA does not measure its water production, precludes PRASA from sizing the impacts of non-revenue water and understanding customer consumption patterns.
- **System reliability and resiliency:** PRASA continues to underspend on its maintenance program. As of April 2020, its spending on maintenance was 20% less than what was budgeted year-to-date. Moreover, a majority of its program is focused on corrective maintenance instead of preventative maintenance, increasing costs and suggesting PRASA is reacting to faults and breaks after the fact as opposed to preemptively addressing them.
- **Water Quality:** PRASA has been operating under an Environmental Protection Agency (“EPA”) and Department of Justice (“DOJ”) water health, safety, and quality consent decree since 2015 and a Transactional Agreement with the Puerto Rico Department of Health (PRDOH) since 2006. Although Puerto Rico’s water is safe to drink, EPA water quality reports from the past five years indicate troubling trends regarding health-based violations, such as nitrates and chlorine-based disinfection byproducts.<sup>2</sup> PRASA continues to operate under the

<sup>1</sup> Professional Opinion Report: Puerto Rico Aqueduct and Sewer Authority, prepared by Raftelis Financial Consultants, 2016.

<sup>2</sup> Safe Drinking Water Information System (SWDIC) Federal Reporting Services, USEPA, Quarter 4 2019.



consent decree and transactional agreement because it has not yet completed all necessary health and safety projects and is not projected to do so in FY2021.<sup>3</sup>

- **Capital Improvements:** Delivering its Capital Improvement Program (“CIP”) has been a consistent challenge for PRASA. In FY2019, PRASA only delivered on ~30% of its CIP budget (\$43M). While the lockdown measures enacted in response to the COVID-19 pandemic required PRASA to temporarily suspend CIP work, PRASA had only delivered ~50% (~\$43M) of its FY2020 budget in the first nine months of the fiscal year.<sup>4</sup>
- **Rates:** In the past, PRASA failed to increase rates to fully recover its costs, consistent with standard utility practices. Recent rate increases under the current rate structure are still insufficient to cover annual operating expenses, debt service obligations, and capital requirements, while also nearing levels of unaffordability for low-income customers.

These financial and operational challenges have been exacerbated by trends and events outside of PRASA’s control. Ongoing economic contraction and population decline have caused revenues to decline over time, limiting the resources available to maintain and invest in its system. Moreover, PRASA’s infrastructure suffered extensive damages as a result of Hurricanes Irma and María and the 2020 earthquakes, while the COVID-19 pandemic caused a sharp decline in collections, interrupted capital project activities, and added unforeseen operational expenses at the end of FY2020.

When compared to its pre-2017 state, PRASA’s financial condition has improved. By implementing various revenue enhancing and expense reducing measures, including modest and gradual rate increases across all customer classes, improving collections from government accounts, reductions in electricity consumption, PRASA has been able to reduce, albeit not eliminate, its structural deficit. Moreover, by reducing its debt service cost through the federal debt reprogramming with its federal partners, PRASA has been able to achieve sustainable levels of debt service.

However, the majority of PRASA’s efforts in the past have focused on addressing fiscal challenges with little emphasis given to operational deficiencies. PRASA’s 2020 Fiscal Plan must address both aspects by:

- Implementing measures to improve operational efficiency and maintenance effectiveness
- Executing its CIP to maintain and upgrade water system safety, reliability and resilience
- Collecting revenues sufficient to maintain financial sustainability and regain access to short-term and long-term capital markets at reasonable interest rates to meet its borrowing needs.

**PRASA’s 2020 Fiscal Plan provides a roadmap for its financial and operational transformation by addressing the structural deficiencies which have prevented PRASA from achieving long-term sustainability.**

Without the implementation of aggressive operational reforms, PRASA is projected to generate a structural deficit of \$1.7 billion between FY2020-FY2025, driven by:

<sup>3</sup> Fiscal Year 2016 & 2017 Consulting Engineer’s Report for PRASA, performed by Arcadis and published in December of 2017

<sup>4</sup> Excludes Emergency/Permanent Works projects, which are projected to be funded with FEMA funds



- Falling revenues from a shrinking customer base and economy
- Rising operating expenses in line with inflation
- A large capital program that needs to be self-funded due to a lack of access to short-term and long-term capital markets at reasonable rates

**PRASA and The Financial Oversight and Management Board for Puerto Rico (“FOMB” or the “Oversight Board”) have identified several measures that, if successfully implemented, would improve PRASA’s financial and operational performance.** The 2020 Fiscal Plan includes the following 11 measures<sup>5</sup> related to revenue enhancement, cost reduction, and federal funding. These must be executed by PRASA’s Project Management Office and could potentially result in a ~\$1.6 billion positive impact<sup>6</sup>:

1. **Rate Adjustments (\$908 million between FY2020-FY2025)**<sup>7</sup>: continue with the scheduled implementation of modest rate increases in both FY2021 and FY2022—consistent with past Fiscal Plans and standard utility practice—and conduct a review of the current rate structure with the aim of ensuring simplicity, affordability, and adequate cost recovery in FY2023 and beyond.
2. **Metering and customer service optimization (\$33 million)**: reduce commercial water losses and improve customer experience and satisfaction either independently or through a P3 agreement.
3. **Chemical expense reduction (\$3 million)**: reduce chemical usage and costs through improved inventorying, contracts negotiation, and installed technology improvements at Carraizo Dam.
4. **Pension reform (\$21 million)**: improve the financial stability of public employees through reforms that maintain enough funds for employee pension plans and create a defined contribution plan for employees; consistent with the Commonwealth of Puerto Rico’s pension reform measure.
5. **Christmas bonus elimination (\$16 million)**: remove the annual bonus starting in FY2021.
6. **Uniform healthcare (\$12 million)**: implement a newly negotiated medical health plan by July 1, 2020.
7. **Headcount cap (\$16 million)**: limit PRASA’s workforce size to 4,600 while a comprehensive productivity and rightsizing assessment is conducted.
8. **Electricity cost reduction (\$13.2 million)**: reduce electricity costs through increased efficiency and distributed generation.
9. **Physical water loss reduction (\$11 million)**: reduce physical water losses through master meter installation, leaks reduction, and pressure management.

<sup>5</sup> Unless provided otherwise, measure projections cover FY2021 through FY2025

<sup>6</sup> In addition to 11 new measures, the post-measures financial results includes ~\$80 million in completed measures; these are discussed in Section 3.1: Recently Implemented Measures

<sup>7</sup> Estimate also includes rate adjustments enacted in FY2018-FY2020 and estimates additional rate adjustments that would occur in FY2023-FY2025 after a rate redesign is implemented



10. **Capital delivery optimization (\$54 million):** achieve a more cost-effective way to deliver its CIP. The Oversight Board urges PRASA to onboard a Project Management Consortium (PMC); PRASA also must establish a prioritization criteria for all projects, set up a CIP tracking tool, and monitor KPIs.
11. **New Federal Funds (\$421 million):** obtain new financing from two federal loan programs: State Revolving Funds (USEPA) and the Rural Development Program (USDA).

However, implementing these measures will not be enough to eliminate PRASA's structural deficit, thus forcing PRASA to draw down approximately \$105M from its Current Expense Fund (CEF) to achieve balanced budgets throughout the Fiscal Plan Period.<sup>8</sup>

Table O-1 provides an annual and cumulative view of PRASA's FY2021 pre-measures and post-measures financial results. By implementing each of the measures identified in the 2020 Fiscal Plan, PRASA must improve its financial and operational performance, while also ensure continued investments in its system necessary for maintaining water quality standards and reliable water supply. PRASA will need to draw down from its CEF to ensure it achieves a balance budget in all fiscal years.

TABLE O-1: POST-MEASURES FINANCIAL RESULTS FOR FY2020-FY2025, (IN \$' MILLIONS)

<i>in \$Millions</i>	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY20/25
Authority Revenues	945	953	925	914	904	895	5,536
Senior Debt Service	(251)	(251)	(251)	(251)	(251)	(251)	(1,505)
Net Operating Expenses	(721)	(668)	(711)	(720)	(730)	(741)	(4,291)
Operating Reserve Fund	(32)	(33)	(5)	(2)	(3)	(3)	(78)
Capital Improvement Fund	(97)	(178)	(279)	(271)	(198)	(171)	(1,195)
Commonwealth Payment Fund	(21)	(26)	(28)	(28)	(32)	(32)	(167)
<b>Pre-Measures Financial Result</b>	<b>(178)</b>	<b>(203)</b>	<b>(348)</b>	<b>(359)</b>	<b>(310)</b>	<b>(303)</b>	<b>(1,700)</b>
Measures Benefit	112	201	343	344	292	312	1,604
<b>Post-Measures Financial Result</b>	<b>(66)</b>	<b>(1)</b>	<b>(5)</b>	<b>(15)</b>	<b>(18)</b>	<b>9</b>	<b>(96)</b>
Funds available at CEF	66	1	5	15	18	-	105
Transfer to RSA	-	-	-	-	-	(9)	(9)
<b>Final Annual Need</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

Supporting the execution of the measures mentioned above, the 2020 Fiscal Plan also requires PRASA to deliver on four enabling measures designed to ensure long-term planning, improve management controls, and increase operational efficiency and accountability:

- **Project Management Office (PMO) execution:** establish a PMO office tasked and empowered to ensure the successful execution of the measures outlined in the 2020 Fiscal Plan and key internal projects within the organization
- **Emergency response plan and climate risk preparedness:** develop and update PRASA's Emergency Response Plan and ensure findings are integrated across the organization and specifically into the CIP

<sup>8</sup> Current Expense Fund – According to the MAT, on a monthly basis, after the payment of debt service, PRASA's Trustee shall deposit in the Current Expense Fund (CEF), at the Authority's request, at least one month and up to three months of current expenses. As such, the CEF is used to fund current operating expenses of PRASA.





- **10-year Master Plan:** PRASA’s 10-year plan, to be developed with results from the 2020 US Census, must provide a long-term roadmap to transform PRASA’s system into a simpler, safer, operationally efficient, and financially sustainable system and serve to consolidate recommendations from other plans and strategies (e.g., Fiscal Plan, Emergency Preparedness Plan, Climate Change Adaptability Plan)
- **Asset management and maintenance:** properly track and monitor the condition of all PRASA assets and revamp maintenance program from primarily corrective to a more balanced target that promotes higher preventative maintenance practices

PRASA’s chief priority must be the timely and comprehensive implementation of the 2020 Fiscal Plan measures. Not executing the Fiscal Plan threatens the safety and reliability of the Authority’s infrastructure, which could potentially put Puerto Rico’s residents at risk of poor water quality, diminished water availability and access, and affordability concerns. Provided that the Fiscal Plan is successfully executed, and financial and operational sustainability is achieved, PRASA will be in a position to access short and long-term capital markets at reasonable rates again, thus enabling it to continue providing reliable, affordable, and safe water and wastewater services to Puerto Rico for the foreseeable future.



# 1 Introduction

As the sole provider of public water and wastewater services for Puerto Rico, the Puerto Rico Aqueduct and Sewer Authority (the “Authority” or “PRASA”) is committed to providing reliable, affordable, and safe water and wastewater services to the people of Puerto Rico. This Fiscal Plan outlines the actions that will enable PRASA’s transformation into a well-performing, safe, efficient, and sustainable water and wastewater utility in a manner that is beneficial to the interests of the people of Puerto Rico and compliant with PROMESA.

## 1.1 Purpose of the Fiscal Plan

The 2020 Fiscal Plan has been developed with the focus and commitment to deliver reliable, affordable, and safe water and wastewater treatment services while ensuring PRASA’s continued financial sustainability. In order to implement this Fiscal Plan, PRASA must take or is in the process of taking the following steps:



**Enhance revenues**



**Reduce expenses**



**Improve operational performance**



**Improve customer satisfaction and experience**



**Increase water availability and reduce service rationing risks**



**Execute a Capital Improvement Program (“CIP”) on time and on budget**

Successful completion of these steps will place PRASA on a path to achieve financial and operational sustainability and establish the foundation for PRASA to become a well-performing utility with access to short-term and long-term capital markets at reasonable rates.

## 1.2 Changes from Previous Fiscal Plan

The major changes from the prior Fiscal Plan, as certified by the Oversight Board on June 25, 2019, are as follows:

1. Updated projection period (from FY2019 through FY2024 to FY2020 through FY2025)
2. Included known and preliminary projected impact of COVID-19 on PRASA’s revenues and collections
3. Revised projections based on updated information, including electricity rates and macroeconomic assumptions
4. Incorporated the federal debt reprogramming into pre-measures financial projections
5. Included new, revised, and updated proposed measures



6. Updated CIP projections

### **1.3 Authority’s general information**

PRASA is a public corporation and governmental instrumentality of the Government of Puerto Rico (the “Government”). PRASA owns and operates the public water and wastewater system (the “System”) of the Commonwealth of Puerto Rico.

#### **1.3.1 Authority’s Mission and Vision**

PRASA’s core mission is to provide high-quality, safe, reliable, and affordable water and wastewater services to the people of Puerto Rico, protecting their health and the environment. To accomplish its mission, PRASA has adopted a vision to become a top-performing utility while continuously exceeding customer expectations and ensuring sustainable water resources management.

#### **1.3.2 History of the Authority**

PRASA is an instrumentality of the Government created on May 1, 1945 for the purpose of owning and operating the Government’s public water supply and wastewater systems.<sup>9</sup> Exhibit 1-1 below provides a timeline of PRASA’s history.

---

<sup>9</sup> Act No. 40



EXHIBIT 1-1: THE AUTHORITY'S HISTORICAL BACKGROUND TIMELINE

●	1945	<ul style="list-style-type: none"> <li>• <b>Authority created</b> through Act No. 40-1945</li> </ul>
●	1990–1993	<ul style="list-style-type: none"> <li>• <b>PRASA state of emergency</b> declared by Governor: <ul style="list-style-type: none"> <li>– PRASA's revenues were deemed insufficient to cover all obligations</li> <li>– PRASA was subsidized by Government (over \$400M annually)</li> </ul> </li> </ul>
●	1994	<ul style="list-style-type: none"> <li>• <b>Debt downgraded below investment grade</b>, eliminating capital market access</li> <li>• <b>Severe drought</b> impacted Puerto Rico</li> </ul>
●	1995	<ul style="list-style-type: none"> <li>• <b>Commonwealth guarantee</b> of PRASA's outstanding debt and future federal debt through Act No. 45-1995</li> </ul>
●	1995–2004	<ul style="list-style-type: none"> <li>• <b>PRASA's management goes under privatization:</b> <ul style="list-style-type: none"> <li>– 1995-2002: Professional Service Group Inc/Compania de Aguas de Puerto Rico</li> <li>– 2002-2004: Ondeo wins O&amp;M water services contract</li> </ul> </li> </ul>
●	2004	<ul style="list-style-type: none"> <li>• <b>Operational restructuring</b> through Act No. 92-2004: <ul style="list-style-type: none"> <li>– PRASA management transferred back to public sector</li> <li>– Operations reorganized into five Regions and Infrastructure Directorate</li> </ul> </li> </ul>
●	2005–2006	<ul style="list-style-type: none"> <li>• <b>Rate increase implemented in two phases</b> (128% on average across customer segments)</li> <li>• <b>Elimination of Government subsidies</b></li> <li>• <b>Bond anticipated financing</b> obtained from private banks</li> </ul>
●	2008	<ul style="list-style-type: none"> <li>• <b>Investment grade rating recovered</b>, allowing return to capital markets: <ul style="list-style-type: none"> <li>– Master Agreement of Trust (MAT) was created</li> <li>– \$1.3B in revenue bonds issued to PRASA</li> </ul> </li> </ul>
●	2008–2012	<ul style="list-style-type: none"> <li>• <b>Lines of credit from GDB and BANS</b> used to finance PRASA's CIP</li> </ul>
●	2012	<ul style="list-style-type: none"> <li>• <b>MAT amended</b> to enhance bondholder protections</li> <li>• <b>\$2.1B in revenue bonds</b> issued to PRASA</li> </ul>
●	2012–2014	<ul style="list-style-type: none"> <li>• <b>Credit rating downgraded</b> to “non-investment grade”</li> <li>• <b>Strategic Plan adapted</b> to reduce dependence on bonds for CIP financing</li> </ul>
●	2013	<ul style="list-style-type: none"> <li>• <b>Rate increase</b> of 60% on average across customer segments</li> <li>• <b>\$200M BAN loan</b> to finance CIP</li> </ul>
●	2015	<ul style="list-style-type: none"> <li>• <b>Severe drought</b> required water rationing plan, resulting in decreased billings</li> </ul>
●	2016	<ul style="list-style-type: none"> <li>• <b>“Revitalization Act”</b> (Act no 68-2016) provided the issuance of up to \$900M in new bonds</li> <li>• <b>PROMESA enacted</b> in response to Puerto Rico's financial and debt crisis</li> <li>• <b>Forbearance Agreements</b> executed for deferral on federal debt payments</li> </ul>
●	2017	<ul style="list-style-type: none"> <li>• <b>Hurricanes Irma and Maria</b> caused extensive system damage</li> <li>• <b>Series of modest rate increases</b> adopted from 2018 to 2021</li> </ul>
●	2019	<ul style="list-style-type: none"> <li>• <b>PRASA's debt obligations re-programmed for SRF and RD loans</b></li> </ul>
●	2020	<ul style="list-style-type: none"> <li>• <b>January 2020 earthquakes</b> caused extensive system damage</li> <li>• <b>COVID-19 pandemic</b> caused collection delays and suspension in service disconnection</li> </ul>

Beginning in the early 1990s, due to an inability to control operating expenditures and implement consistent, modest rate increases, the Authority's revenues became insufficient to meet all of its obligations, including paying debt service on its outstanding revenue bonds. As a result, the Government provided the Authority with subsidies, including direct Government appropriations



to fund the Authority's capital projects. In 1994, the Governor declared the Authority in a state of emergency, and its debt was downgraded below investment grade, eliminating the Authority's access to capital markets at reasonable rates to finance its CIP.

Between 1995 and 2004, to improve service and overall efficiency, the Government and the Authority engaged and contracted with private companies to manage, operate, and maintain its System. In 2004 the Government enacted Act 92-2004 which transferred all responsibilities back to the public sector. Post-privatization, and in efforts to allow the Authority to become more autonomous, a two-phased rate increase was implemented in October 2005 and July 2006; the first rate increases in almost 20 years. Implementation of the rate increase allowed the Authority to meet all operational and debt service obligations without the need for subsidies from the Government, which were discontinued shortly thereafter. However, the Authority still faced challenges in generating sufficient revenues to invest in its CIP. As such, the Authority covered CIP costs through interim financing until 2008.

In 2008, the Authority recovered its investment grade credit rating and was able to access the capital markets at reasonable rates. The Authority raised \$1.3 billion in new senior lien debt in March 2008 to finance its CIP and repay outstanding lines of credit. Also, \$284 million of PRASA's 1995 bonds were refunded for a total bond issuance of approximately \$1.6 billion.

Once the proceeds of the 2008 senior bonds were used for the construction of CIP projects, the Authority continued to finance its CIP with interim lines of credit from the GDB and bond anticipation notes ("BANs") from commercial banks until 2012. In 2012, the Master Agreement of Trust ("MAT") was amended to enhance bondholder protections and provide additional guarantees of repayment to senior bond holders by agreeing to a gross revenue pledge (i.e., senior lien debt service would be paid ahead of the Authority's operating expenses). The amendments to the MAT allowed the Authority to issue \$2.1 billion in revenue bonds (i.e., senior lien) in 2012, to term out \$1.1 billion in GDB and BANs interim lines of credit, and to provide \$350 million additional funds for its CIP.

In 2013, a new rate adjustment was implemented, incorporating a new environmental, compliance, and regulatory charge into the rate structure, to generate enough revenue to cover all operating needs (i.e., expenses and debt service) at the time. In addition, a \$200 million BAN was extended to the Authority by a syndicate of local commercial banks to fund its CIP costs until a new, long-term bond issuance could be completed. The bond issuance was expected to be completed during FY2014 but was never executed due to downgrades in the Government's credit ratings, leading to subsequent downgrades in the Authority's credit ratings.

From late 2012 through 2014, the major credit rating agencies gradually downgraded the Authority's long-term credit ratings to non-investment grade territory, citing similar reasons for the decision.<sup>10</sup> For example, Standard & Poor's justification for its downgrade was:

- "Relatively fragmented water and wastewater system, which, coupled with significant deferred capital needs, has resulted in high operational deficiencies;
- Historically poor financial performance stemming from unwillingness to raise rates, deficient billing and collection systems, and low liquidity;

---

<sup>10</sup> Moody's: downgraded from Ba1 to Ba2 on December 2013; S&P: downgraded from BBB- to BB+ on March 2013; Fitch: downgraded from BBB- to BB+ on February 2014.



- Estimated \$1.5 billion in identified capital improvements over the next five years, stemming primarily from compliance-related mandatory projects, as well as other critical system improvements.”<sup>11</sup>

The downgrade in the rating would have been worse if not for the recent rate increase that boosted confidence in the Authority’s financial operations.<sup>12</sup> However, the outcome was that the Authority once again lacked access to short-term and long-term capital markets at reasonable rates in order to finance its CIP, forcing it to suspend its CIP and accumulate approximately \$150 million by FY2016 in debt to its vendors and suppliers.

In 2016, the US Congress enacted the Puerto Rico Oversight, Management, and Economic Stability Act (“PROMESA”) to head off Puerto Rico’s financial and debt crisis. PROMESA created the Financial Oversight and Management Board for Puerto Rico (the “Oversight Board” or “FOMB”), which provides oversight to the Authority so that it may achieve fiscal balance.

In 2016, the Authority executed a Forbearance Agreement that allowed for deferral of payments on its federal debt until 2019, resulting in approximately \$128 million in debt service relief.<sup>13</sup> In 2019, the Authority and PRFAFAA consummated definitive agreements that reprogrammed the approximately \$1 billion in federal debt. This resulted in \$380 million in debt service relief over the next ten years, \$30 million in interest forgiveness, and renewed access to potential sources of federal funding.

In recent years, the Authority, in collaboration with the Oversight Board, has made measurable progress towards reaching fiscal sustainability. Successful implementation of fiscal measures, such as mandated rate increases and more proactive and targeted collections practices, has improved the Authority’s overall financial position. However, operational deficiencies still remain. If left unaddressed, they pose a risk to water quality, availability, and affordability for the people of Puerto Rico. The Authority’s history demonstrates that gaining access to short-term and long-term capital markets at reasonable rates, in and of itself, is not a predictive formula that guarantees long-term performance. Instead, the Authority must focus on achieving and maintaining sustainability across management, finances, and operations.

## 1.4 Overview of the Authority’s system

In 2019, the Authority served a population of approximately 3.2 million residents and approximately 5.2 million visitors.<sup>14</sup> The Authority is the sole provider of two distinct services in Puerto Rico—clean water supply and wastewater management—serving approximately 96% and

---

<sup>11</sup> Chapman, Theodore, “Ratings Direct Summary: Puerto Rico Aqueduct & Sewer Authority; Water/Sewer”, Standard & Poor’s Rating Services, 26 March 2013.

<sup>12</sup> “Moody’s downgrades Puerto Rico GO and related bonds to Ba2, notched bonds to Ba3 and COFINA bonds to Baa1, Baa2; outlook negative”, Moody’s Investors Service, 7 February 2014.

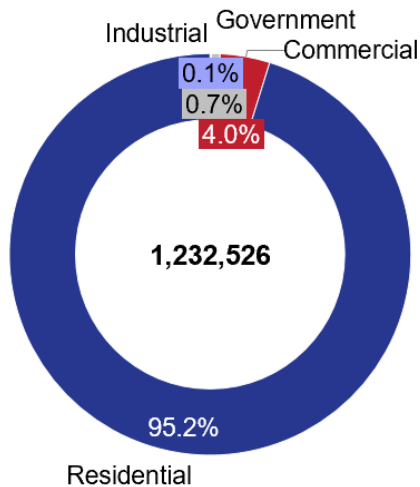
<sup>13</sup> Drinking Water State Revolving Funds, Clean Water State Revolving Funds, and USDA Rural Development loan program

<sup>14</sup> Source: US Census Bureau – December 2019 estimates; Aerostar, AirDNA, Discover Puerto Rico, Smith Travel Research.



59% of the population,<sup>15</sup> respectively. As of June 30, 2019, PRASA had 1,232,526 active accounts, of which 95% were residential accounts. Exhibit 1-2 provides a breakdown of customers by category.

**EXHIBIT 1-2: CUSTOMER BREAKDOWN BY CATEGORY**



The Authority provides water and wastewater services throughout the island, which has an approximate area of 3,535 mi<sup>2</sup> (additional facts shown in Exhibit 1-3). Because Puerto Rico is an island with varied topography, dispersed demographic distributions, and a diverse mix of users, the Authority has a fragmented and localized system of water sources, treatment, and delivery (as shown in Exhibit 1-4 and Exhibit 1-5). While a few facilities serve the large urban centers and several adjacent communities in a single area, most of the Authority’s facilities are small in terms of service capacity.

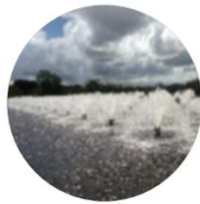
<sup>15</sup> Remaining 41% of wastewater service customers use septic tanks and other forms of wastewater disposal (smaller private effluent disposal systems).



EXHIBIT 1-3: OVERVIEW OF THE AUTHORITY'S INFRASTRUCTURE SYSTEM



8 dams



113 Filter Plants  
with 136 intakes,  
producing  
~540 MGD



51 Wastewater  
Plants treating  
~200 MGD

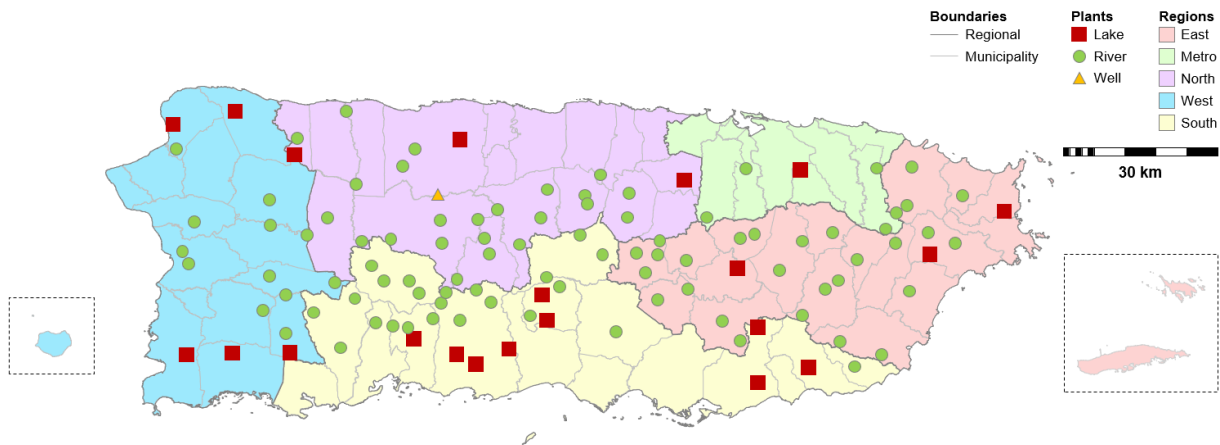


Around 3,800  
auxiliary facilities:  
Tanks – 1,560  
Pump stations – 1,977  
Water wells – 249



Over 20,000 miles  
of pipes

EXHIBIT 1-4: PRASA WATER TREATMENT PLANTS<sup>16</sup>

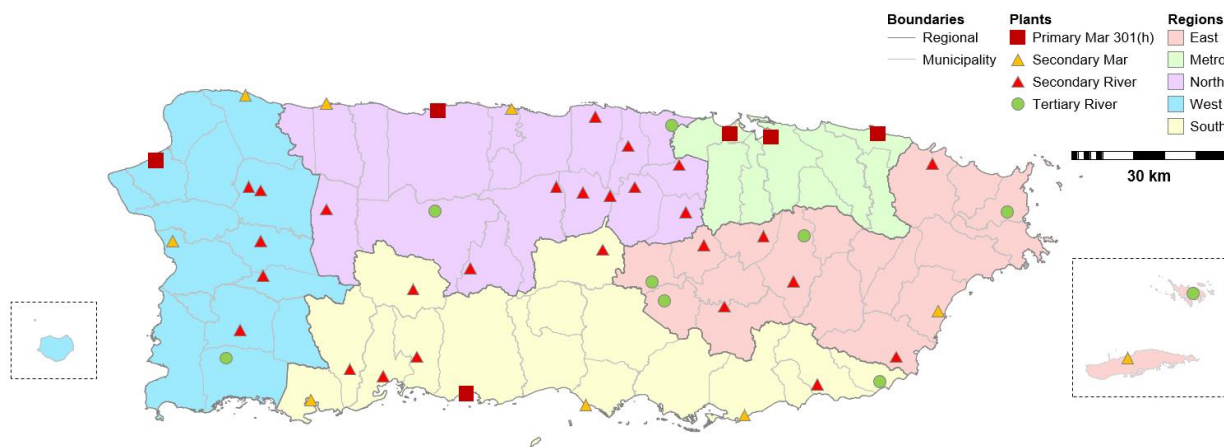


<sup>16</sup> Active facilities as of December 31, 2019, according to PRASA's internal GIS database.





EXHIBIT 1-5: PRASA WASTEWATER TREATMENT PLANTS<sup>17</sup>



## 1.5 Governance and Organizational Structure

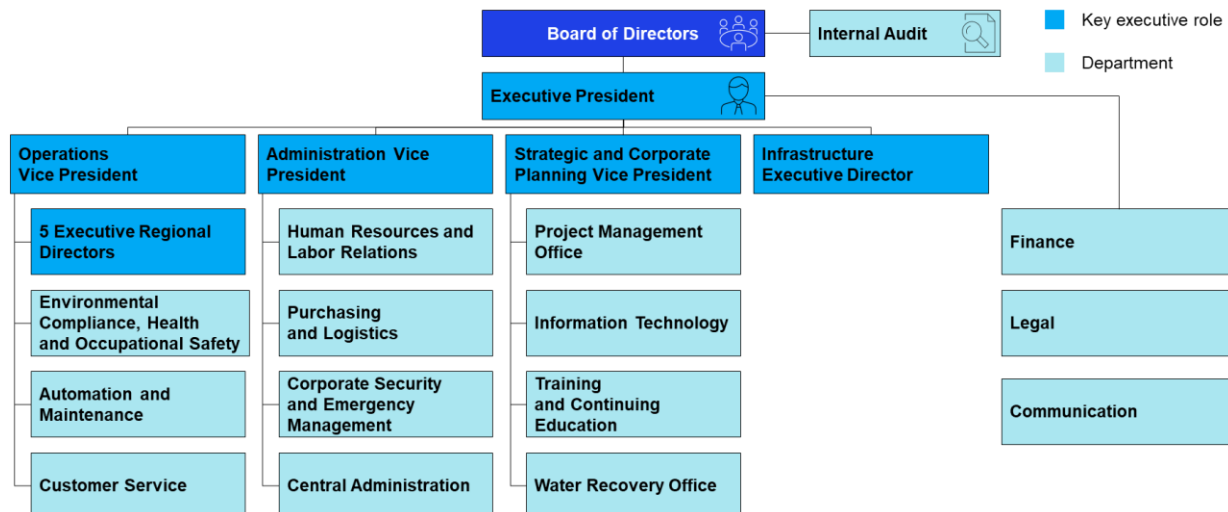
The Authority has adopted an organizational structure and governance model to better achieve its mission, implement its Fiscal Plan, and improve operational efficiency and accountability. Exhibit 1-6 shows PRASA’s current organizational structure. Three key departments and offices to highlight are:

- **Strategic and Corporate Planning Department** is responsible for the PMO that ensures the successful execution of Fiscal Plan measures. It’s Water Recovery Office is specifically responsible for all non-revenue water related measures.
- **Infrastructure Department** plans and executes the CIP, in collaboration and with the support of the Finance Department.
- **Office of Environmental, Compliance, Health and Occupational Safety** focuses on providing quality water service and oversees compliance requirements related to the consent decree.

<sup>17</sup> Active facilities as of December 31, 2019, according to PRASA’s internal GIS database.



EXHIBIT 1-6: ORGANIZATIONAL STRUCTURE



### 1.5.1 Governing Board

An experienced Governing Board that is independent from direct political influence is essential to ensuring the Board can effectively carry out its duties. Moreover, ensuring Board Members are able to serve their entire term length—and not be replaced due to changes in the political system—is essential to keeping consistency and institutional knowledge in the decision-making process.

PRASA’s Governing Board is responsible for making and/or approving all major decisions taken by the Authority, including overall institutional policies, strategies and programs, budget and capital improvement, executive and key management recruitment and removal, approval of union contracts, major procurements, professional services contracts (beyond the materiality limits awarded to the Executive President), and all contract changes (beyond the materiality limits awarded to the Executive President).

Pursuant to Act No. 68-2016, which sets requirements for a diversified and professionalized board, PRASA’s Governing Board was restructured to include seven members, consisting of four Independent Directors appointed by the Governor (with advice and consent from the Senate), two ex officio members, and one Consumer Representative, with the following qualifications:

1. One Professional Engineer licensed to practice in Puerto Rico with at least ten years of experience
2. One attorney with at least ten years of experience in Puerto Rico and licensed to practice in the Commonwealth of Puerto Rico
3. One Corporate Finance Specialist with wide knowledge and experience in the field
4. One Professional with expertise in any field related to PRASA functions
5. The Executive Director of the Association of Mayors (ex officio member)
6. The Executive Director of the Federation of Mayors (ex officio member)



7. One Consumer Representative, a private citizen representing the Authority's customers<sup>18</sup>

Members not named by the Governor include the Consumer Representative, the Executive Director of the Association of Mayors, and the Executive Director of the Federation of Mayors.

Members appointed by the Governor shall be selected from a list of at least ten candidates, vetted by a recognized executive search firm, and evaluated according to objective criteria that includes the professional and educational backgrounds of the candidates. The Consumer Representative is elected by PRASA's customers through a process under the jurisdiction of the Puerto Rico Department of Consumer Affairs.

Term lengths for non-ex-officio members are as follows:

- The Consumer Representative will serve for a three-year term with no term limits
- The Governor-appointed members shall serve staggered terms of five years and may only hold office for three terms<sup>19</sup>

Additionally, an AAFAF Representative will sit on the Board while PRASA is a covered territorial instrumentality under PROMESA, thus temporarily increasing its size to eight Board Members.<sup>20</sup>

### **1.5.2 Executive Officers**

Executive Officers shall be those appointed by the Governing Board. Having an independent and experienced Board select the leadership further protects the Authority from political influence and ensures only the most qualified individuals are selected for these roles.

The Executive Officers include:

- **Executive President:** The Chief Officer, based solely on experience, ability, and other qualities that especially enables them to lead the Authority, achieving its strategic mission and vision
- **Infrastructure Executive Director:** Preferably a Licensed Professional Engineer with experience in activities related to the development and management of infrastructure projects
- **Five Regional Executive Directors:** For the Metro, North, South, East, and West Regions
- **Three Vice Presidents:** Operations, Administration, and Strategic & Corporate Planning

The President and the six Executive Directors will serve a five-year term as established by Act No. 68-2016.

---

<sup>18</sup> Currently, PRASA's Governing Board has two Consumer Representatives, as they were selected prior to the enactment of Act No. 68-2016 and their current terms do not expire until June 2020. However, after their terms end PRASA's Governing Board will be revised to have only one Consumer Representative, as stated by Act No. 68-2016.

<sup>19</sup> Initially, two members were appointed for five years and two members for six years in order to achieve the staggered term requirement. After this, all members were shifted to five-year terms.

<sup>20</sup> Act No. 2-2017.



## 1.6 The Authority's challenges

Over the past several years, Puerto Rico has faced significant structural challenges that have adversely affected the Authority (e.g., declines in economic activity and population). Similarly, the Authority faces major financial, strategic, and operational challenges specific to water utilities.

PRASA faces a specific set of challenges, such as:

- Maintaining a large, complex, and capital-intensive system (+20,000 miles of pipeline and 164 water and wastewater treatment plants)
- Reducing longstanding and significant volumes of non-revenue water
- Addressing system vulnerabilities to climate change and natural disasters
- Declining population and water consumption
- Balancing a need for revenue increases for cost recovery against customer affordability issues
- Meeting environmental and safety regulatory requirements, including implementing EPA/DOJ consent decree requirements
- Accessing federal funding to restore the System to pre-hurricane levels

All these issues must be addressed while facing an inability to access short-term and long-term capital markets at reasonable rates. In recent months, there has been the added challenge of operating during a global pandemic. While many of these challenges may be present in other water utilities, the Authority's challenges are heightened due to Puerto Rico's current economic situation.

### 1.6.1 Infrastructure system challenges

#### 1.6.1.1 Large and complex infrastructure

Water and wastewater utilities are among the most *capital-intensive* business entities in the world, requiring significant investment in property, facilities, and equipment in order to provide services.<sup>21</sup> Water and wastewater utilities are approximately 76% more capital-intensive than power utilities, making investment and maintenance of the System more essential than other businesses.<sup>22</sup>

Exhibit 1-7 shows that PRASA has one of the most complex systems when compared to other US-based, peer utilities serving more than one million customers. This results in a higher degree of diversity throughout the Authority's assets in terms of size and age when compared to other utilities, driving up operating costs and capital requirements. There are also added safety challenges, system complexity, and structural risks compared to more centralized infrastructure systems with larger regional facilities. Moreover, having such a large, complex network plays a role in the high level of water losses it experiences.

---

<sup>21</sup> The term capital intensity is used to describe the amount of capital assets required to support a business in the generation of revenue.

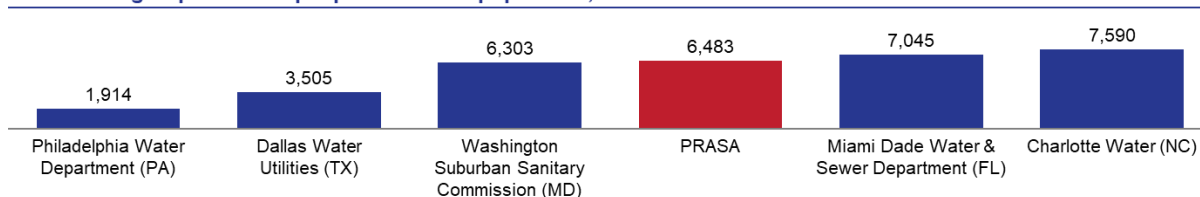
<sup>22</sup> Improving Water Utility Capital Efficiency (USEPA and WRF, 2009).



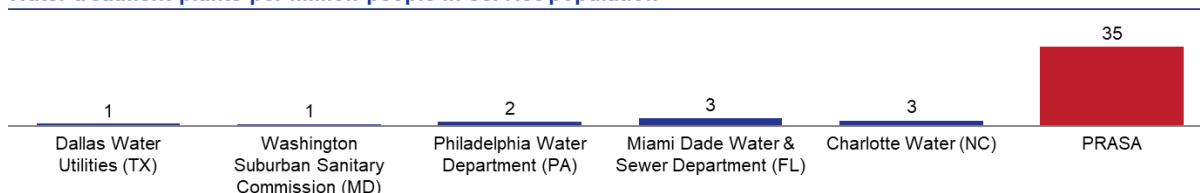
As a result of the complexity of the System and years of underinvestment, PRASA faces safety and reliability risks that will require a high level of capital investment to remediate. The long-term delivery of reliable, affordable and safe water and wastewater services requires a near-term implementation of system improvement and water loss initiatives as well as a fundamental reassessment of PRASA’s operations. PRASA must complete a Water and Wastewater 10-year Master Plan, focusing on achieving long-term structural integrity and ensuring it can provide reliable, affordable, and safe water and wastewater services for Puerto Rico while ensuring financial sustainability.

**EXHIBIT 1-7: SYSTEM COMPLEXITY FOR COMBINED WATER AND WASTEWATER (UTILITIES IN THE U.S. WITH MORE THAN ONE MILLION CUSTOMERS<sup>23</sup>)**

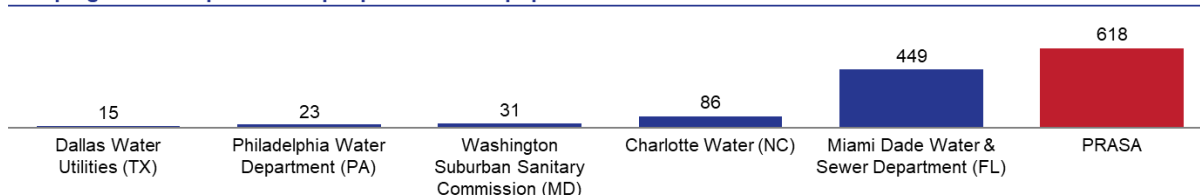
**Network length<sup>1</sup> per million people in service population, miles**



**Water treatment plants per million people in service population**



**Pumping stations<sup>2</sup> per million people in service population**



<sup>1</sup> Combined water and sewer network length  
<sup>2</sup> Combined water and wastewater pumping stations

**1.6.1.2 High volume of NRW**

Water losses consist primarily of commercial and physical losses. The AWWA defines the water balance components of water losses as apparent (or commercial) and real (or physical) losses.<sup>24</sup> Different categories of water loss can be found in Table 1-1

Commercial losses are due to unauthorized activities such as theft, or operational short comings like meter error, misbilling, or data error. Hence, commercial losses represent water that is

<sup>23</sup> Utility specific data, available through public records.

<sup>24</sup> “M36 Water Audits and Loss Control Programs, 4th Edition”, AWWA, 2016.



produced and reaches customers but is not billed, and therefore does not generate revenue for PRASA.

Physical losses, on the other hand, are due to leaks and breaks throughout the System network. It represents water that is produced but never reaches the end customer and thus, is not billed. This is partially due to the gradual aging and depreciation of infrastructure, however, it's also the result of long term under-investment, such as failure to install appropriate instrumentation for loss control and the lack of monitoring technology. As a result, PRASA must process substantially more water than is required, incurring significant added costs along the way (via chemicals and electricity spending, mainly). This added production aggravates issues of water availability during periods of droughts, thus increasing the likelihood of rationing programs that provide only short-term relief.

TABLE 1-1: WATER BALANCE COMPONENTS (AWWA M36 MANUAL)

System input volume (dispatched water)	Authorized consumption	Billed authorized consumption	Billed metered consumption	Revenue water	
			Billed unmetered consumption		
	Water losses	Unbilled authorized consumption		Unbilled metered consumption	NRW
				Unbilled unmetered consumption	
		Commercial losses (apparent losses)		Unauthorized consumption (theft)	
				Customer metering inaccuracies	
				Data handling (billing) errors	
		Physical losses (real losses)		Main line leakage	
	Storage tank overflows				
	Service connection leakage				

Source: AWWA and International Water Association

PRASA's underinvestment in metering infrastructure affects both its customer service capabilities and its ability to address NRW as a whole. Some of PRASA's old, mechanical meters have an estimated error margin of up to 15%.<sup>25</sup> For example, during COVID-19, old metering technology and the inability for meter readers to perform their duties forced PRASA to rely on consumption estimates rather than using actual, accurate meter measurements. Therefore, inaccurate consumption data, combined with the fact that PRASA does not measure its water production, effectively precludes PRASA from sizing and managing the impacts of NRW.

Estimates from FY2015 indicate that approximately 55% of water (299 MGD of the average 557 MGD) produced is lost and not billed by PRASA. Of the total amount of water losses,

<sup>25</sup> Professional Opinion report: Puerto Rico Aqueduct and Sewer Authority; prepared by Raftelis Financial Consultants, 2016



approximately 64 MGD (~21%) was due to commercial losses and 235 MGD (~79%) due to physical losses.<sup>26</sup> These levels of water loss are up to two times higher than comparable utilities.<sup>27</sup>

Since commercial losses have a higher economic value than physical losses and require less upfront capital, PRASA is prioritizing commercial losses over physical losses. Simply put, a portion of commercial losses can be converted into service revenues, primarily through meter replacement, resulting in a reduction of meter error, theft, and unauthorized consumption. For this reason, PRASA must address commercial losses as a Fiscal Plan measure, either implemented independently or through a P3 agreement (further described in Chapter 3).

On the other hand, reductions in physical water loss can result in cost savings associated with water production. To address physical losses, typical operational measures include installing appropriate flow monitoring equipment, performing leak detection throughout the water system (i.e., water mains, service lines, meters, hydrants, valves), and reducing water pressure where potential leaks may occur. The capital investment requirements to decrease leaks include investing in the replacement of infrastructure, specifically underground water lines, making this a much more time and resource intensive effort compared to commercial loss reduction. PRASA's efforts to reduce physical losses are detailed in Chapter 3.

PRASA's failure, over the years, to address both commercial and physical water losses contributes significantly to PRASA's financial challenges. In particular, the System's high levels of physical water losses have increased costs and have placed a burden on Puerto Rico's residents and businesses, increasing their vulnerability to rationing measures implemented during droughts. Therefore, water loss reduction is a top priority for PRASA.

## **1.6.2 Vulnerability due to climate change, natural disasters, and COVID-19**

### **1.6.2.1 Climate change and natural disasters**

Worldwide, water utilities have been exposed to more frequent hazards from climate change and natural disasters such as hurricanes, droughts, storms, floods, and rising sea levels. In some regards, given its location, the Authority is even more exposed to these risks. Since FY2015, Puerto Rico has been affected by a severe drought (October through December 2015), two Hurricanes (Irma and Maria in September 2017), and a major earthquake in Puerto Rico's southern region (January 7, 2020, with a magnitude of 6.4 on the Richter scale).

According to most recent information, Hurricanes Irma and Maria alone caused \$769M in damages to PRASA's infrastructure<sup>28</sup>. Furthermore, PRASA estimates that revenue reduction and incremental expenses incurred accounted for \$293M and \$228M, respectively. Therefore, the total Hurricanes impact is estimated at \$1.3B<sup>29</sup> in damages. Similarly, the January earthquakes in

---

<sup>26</sup> Professional Opinion report: Puerto Rico Aqueduct and Sewer Authority; prepared by Raftelis Financial Consultants, 2016

<sup>27</sup> PRASA's commercial and physical losses for FY2015 were 44 and 160 gallons per service connection per day, respectively. For combined water and wastewater utilities, commercial losses of comparable utilities are 21 gallons per service connection per day and physical losses from 95 gallons; 2018 AWWA Utility Benchmarking

<sup>28</sup> Preliminary estimates calculated by PRASA and subject to further revisions.



the south and west regions of Puerto Rico are likely to have caused damage to PRASA’s buried infrastructure (pipeline network) and other assets, however, this figure has not yet been estimated. In addition to damages to its infrastructure, PRASA also incurred operational costs, including increased expense for payroll and other emergency-related mitigating action (e.g., water transport, electric generator rental).

Currently, PRASA is facing a new dry season with 50% of the Island under moderate to severe drought conditions, which resulted in the Authority needing to implement a planned service interruption program for approximately 8,000 clients served by the El Yunque water treatment plan (WTP) located in the eastern region of the Island.

As the Earth’s temperature rises and ocean temperatures become warmer for longer periods of time, an increase in the frequency of severe weather events is expected.<sup>30</sup> In FY2015, PRASA completed a Vulnerability Study on the impacts of climate change on the System and concluded that three specific stressors present the highest impact risk to PRASA’s System were the following:

- **Sea level rise** threatens flooding coastal infrastructure, which could force PRASA to decommission specific infrastructure along the coasts altogether.
- **Changes in precipitation patterns** could negatively impact the Authority’s infrastructure and service levels. On one hand, more precipitation in the short term increases turbidity, affecting the overall water quality. On the other hand, less precipitation in the long term leads to droughts, which reduces the availability of water.
- **Hurricane and tropical storms** and the damage caused by such events could generate significant infrastructure damage and impose large additional, and unforeseen, capital expenses.

The risks identified in the Vulnerability Plan served as the basis for PRASA’s Adaptation Plan, which was completed in April 2015. The Adaptation Plan included recommendations for studies that, if resulting in capitalizable projects, could be included in the CIP; otherwise, recommended studies and projects could be included in the operational budget.<sup>31</sup> In the five years since the plan was developed, the capital projects from this Adaptation Plan have yet to be integrated into PRASA’s CIP, increasing overall System risk from the effects of climate change.

PRASA is in the process of updating its Vulnerability Analysis and Emergency Response Plan to comply with the America Water Infrastructure Act of 2018 (“AWIA”). The updated plan must include an assessment of PRASA’s System vulnerability to several threats, including climate change and natural disasters. PRASA must also update its 10-year Master Plan with information from the 2020 census to be able to identify projects that properly address challenges arising from climate and population change. Integrating these capital investment requirements into future plans, strategies, and—most importantly—the CIP will be critical to PRASA’s preparedness to face climate change.

### **1.6.2.2 COVID-19 challenges**

---

<sup>30</sup> Khan, J. Stuart et al., “Extreme weather events: Should drinking water quality management systems adapt to changing risk profiles?”, *Water Research*, Volume 85, November 2015

<sup>31</sup> Projects capable of being converted into capital





Like the rest of the world, Puerto Rico was confronted with the COVID-19 global pandemic in late February of this year, which required immediate and urgent action. On March 15, the Government enacted Executive Order 2020-023, which implemented social distancing measures such as the closure of all businesses in Puerto Rico, a curfew for all residents, and penalties to enforce compliance. The Government issued several extensions on the March order with various modifications to Puerto Rico’s social distancing measures. On April 9, the Government approved Act 39-2020, which prevented PRASA from disconnecting residential customer’s water services due to non-payment.

The COVID-19 pandemic, associated mitigation policies, and resulting economic impacts have presented certain challenges for PRASA:

- **Reduced collections:** Leading up to March 15, PRASA gathered 96% of forecasted collections in FY2020. After March 15, once social distancing measures went into effect, weekly collection rates dropped as low as 40%. After March 15, once social distancing measures went into effect, weekly collection rates dropped as low as 40% in April. As of May 31, PRASA reported that actual collections were 18%, or \$60 million, lower than expected for the time period, thus presenting a risk to short-term liquidity. PRASA is anticipating collecting 85% of overdue bills from April to June 2020 during FY2021. Collections are also showing an upward trend since easing of lockdown measures. Further discussion on the collection impacts can be found in Chapter 3.
- **Increased costs:** An additional \$6 million in costs as of May 31, 2020, was incurred to address and manage the emergency, including incremental costs for additional payments to essential workers—as required by current legislation—and for additional personal hygiene and protection equipment. As social distancing measures remain, additional costs are expected in order to ensure compliance.
- **Shortage of supplies and interruption to contracted services:** There has been a shortage in personal protection equipment (“PPE”) that allows for proper hygiene and prevention to protect the health of PRASA’s employees. Moreover, supply chain interruptions have also resulted in shortages of critical materials like chemicals, thus putting service continuity at risk. Finally, PRASA’s contractors and other service providers were either impacted or unable to deliver goods and services to PRASA.
- **Workforce issues:** Some employees were unwilling to perform work due to concerns for their health and their families, leading to an increased work backlog.
- **Delayed implementation of CIP:** Crew operational limitations and restrictions on construction meant that PRASA had to halt work on its CIP. Further sustained delays to CIP implementation could leave the System, potentially, at risk of additional safety, reliability, and water allocation issues.

Notwithstanding, PRASA has taken proactive actions to support its liquidity, such as promoting alternative payment options to improve collections, drawing down on previously collected insurance proceeds, and temporarily pausing funding of its Capital Improvement Fund.

PRASA also took steps to address operational challenges, including:

- Maintaining on-site employees at minimum required levels in order to ensure an adequate and uninterrupted service while minimizing exposure (e.g., suspension of meter readings to protect the health of employees and closing customer service offices)
- Providing PPE to all employees required to report on-site



- Promoting remote work for administrative and support personnel, significantly expanding the number of virtual tasks performed, and increasing virtual communication among PRASA’s personnel
- Developing—in collaboration with labor unions—a *Plan for Exposure Control on Return to Work*, which establishes prevention and control policies to manage confirmed cases or symptomatic personnel, and security measures specific to site types (e.g., plants, commercial agencies, lab), amongst other things.

### **1.6.3 Customer Demographic Challenges**

#### **1.6.3.1 Population decline**

For over a decade, Puerto Rico has faced an economic crisis that has caused severe hardships on its residents. This difficult economic landscape, underpinned by years of negative economic growth, has resulted in increased poverty levels, population decline, and reduced labor participation rates, all of which have negatively impacted PRASA’s finances. This situation has been exacerbated by recent natural disaster events, which have accelerated population out-migration.

The decrease in population and economic growth has resulted in a corresponding decrease in billed water consumption. Between FY2015 and FY2019, the island’s population decreased by 9.1%.<sup>32</sup> This corresponded with a decline in water consumption of 13% and billing by 2%, despite rate increases implemented in FY2018-FY2020.

#### **1.6.3.2 Rate affordability**

Affordability of service is an important concern for all utilities. The rate structure in place needs to balance between adequate cost recovery and minimizing financial burden on all customer classes. For this reason, one of the measures recommended is to perform a comprehensive cost of service and rate structure design study to ensure PRASA has an optimal rate structure in place.

### **1.6.4 Regulatory Challenge**

#### **1.6.4.1 Environmental Regulations**

Water utilities, such as PRASA, are highly regulated by several local and federal entities to ensure the protection of consumers’ health and the environment. Implementing projects to comply with these regulations requires a high level of investment and operating costs, which must be balanced with funding availability and affordable rates.

The Authority is currently under a Consent Decree with the U.S. Environmental Protection Agency (USEPA) and the Department of Justice (DOJ) and a Transactional Agreement with the Department of Health (DOH). These agreements require the Authority to take certain actions, including the execution of certain projects based on a prioritization system.

Additional details on the consent decree can be found in the Appendix.

---

<sup>32</sup> The 2020 Fiscal Plan incorporates the macroeconomic and demographic projections developed for and presented in the 2020 Commonwealth Fiscal Plan certified by the FOMB on May 27, 2020.



## 1.6.5 Financing Challenges

### 1.6.5.1 Access to FEMA funding

Recovery funds from FEMA are essential for short-term system quality to restore the System after hurricanes, with damages estimated at a total of \$769 million. PRASA is currently working with FEMA to expedite the process of the damage evaluation and funds disbursements to restore the System.

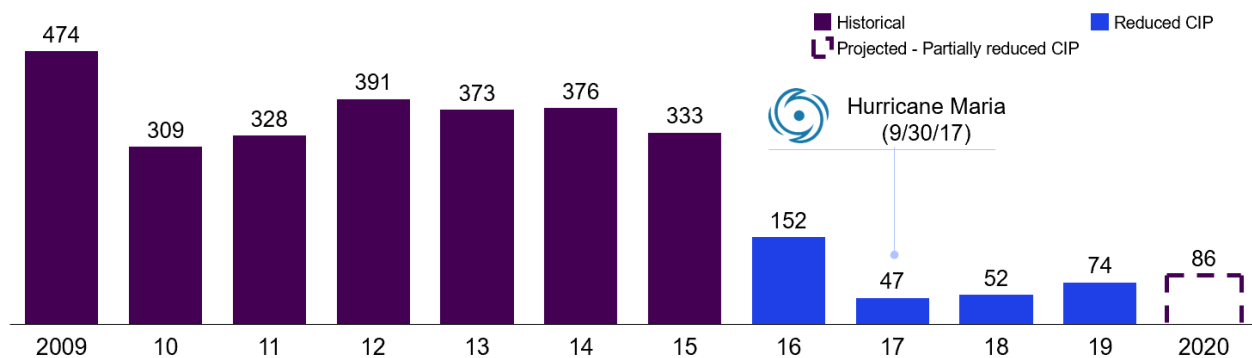
To date, the Authority has received \$139M in reimbursements directly related to Emergency Works, and is expecting \$43M in FY2021. Regarding Emergency and Permanent works, the Authority is currently working with FEMA and COR3 on an award strategy which will result in a recovery budget amount for all eligible permanent work.

The Authority is also developing scopes of work and cost estimates for infrastructure projects resulting from the January earthquakes. Additionally, the Authority has already incurred or committed \$10M in operational costs related to the January earthquakes.

### 1.6.5.2 Inability to access the capital markets

PRASA's inability to access short-term and long-term capital markets at reasonable rates to meet its borrowing needs has required it to self-fund its CIP. This limited its ability to finance a full CIP portfolio from 2016 to 2019. Capital disbursements averaged only \$81 million per year during this time compared to the 2005 to 2016 average of approximately \$400 million, as shown in Exhibit 1-8.

EXHIBIT 1-8: CAPITAL IMPROVEMENT PROGRAM FUNDING (FY2009-FY2019, IN \$' MILLIONS)



## 2 Pre-Measures Financial Results

---

The Pre-Measures Financial Results considers the Authority’s current financial situation and assumes the Authority will continue its current state of operations without implementing any new additional measures to increase revenues, reduce expenses, or modify existing debt service obligations. The Pre-Measures Financial Results reflects the Authority’s financial needs if it were to cover all of its current obligations under a status-quo situation. The Pre-Measures Financial Results do not include measures completed as a part of past Fiscal Plans nor new measures to improve financial situation.

The main assumptions used to determine the projections for the four components of PRASA’s financial and operational model—revenues, expenses, CIP and financing and debt service—are explained throughout this Section.

### 2.1 Main Assumptions

PRASA’s Pre-Measures Financial Results presented herein reflect the best projections of future results pre-measures based on (i) PRASA’s current financial situation and (ii) the following general assumptions:

- Service rates as approved in 2013 not including additional rate adjustments required by the Oversight Board already implemented in FY2018-FY2020 and future projected adjustments
- Current level of expenses increased by inflation, excluding impact from unknown, extraordinary circumstances
- Current contractual debt service, including the benefit of the federal debt reprogramming completed on July 26, 2019
- Capital Improvement Program as approved by PRASA’s Governing Board on February 25, 2020 (Resolution 3154)
- Macroeconomic projections provided by the Oversight Board

A summary of some specific assumptions used to develop the 6-year Pre-Measures Financial Results are included in Table 2-1.



TABLE 2-1: SPECIFIC ASSUMPTIONS TO DEVELOP THE FISCAL PLAN

<b>Revenues</b>	<ul style="list-style-type: none"> <li>• <b>Billings:</b> Residential, Commercial and Government billings are projected based on macroeconomic and demographic indicators.<sup>33</sup> Industrial billing is projected based on real GNP macroeconomic indicators.<sup>34</sup></li> <li>• <b>Collections:</b> <ul style="list-style-type: none"> <li>○ <b>FY2021:</b> Projected a partial recovery of uncollected FY2020 revenues as a result of public policy measures taken in response to COVID-19; projecting a recovery in collections to 96% for residential, commercial, and industrial accounts, and 91% for government accounts by January 2021<sup>35</sup></li> <li>○ <b>After FY2021:</b> Projected collections of 96% for residential, commercial, and industrial and 92% for government accounts in FY2022, which gradually increases to 95% by FY2025</li> <li>○ <b>Deferred collections:</b> Projected recovery of uncollected revenues in FY2020 (i.e., payments not received during the pandemic) due to COVID-19 is estimated at 85% over a 9-month period in FY2021.</li> </ul> </li> </ul>
<b>Expenses</b>	<ul style="list-style-type: none"> <li>• <b>Payroll and related:</b> Based on average cost per FTE as of May 2020, and including assumption that headcount increases to 4,700 by FY2021</li> <li>• <b>Electricity:</b> Based on FY2020 preliminary consumption projections and electricity rates projections as provided by PREPA on June 12, 2020, ranging from 22.2 to 23.8 cents per kWh during the Fiscal Plan period</li> <li>• <b>Other expenses:</b> Projected based on historical representative costs and increased by associated inflation rate</li> </ul>
<b>Capital Improvement Program</b>	<ul style="list-style-type: none"> <li>• <b>Emergency/permanent works:</b> Estimated cost was based on preliminary assessment of damages from the Hurricanes Maria and Irma to PRASA's infrastructure, assuming 90% of federal funds from FEMA for such projects after insurance proceeds are applied</li> <li>• <b>Compliance Projects:</b> Based on current agreements with USEPA and DOH</li> <li>• <b>Renewal and replacement:</b> Estimated based on identified funds</li> </ul>
<b>Contractual Debt Service</b>	<ul style="list-style-type: none"> <li>• <b>Debt Service:</b> Projected based on current debt service as per amortization tables, reflecting the benefit of the completed federal debt reprogramming, and excluding debt service on PFC Superaqueduct debt and the GDB Debt Recovery Authority Loan</li> </ul>

<sup>33</sup> The 2020 Fiscal Plan incorporates the macroeconomic and demographic projections developed for and presented in the 2020 Commonwealth Fiscal Plan certified by the FOMB on May 27, 2020.

<sup>34</sup> *Ibid.*

<sup>35</sup> Act 39-2020; Executive Orders 2020-023 and 2020-038

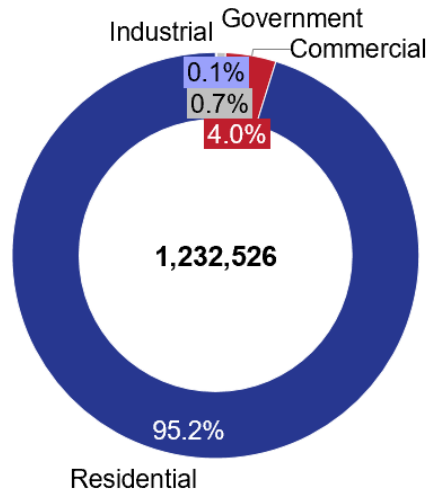


## 2.2 Revenues

### 2.2.1 Customers and Revenue Base

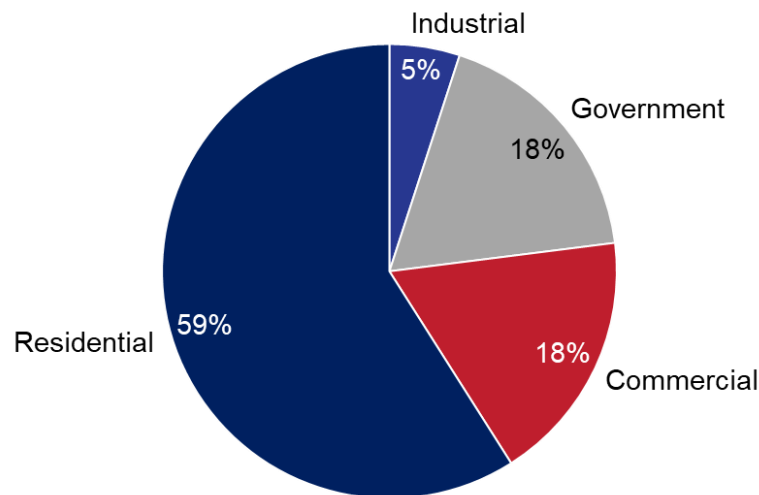
As of June 30, 2019, PRASA had 1,232,526 active accounts, of which 95% were Residential accounts. Residential customers account for 59% of the Authority’s revenues. Exhibit 2-1 provides a breakdown of customers by category.

EXHIBIT 2-1: FY2019 CUSTOMER BREAKDOWN BY CATEGORY



However, the share of total revenues attributable to non-residential accounts is expected to gradually increase as higher annual rate adjustments projected in this Fiscal Plan are applied to these customers classes. The billings by customer type during FY2019 is presented in Exhibit 2-2.

EXHIBIT 2-2: FY2019 REVENUE BREAKDOWN BY CUSTOMER CATEGORY



### 2.2.2 Service Revenue

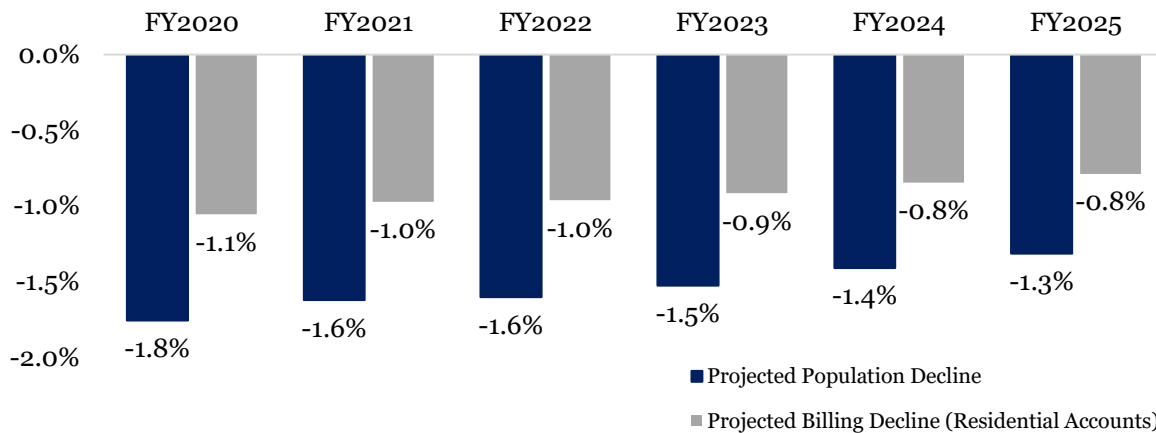
The Authority’s service revenues (base fee and service charges) are derived from water and wastewater service billings and are presented net of current subsidies (i.e., PAN, TANF, ASES and Public Housing), and are a product of the number of active accounts and monthly consumption per account. Service revenue projections in this Fiscal Plan start off from FY2020’s actual billings as of February 2020, and are shown prior to any rate adjustments implemented after FY2018.

#### 2.2.2.1 Billing Trend

Since the 2017 Hurricanes, revenue projections have been materially reduced as a result of declines in population, water consumption, and overall levels of economic activity in Puerto Rico. Among these factors, the main driver behind the downward trend in revenues is the sustained decline in population. In FY2020, revenue estimates were further adjusted downward to reflect the actual and projected impact of Government imposed actions (e.g., “lockdown” measures) that were taken to mitigate the spread of COVID-19.<sup>36</sup>

Exhibit 2-3 illustrates the projected population decline as well as the expected reduction in billings.

EXHIBIT 2-3: RESIDENTIAL ACCOUNTS TREND

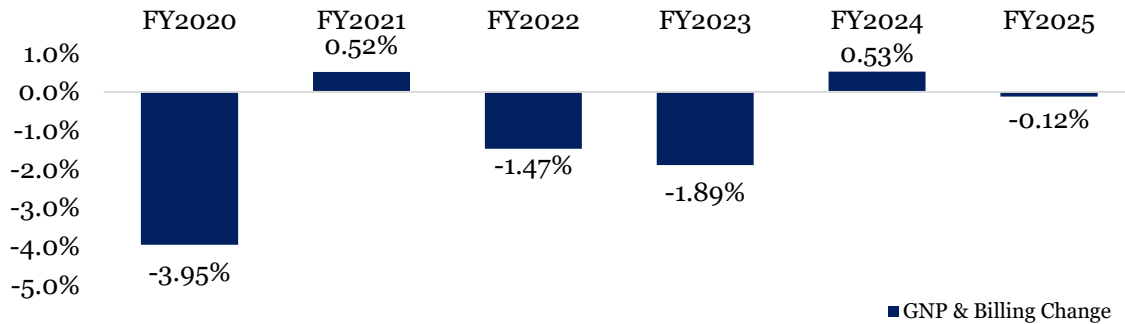


Billings for Industrial accounts are projected using the nominal Gross National Product (GNP) forecast as included in Exhibit 2-4.

<sup>36</sup> The Authority recognizes the COVID-19 pandemic may have an impact on water consumption, billings, and collections, and is subject to variability and error, nonetheless it was calculated using best available information.



EXHIBIT 2-4: INDUSTRIAL ACCOUNTS AND NOMINAL GNP GROWTH RATES



**2.2.2.2 Collections Rate**

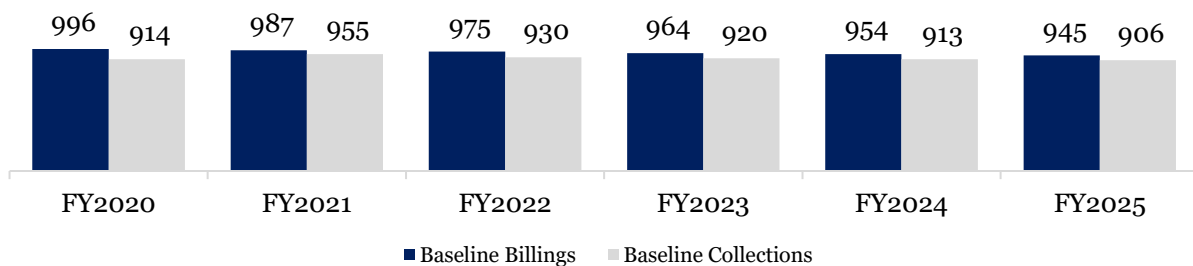
Collection rates across all customer segments have been revised based on actual collections from FY2020 to reflect the impact of the COVID-19 pandemic, using available information as of May 31, 2020. The collections assumptions incorporate the impact of lower collections due to economic hardship and suspending service disconnections during the crisis (considered a key activity when attempting recovery of outstanding balances). PRASA expects partial recovery of uncollected revenues from FY2020 due to the impact of COVID-19, in the first half of FY2021. Starting in January 2021, PRASA expects to return to a 96% collections rate for residential, commercial, and industrial accounts and remain at that level through FY2025. For government accounts, PRASA is projecting a 91% collections rate starting in January 2021, increasing by 1% each fiscal year thereafter and reaching 95% by FY2025.

PRASA has also seen a significant increase in its outstanding receivables from billed consumption since the pandemic started in late February. As of May 31, 2020, PRASA reported that actual collections were ~\$60 million lower than their year-to-date budget projections. Accounting for this lower collections percentage and other ancillary factors, PRASA is anticipating collecting 85% of deferred collections from April 2020 and onwards during the first 9 months of FY2021.

**2.2.2.3 Projected Service Revenues**

Based on the assumption included above, PRASA’s projected service revenues and collections are presented in Exhibit 2-5.

EXHIBIT 2-5: PRE-MEASURES BILLINGS AND COLLECTIONS (IN \$’ MILLIONS)





### 2.2.3 *Miscellaneous Income*

Miscellaneous income includes revenues received mainly from interest income and Developers' Contributions.<sup>37</sup> Based on historical information, miscellaneous income is projected at \$2 million per year during the Fiscal Plan period.

### 2.2.4 *Insurance Proceeds*

Insurance Proceeds for FY2020 includes \$50 million received on account of business interruption (BI) losses as a result of Hurricane Maria in 2017. Insurance proceeds associated with revenue loss are considered operating revenues pursuant to the MAT.

### 2.2.5 *Summary of Project Pre-Measures Revenues*

Table 2-2 summarizes projected revenues for the fiscal plan period, presented on cash basis.

TABLE 2-2: PRE-MEASURES PROJECTED REVENUES (IN \$' MILLIONS)

<i>in \$ Millions</i>	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY20/25
Service Collections	893	951	923	912	902	893	5,474
Insurance Proceeds/BI	50	-	-	-	-	-	50
Miscellaneous income	2	2	2	2	2	2	12
<b>Total Revenues</b>	<b>945</b>	<b>953</b>	<b>925</b>	<b>914</b>	<b>904</b>	<b>895</b>	<b>5,536</b>

Accumulated impact from rate adjustments implemented in January 2018, July 2018 and July 2019 are not included in the pre-measures financial results. Implemented and projected rate adjustments are included in Chapter 3 under new revenue enhancement measures.

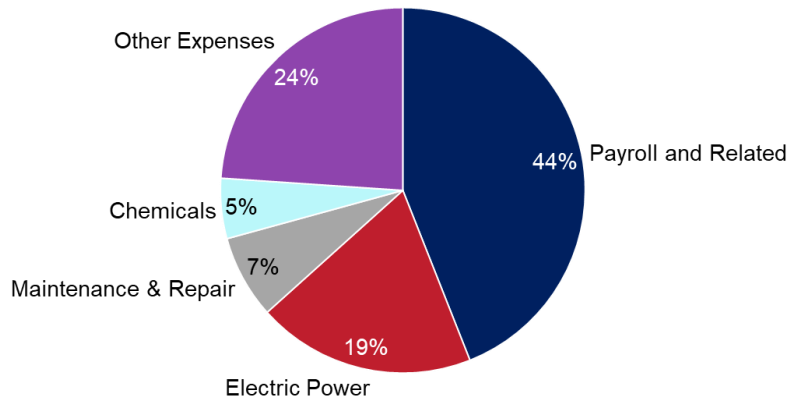
## 2.3 Expenses

Exhibit 2-6 provides a percentage breakdown of expense by category. Approximately two thirds of PRASA's expenses are made up of payroll and electricity costs. When adding maintenance & repair and chemicals, these four aforementioned categories represent 76% of total expenses. Other expenses consist largely of costs directly related to operations, including rentals, security services, insurance, billings and collections related costs, water purchase, sludge disposal, and water transport, among others.

<sup>37</sup> Fees paid by developers to connect their projects to the Authority's water and/or sewer pipelines



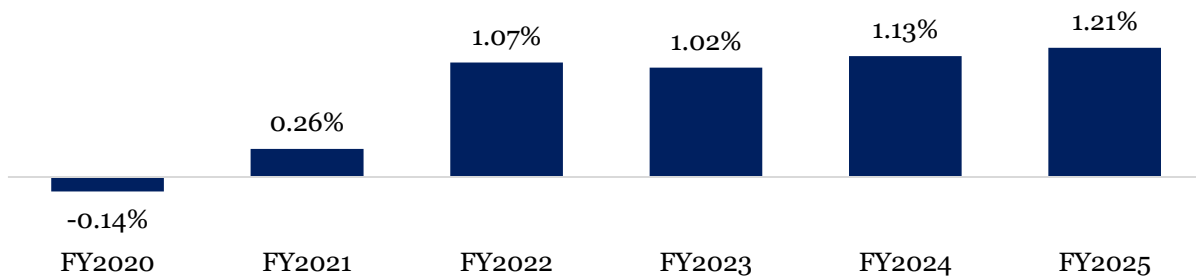
EXHIBIT 2-6: EXPENSE BREAKDOWN BY CATEGORY, %



For the pre-measures financial results most of the expenses were increased year-over-year to account for inflation. However, PRASA used different assumptions for both payroll and benefits and electricity expenses, which are further explained below.

Inflation rates used to project expenses are included in Exhibit 2-7.

EXHIBIT 2-7: PROJECTED INFLATION RATE



### 2.3.1 Payroll and Related

PRASA’s largest expense category, representing almost 45% of its annual budget, is Payroll and related. This includes labor costs and benefits, such as healthcare and pension obligations, and is presented net of the labor expense portion capitalized to projects (estimated at 3.7% of total operational expenses<sup>38</sup> starting in FY2021).

The following main assumptions are applied:

- Headcount of 4,600 for FY2020 and 4,700 for each year thereafter.
- Implementation of Act 26-2017, including the following change in benefits:

<sup>38</sup> Source: PJ Sun LLC Report on Overhead Capitalization



- Maximum overtime factor of 1.5 times<sup>39</sup>
- Reduction of holidays
- 30 days of vacation and 18 days of sick leave per year in accordance to Act 176-2019
- Healthcare plan without changes from the FY2020 coverage and benefits, increased by healthcare inflation each year thereafter.
- Christmas Bonus payment of \$600 per employee per year.
- Pension costs paid through “PayGo” based on the projections provided by the Government Employees Retirement System (ERS).
- Healthcare plan costs are subject to specific inflation.

### **2.3.2 Electricity**

PRASA’s electricity cost represents the second largest expense in its budget and is highly sensitive to fluctuations in electricity rates, which are set by PREPA, and subject to Puerto Rico Energy Bureau (PREB) regulatory oversight. To illustrate, a ±\$0.01 variation in the cost per kWh represents approximately \$6.5M per year in PRASA’s annual electricity cost.

The expected cost of electricity is based on projected rates applicable to PRASA during the Fiscal Plan period, as provided by PREPA.

Electricity consumption is presented based on current level of usage, prior to the implementation of any additional savings measures.

PRASA has entered into PPA agreements that generate electricity at a cost of \$0.15 per kWh. Currently, PRASA consumes 11M kWh produced through such PPAs, approximately enough to cover ~2% of its total annual consumption.

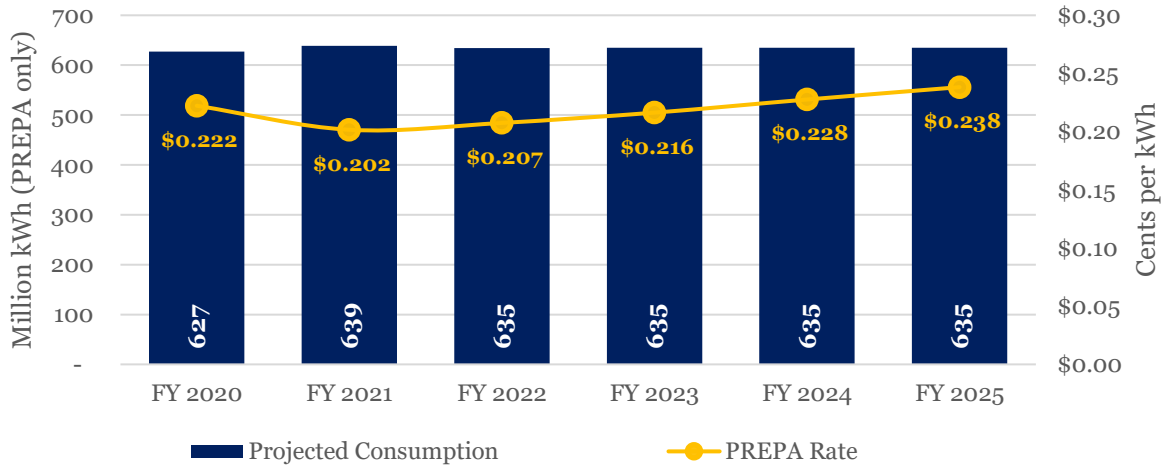
Exhibit 2-8 below includes the projected electricity rates supplied by PREPA and PRASA’s annual consumption for the Fiscal Plan period. As seen below, rates are projected to drop from FY2021 to FY2022 to a value of \$0.222 per kWh and then increase to \$0.238 per kWh by FY2025.

---

<sup>39</sup> Prior to Act 26-2017, maximum overtime factor was 2.5 times



EXHIBIT 2-8: PROJECTED ELECTRICITY COSTS AND CONSUMPTION (PRE-MEASURE)



**2.3.3 Maintenance and Repair**

At almost \$60 million per year, maintenance and repair costs represent PRASA’s third largest expense category. The maintenance cost includes only external contractor spend for both corrective and preventive maintenance and incremental costs of complying with the Sewer System Operation and Maintenance Program (“SSOMP”), as required by the USEPA. An increase in this expense category is projected to cover System needs from deferring required repair and maintenance of the assets due to: (i) lack of funds and (ii) redirection of efforts and funding to address service recovery and continuity following natural disasters and the COVID-19 pandemic.

For FY2022 and subsequent years, PRASA has included an annual increase for this category based on the projected average annual inflation rate of 1.11%.

**2.3.4 Chemicals**

PRASA’s chemical expense includes costs for chlorine, coagulants, flocculants, and other chemicals required to properly treat water and wastewater. This expense is projected based on the requirements for treatment and disinfection at PRASA’s treatment plants and wells, which is necessary to comply with environmental standards set by federal and local agencies (e.g., USEPA Clean Water Act).

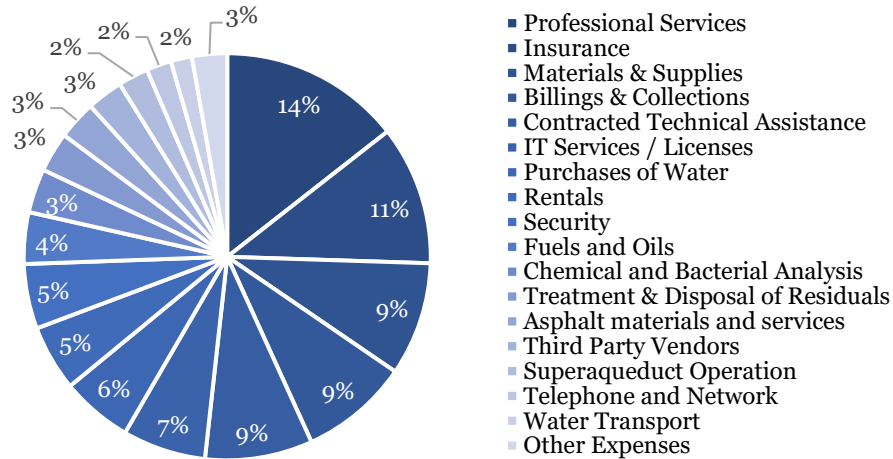
PRASA used FY2020 as a base to project future costs, and further adjusted FY2021 costs based on actual identified needs. For FY2022 and subsequent years, the Authority has included an annual increase for this category based on the projected inflation rate.

**2.3.5 Other Expenses**

This expense category includes all the Operating Expenses not covered in the prior categories and are mostly being projected to increase at the inflation rate. Exhibit 2-9 included below presents the breakdown for the Other Expenses category.



EXHIBIT 2-9: OTHER EXPENSES BREAKDOWN (FY2020)



**2.3.6 Summary of Projected Post-Measures Expenses**

Total operating expenses during the Fiscal Plan projected period are summarized in Table 2-3.

TABLE 2-3: PRE-MEASURES PROJECTED EXPENSES (IN \$ MILLIONS)

<i>in \$Millions</i>	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 20/25
Payroll and Related	328	329	330	330	331	332	1,980
Electric Power	141	131	133	139	146	153	843
Maintenance & Repair	54	57	58	58	59	60	345
Chemicals	39	40	40	41	41	42	242
Other Expenses	174	181	177	179	181	183	1,076
FEMA Reimbursement	(7)	(43)	-	-	-	-	(50)
Capitalized Expenses	(7)	(26)	(27)	(28)	(28)	(28)	(144)
<b>Operating Expenses, Net</b>	<b>721</b>	<b>668</b>	<b>711</b>	<b>720</b>	<b>730</b>	<b>741</b>	<b>4,291</b>

**2.4 Capital Improvement Program**

One of the most critical priorities for the Authority is the continuity of its CIP projects. The CIP aims to maintain, modernize and simplify the System to achieve operational efficiency, protect public health and safeguard environmental quality to ensure compliance with all regulatory requirements, including the 2015 USEPA Consent Decree and the 2006 Drinking Water Settlement Agreement. After the 2017 Hurricanes, the CIP was adjusted to comply with these objectives and other critical priorities, such as System recovery & resiliency and NRW reduction. Moreover, the CIP aims to improve and maintain the water and wastewater infrastructure at a level that supports commercial and industrial activity.

The Pre-Measures Financial Results do not include any expected bond issuance or external financing for the CIP. Instead, the CIP is expected to be financed exclusively through self-operating revenues and federal funds. Excluding its day-to-day operational and interest expenses,



the CIP represents the Authority's greatest financial obligation over the Fiscal Plan Period (~\$1.7B).

Projects included in the CIP cover major capital improvements in all five regions (Metro, North, South, East, and West) and island-wide System improvement measures, such as integration of technological advancements, telemetry implementation, and general renewal and replacement projects.

### 2.4.1 CIP Phases

After a project has been developed to the point that it has a clear project charter, which formalizes its requirement and existence, the CIP construction projects are implemented through phases, as illustrated in Exhibit 2-10.

EXHIBIT 2-10: CIP PHASES & ACTIVITIES



### 2.4.2 CIP Cost Components

Costs to the owner associated with the construction of facilities include the initial capital costs, planning, permitting, design, other expenses related and inherent to construction, operational, and maintenance costs.

The CIP also makes an allowance for contingencies, or unexpected costs occurring during construction. This contingency amount may be included within each cost item or as a single category of construction contingency. The amount of contingency is based on industry guidelines, historical experience, and complexity of the project. Those amounts not spent for construction can be released near the end of the project, be used for additional project elements, or reassigned to other projects in a program.

To budget for all of the required activities necessary to execute construction work, PRASA uses a 1.6 contingency and overheads factor, which means that on average, a project will need to budget for its estimated construction plus an additional 60% for overheads and contingency cost. This does not necessarily mean that all projects will need to budget for an additional 60%, as each project is evaluated on its specific characteristics and complexities.

PRASA's CIP projects are classified into the following categories and descriptions:

- **Emergency/Permanent Works:** Projects to repair the infrastructure impacted by Hurricanes Irma and María;
- **Renewal and Replacement (R&R):** Projects aimed at renewing or replacing aging infrastructure at or near the end of its useful life (e.g., pipelines, pumps, motors, etc.);
- **Compliance (Mandatory/Non-mandatory):** Projects required by agreements—including USEPA Consent Decree, PRDOH Drinking Water Settlement Agreement, civil actions, administrative orders, court orders, and other mandatory projects—or that would be included in future agreements if not performed;
- **Quality:** Projects aimed at increasing the quality of the water and wastewater service provided to customers;



- **Fleet and IT:** Replacement of vehicles in PRASA’s fleet and improvement of IT infrastructure;
- **Optimization and Emergencies:** Projects to increase efficiency and infrastructure emergencies and contingencies;
- **Safety and Growth:** Projects to allow for System growth and increased security at PRASA’s facilities.

A clear, objective project prioritization process is key to identifying critical projects across the CIP portfolio, to ensure the most important projects are given priority and completed first. Clearly defining a scoring criteria for all projects is standard practice across water utilities.

Currently, PRASA does not have a prioritization methodology except for mandatory projects. PRASA must establish a methodology for all projects in the PRASA’s 10-year Master Plan (expected completion date in 2021). The implementation schedule of future long-term projects must then be subject to the prioritization system and availability of funds.

### **2.4.3 Emergency and Permanent works**

Emergency and permanent works are projects necessary to repair the infrastructure impacted by the 2017 Hurricanes. FEMA defines emergency work as repairs and replacements that address immediate threats to public health and safety. Permanent work restores or repairs a facility to its pre-disaster design and function.

FEMA and the state/territory government recipients (COR3) will work with PRASA to formulate disaster-related damage into emergency work projects and reach agreements on the eligible scopes of work (SOW) for all permanent work projects.

### **2.4.4 Renewal and Replacement**

PRASA must rehabilitate and replace its assets to maintain and improve its current levels of infrastructure performance (i.e., service levels). Operating assets beyond their expected useful life run the risk of excessive breaks and leaks, lower service quality, and higher operating costs associated with more frequent repair and maintenance.

Pipes (i.e., water and wastewater), facilities (plants, pump stations, reservoirs, intakes, tanks), and other assets require annual investments to ensure that desired service and performance levels are met. Utilities must also budget for replacement infrastructure prior to the end of its useful life. Nevertheless, without access to capital markets at reasonable rates, PRASA is required to set the amount of renewal and replacement projects below desired levels to a level fundable through operating revenues.

### **2.4.5 Mandatory Projects**

On September 15, 2017, the DOJ filed a consent decree (the “2015 USEPA Consent Decree”) executed among USEPA, PRASA and the Government. Negotiations leading to the execution of the 2015 USEPA Consent Decree were commenced by PRASA in order to mitigate the high CIP costs mandated by prior Consent Decrees. Despite being in material compliance with the CIP requirements of the prior Consent Decrees, PRASA began discussions with the DOJ, on behalf of USEPA and PRDOH, seeking to amend such Consent Decrees. The resulting 2015 USEPA Consent Decree realigned the cost of CIP mandatory projects and activities with the Authority’s current financial condition and economic prospects, while maintaining compliance with environmental requirements and regulations.



The revisions to the 2015 USEPA Consent Decree include the following:

- Elimination of certain projects included in prior Consent Decrees deemed unnecessary or certified completed
- Reduction of annual capital expenditure levels for mandated projects, based on a new comprehensive and holistic prioritization system (the “Prioritization System”)
- Completion of a series of scheduled high priority, mandatory projects, referred to as the “Base List”

In addition, PRASA is currently in negotiations with PRDOH to modify the existing 2006 Drinking Water Settlement Agreement. The modifications are expected to include: (i) An update of PRASA’s facilities; (ii) the removal of completed projects and/or requirements included in the agreement; (iii) the acceptance and the implementation of the Prioritization System and the Base List; and (iv) the inclusion of scheduled mandatory projects under the Base List.

Through the application of the Prioritization System, PRASA has established the relative priority of all CIP projects required under the 2015 USEPA Consent Decree and the 2006 Drinking Water Settlement Agreement (excluding “Base List” projects), thus objectively allocating the Authority’s limited financial resources. This prioritization system can be found in Exhibit 2-11.

**EXHIBIT 2-11: PRASA SCORING CRITERIA FOR MANDATORY PROJECTS**

Weight	Category	Description
40%	<b>Regulatory Compliance</b>	<ul style="list-style-type: none"> <li>▪ Effect that a given project would have on compliance-related issues</li> <li>▪ Scores assigned based on the historical compliance records for each facility</li> </ul>
30%	<b>Quality of Service and Reliability</b>	<ul style="list-style-type: none"> <li>▪ Ability of a project to address service areas with existing water deficits</li> <li>▪ Scores assigned based on average day demand and/or maximum day demand deficits</li> </ul>
20%	<b>Operational Efficiency Improvements</b>	<ul style="list-style-type: none"> <li>▪ Effect that a given project will have on operational system efficiency</li> <li>▪ Scores assigned based on the anticipated operational savings incurred or the need to replace elements of the water system before their useful life expires</li> </ul>
10%	<b>Population Impacted by a project</b>	<ul style="list-style-type: none"> <li>▪ Effect that a project will positively impact the population</li> <li>▪ Scores assigned based on total # of expected customers to be impacted by project</li> </ul>

### **2.4.6 Project Execution and Metrics**

The work needed to complete projects from their planning phase to completion requires both internal and external personnel resources.

PRASA issued an RFP to secure an engineering firm to serve as the Project Management Consortium (PMC) for efficient and timely execution of the CIP. Negotiations with PMC are ongoing and should result in signed contracts by July or August of 2020.





To track its CIP execution PRASA must establish metrics by project and must monitor compliance and execution through a CIP tracking tool. Moreover, PRASA is in the process of implementing a new module in SAP to be able to review and update its current tracking tool to ensure compliance with the expected execution schedules and costs.

Typically, the construction phase includes the highest potential for deviations in cost and time. To maintain control of these, PRASA keeps monthly track of two industry standard KPIs:

- **Cost Performance Index (CPI):** Measures the cost efficiency of resources committed to the project, evaluating whether the project will be completed on budget.
- **Schedule Performance Index (SPI):** Measures the relationship between the executed work versus the planned work, assessing whether the project will be completed on time.

The established metrics will allow for high level planning and management of the CIP, while the tracking tool will allow for detailed tracking of CIP compliance against what was planned.

### 2.4.7 CIP Pre-Measures Projections

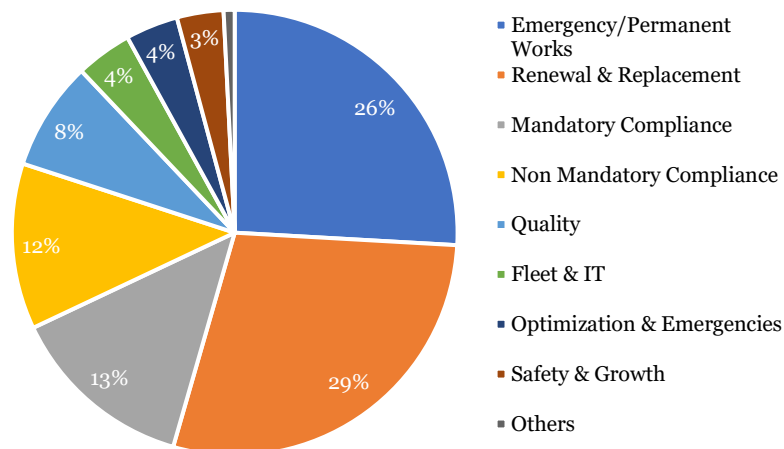
The projected CIP during the Fiscal Plan period is included in Table 2-4.

TABLE 2-4: PROJECTED CIP (IN \$' MILLIONS)

<i>in \$Millions</i>	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY20/25
Emergency/Permanent Works	33	125	141	41	44	57	441
Renewal & Replacement	50	98	83	80	81	96	487
Mandatory Compliance	7	44	76	62	24	17	230
Non Mandatory Compliance	6	29	72	62	25	12	205
Quality	0	14	40	41	25	15	135
Fleet & IT	19	14	9	9	9	9	70
Optimization & Emergencies	0	15	15	14	16	5	65
Safety & Growth	4	5	14	13	13	9	58
Others	1	4	4	1	2	3	14
<b>Total</b>	<b>119</b>	<b>349</b>	<b>454</b>	<b>323</b>	<b>238</b>	<b>222</b>	<b>1,704</b>

Exhibit 2-12 illustrates that ~80% of the CIP is related to emergency and permanent works, compliance, and renewal and replacement works.

EXHIBIT 2-12: CIP BREAKDOWN BY CATEGORY (FY2020-FY2025)



The pre-measures CIP is assumed to be fully funded by PRASA’s operating revenues except for insurance and FEMA proceeds.<sup>40</sup> The assumptions applied to determine the amount of emergency and permanent works must be updated once more information become available,

A summary of the projected required sources for the CIP by year is included in Table 2-5 below:

TABLE 2-5: REQUIRED SOURCES FOR CIP (IN \$’ MILLIONS)

<i>in \$ Millions</i>	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY20/25
Operating Revenues	86	223	312	282	194	166	1,263
FEMA Reimbursements	30	113	127	37	39	51	397
PRASA Cost Share	3	13	14	4	4	6	44
<b>Total</b>	<b>119</b>	<b>349</b>	<b>454</b>	<b>323</b>	<b>238</b>	<b>222</b>	<b>1,704</b>

## 2.5 Debt Service and Other Deposits Required Under the Master Agreement of Trust (MAT)

The debt service included in the pre-measures financial results reflect PRASA’s current debt structure and contractual obligations, incorporating the benefit from the Federal Debt reprogramming as further detailed in Chapter 3.

### 2.5.1 MAT Payment Priorities

The MAT, executed in 2008 and as subsequently amended, establishes the way that PRASA’s revenues are to be applied to the payment of debts and the lawful priorities for payment thereof.

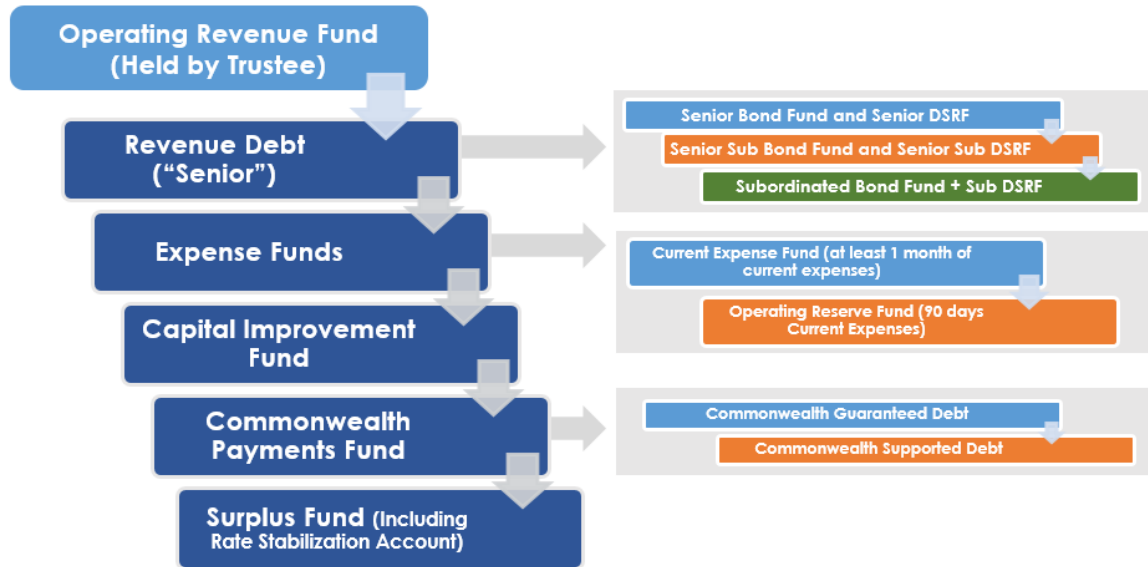
The payment priority of the different levels of debt service and other required deposits is presented in Exhibit 2-13.

---

<sup>40</sup> Assumed at 90% of the total Emergency/Permanent works line; the remaining 10% is considered a cost share taken on by PRASA, funded from operating revenues



EXHIBIT 2-13: MAT PAYMENT PRIORITIES



The level of payment priority is established by Article V of the MAT, which is outlined below.

- **Revenue Debt:** Currently, around 95% of the PRASA’s debt consists of Senior and Senior Subordinated Debt—including Other System Indebtedness—which is paid from operating revenues prior to the payment of current expenses.
  - Senior and Senior Subordinated debt service includes payments related to the Senior Bonds issued in 2008 and 2012 and to the federal debt reprogramming.
  - The 2008 Senior Bonds are also entitled to the benefits of a Debt Service Reserve of \$90.6 million which is currently funded in full. The 2012 Senior Bonds and the federal debt do not have a debt service reserve fund requirement.
- **Expense Funds:** Accounts for two funds for supporting expenses:
  - **Current Expense Fund:** On a monthly basis, after the payment of debt service, the Trustee shall deposit in the Current Expense Fund, at PRASA’s request, at least one month and up to three months (90 days) worth of current expense capital.
  - **Operating Reserve Fund:** PRASA is required to maintain an Operating Reserve Fund equal to three months of current expenses. Currently, the Authority is in the process of cash funding the reserve during a five-year period (FY2017-2021), depositing monthly 1/60<sup>th</sup> of the requirement.<sup>41</sup> The Authority is currently in compliance with its obligations.
- **Capital Improvement Fund:** The amount to be deposited in the Capital Improvement Fund is defined in PRASA’s budget and is used to pay for the CIP from the Authority’s revenues. Under the pre-measures financial results, the total amount required for the CIP (net of FEMA proceeds) is expected to be funded solely by operating revenues.

<sup>41</sup> Stipulated in the Sixth Supplemental Agreement of Trust



- **Commonwealth Payments Fund:** This fund includes monies available for two additional debt categories. Failure to make the payments or required deposits to the Commonwealth Payments Fund is not an event of default under the MAT. This fund includes money available for two additional debt categories:
  - **Commonwealth Guaranteed Indebtedness (CGI):** Includes debt issued by PRASA and guaranteed by the Government through June 30, 2020.<sup>42</sup> Only the 2008 Revenue Refunding Bonds—issued by PRASA on March 2008 to refinance the balance of its 1995 Commonwealth Guaranteed Bonds—fall under this category. After the federal debt reprogramming, the balance was elevated to senior status and no longer benefits from the CGI.
  - **Government Supported Obligations (CSO):** Includes a portion of the 2011 Series B Bonds issued by PFC on December 2011 to refinance certain outstanding debt. It includes the cost of the North Coast Superaqueduct, one of PRASA’s main assets. PRASA agreed with the Government to pay the debt service on a portion of this debt (\$162.7 million) if sufficient funds were available for such purposes. However, this is not a general obligation of PRASA and is payable solely from legislative appropriations. PRASA has been unable to make such payments in recent years because no funds have been appropriated by the Government for such payments. As stipulated in the MAT, if PRASA is unable to make payments on the PFC debt, the obligation is not cumulative and therefore does not carry forward to future periods.
- **Surplus Fund:** After making all the deposits to the funds set forth above and any other fund required by the MAT, any excess cash can be deposited into the Surplus Fund to be used at the discretion of PRASA. As part of the Surplus Fund, a Rate Stabilization Fund (RSA) can be created to cover any operating needs in the future and minimize the need for rate increases.

### **2.5.2 Contractual Debt Service**

PRASA’s debt as of December 31, 2019, recognized under the MAT is presented in Table 2-6.

---

<sup>42</sup> Per Act 45-1994 as amended by Act 95-2015



TABLE 2-6: OUTSTANDING DEBT AS OF DECEMBER 31, 2019 (IN \$' MILLIONS)<sup>43</sup>

			Balance as of 12/31/19		FY2021 Debt Service	
Payable from Gross Revenues	<b>Senior</b>	2008 Revenue Bonds	\$1,248.8	<b>\$4,135.4</b>	\$90.6	<b>\$250.8</b>
		2012 Revenue Bonds	\$1,888.9		\$140.2	
		State Revolving Fund	\$595.7		\$10.0	
		Rural Development Bonds	\$402.0		\$10.0	
Payable from Net Revenues	<b>Commonwealth Guaranteed Indebtedness</b>	2008 Ref Bonds – Series A&B		<b>\$284.8</b>		<b>\$26.0</b>
				<b>\$4,420.2</b>		<b>\$276.7</b>

PRASA has an outstanding loan with principal balance of approximately \$57 million owed to the GDB Debt Recovery Authority, a newly created public instrumentality that assumed the loans previously held by GDB following the restructuring of its obligations under Title VI of PROMESA (the “GDB-DRA Loan”). Based on PRASA’s projected financial condition, no debt service payments are included in this Fiscal Plan to cover debt service on the GDB-DRA Loan, which is solely payable from available Surplus Funds not otherwise deposited in the Rate Stabilization Fund.

The Authority’s projected debt service during the Fiscal Plan period is included in Table 2-7:

TABLE 2-7: PROJECTED DEBT SERVICE (IN \$' MILLIONS)

<i>in \$ Millions</i>	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY20/25
Operating Reserve Fund	32	33	5	2	3	3	78
Capital Improvement Fund	97	178	279	271	198	171	1,194
Total Other Deposits	129	211	284	273	201	174	1,272

<sup>43</sup> Excludes debt issued by PFC (included in PRASA’s Financial Statements), which is payable from legislative appropriations. The PFC debt is subject to ongoing bankruptcy proceedings of the Commonwealth under Title III of PROMESA. PRASA can pay such debt if surplus funds are available and not otherwise deposited in the Rate Stabilization Account.



### 2.5.3 Other Deposits Required by the MAT

Deposits that are projected to fund the base CIP a portion of PRASA’s CIP and the Operating Reserve Fund required under the MAT, which vary based on the projected level of operating expenses, are included in Table 2-8:

TABLE 2-8: OTHER DEPOSITS REQUIRED BY THE MAT (IN \$’ MILLIONS)

<i>in \$ Millions</i>	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY20/25
Operating Reserve Fund	32	33	2	2	2	2	73
Capital Improvement Fund	97	178	279	271	198	171	1,194
<b>Total Other Deposits</b>	<b>129</b>	<b>211</b>	<b>281</b>	<b>273</b>	<b>200</b>	<b>173</b>	<b>1,267</b>

Projected deposits to the Operating Reserve Fund assume that PRASA does not make any withdrawals throughout the forecasted period. Deposits to the Capital Improvement Fund reflect the amount required to be deposited in such fund from operating revenues, after beginning balances available for the CIP and projected federal funds sources are discounted from the CIP needs.

## 2.6 Pre-Measures Financial Results Summary

Table 2-9 describes the major assumptions discussed above and used for the development of the Pre-Measures Financial Results. Of note is the pre-measure financial results for federal debt reprogramming. This is the only measure performed as part of a previous fiscal plan that has been incorporated into the pre-measure financial results; all other completed measures will be incorporated in the post-measure financial results.

TABLE 2-9: SUMMARY OF THE PRE-MEASURES FINANCIALS ASSUMPTIONS

Assumptions for Revenues and Expenses Projections			Assumptions for CIP and Debt Service Projections		
<b>Revenues</b>	Average Annual Billing Reduction (Residential) FY2021/FY2025	-0.9%	<b>CIP</b>	Average Annual CIP (\$M)	\$284
	Average Collections Rate (Residential) after FY2021	96%		<b>CIP Funding</b>	Additional Annual Federal Funds
	Average Rate Increase (Residential)	2.5%	New CIP Financing		No
<b>Expenses</b>	Headcount by FY 2021	4,700	<b>Debt Service</b>	Debt Service Payments	Contractual debt as reprogrammed
	Pension Cost	Pay Go			
	Average Electricity Cost (PREPA) per kWh FY2021/FY2025	\$0.22			
	Average Expenses Growth (inflation) FY2021/FY2025	0.94%			
	Capitalization Rate FY2021/FY2025	3.7%			



Table 2-10 included below presents a summary of the deficit resulting from the pre-measures financial results for FY2020-FY2025. A total of \$1.7 billion of funding or financing is needed for the 6-year period, of which \$1.2 billion or 80% is to be used to finance the Authority’s CIP, assuming no external funding or federal funds beyond the forecast FEMA funds.

**TABLE 2-10: PRE-MEASURES FINANCIAL PROJECTIONS RESULTS (IN \$' MILLIONS)**

<i>in \$'Millions</i>	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY20/25
Authority Revenues	945	953	925	914	904	895	5,536
Senior Debt Service	(251)	(251)	(251)	(251)	(251)	(251)	(1,505)
Net Operating Expenses	(721)	(668)	(711)	(720)	(730)	(741)	(4,291)
Operating Reserve Fund	(32)	(33)	(5)	(2)	(3)	(3)	(78)
Capital Improvement Fund	(97)	(178)	(279)	(271)	(198)	(171)	(1,195)
Commonwealth Payment Fund	(21)	(26)	(28)	(28)	(32)	(32)	(167)
<b>Pre-Measures Financial Result</b>	<b>(178)</b>	<b>(203)</b>	<b>(348)</b>	<b>(359)</b>	<b>(310)</b>	<b>(303)</b>	<b>(1,700)</b>

PRASA, in collaboration with the Oversight Board, has identified several measures described in the following chapter, which will reduce the projected financial need.



## 3 Fiscal Plan Measures and Post-Measures Financial Results

---

Eliminating structural deficits in each fiscal year and achieving financial sustainability will ensure PRASA can provide safe, reliable, and affordable water and wastewater services to Puerto Rico. Achieving a balanced budget will also place PRASA on a path to access short-term and long-term capital markets at reasonable rates to fund critical capital expenditures.

PRASA should not focus solely on resolving fiscal challenges, but also address the operational deficiencies that threaten the safety, reliability, and overall performance of the System. Previous efforts have relied on rate increases and debt reprogramming to improve fiscal standing while offering little in operational improvements. Persistent operational underperformance will continue to challenge PRASA’s ability to remain fiscally sustainable and place an unnecessary burden on the well-being of the Puerto Rico’s population and economy, both of which depend on reliable quality water supply.

This chapter summarizes a set of recently implemented and new measures across revenue enhancement, cost savings, and debt service reduction. In addition to measures that will improve PRASA’s financial position, several enabling measures have been identified that will help to improve operational performance but may not result in direct or immediate financial improvements.

If successfully implemented and maintained, these measures would both improve PRASA’s financial situation—including reducing the fiscal deficit in its Pre-Measures Financial Results—and improve operational performance.

### 3.1 Recently Implemented Measures

This section summarizes the measures implemented by PRASA in past fiscal plan periods and their impact on the Authority’s finances.

#### 3.1.1.1 *Implemented Measures Summary*

The measures presented in this chapter reflect only those that have been implemented since FY2018 and have had a material qualitative or quantitative impact on the Authority:

1. **Rate adjustments:** implemented scheduled rate increases of between 2.5-4.5% in FY2018-FY2020 for all customer classes
2. **Government account collections:** collected past due government receivables and improved government collections in future periods
3. **Recovery of disconnection cost:** instituted a \$15 disconnection fee
4. **Leaks adjustment policy:** Customer’s bills adjustments for hidden leaks will be limited to the wastewater portion of the bill
5. **Pre-retirement program:** saved on payroll by incentivizing early retirement for eligible employees
6. **Electricity savings:** saved on energy through efficiency measures and installation of renewable distributed generation (“DG”)





7. **Debt service reprogramming:** consolidated and restructured SRF and RD loans as senior debt and with more favorable repayment terms for PRASA

These measures have had \$471 million in positive financial impact from FY2018-FY2020. Table 3-1 summarizes the benefits of implemented measures.

TABLE 3-1: FINANCIAL RESULTS OF IMPLEMENTED MEASURES (FY2018-FY2020, IN \$' MILLIONS)

<i>In \$' Millions</i>	FY 2018	FY 2019	FY 2020 (Projected)	FY 2018 to 2020
<b>Revenue Enhancement Initiatives</b>				
Rate Adjustments	13.3	60.3	72.1	145.7
Government Account Collections	55.9	72.6	18.0	146.5
Disconnection Cost Recovery	-	1.8	1.0	2.8
Leaks Adjustment Policy	-	1.1	1.9	3.0
<b>Cost Saving Initiatives</b>				
Pre-Retirement Program	-	5.9	7.4	13.3
Electricity	0.5	0.7	0.9	2.1
<b>Debt Service Reduction</b>				
Federal Debt Restructuring	55.6	32.4	39.7	127.7
PFC Debt	9.0	9.0	9.0	27.0
<b>Total</b>	<b>134.3</b>	<b>183.8</b>	<b>150.0</b>	<b>468.1</b>

The benefit from these implemented measures in FY2020-FY2025, except for the federal debt reprogramming, are included in the post-measure financial results.<sup>44</sup>

PRASA failed to implement four of the measures identified in the 2019 Fiscal Plan:

- Christmas bonus elimination
- Uniform healthcare
- Metering and commercial service optimization
- Physical water loss reduction

All of these measures have been reintroduced in the 2020 Fiscal Plan and will be discussed in the new measures section

### 3.1.2 **Implemented Revenue Enhancing Measures**

PRASA has implemented a series of measures to increase its revenues while attempting to minimize negative impacts on service affordability.

<sup>44</sup> Federal debt reprogramming benefits have been incorporated into the pre-measures financial results.



**3.1.2.1 Rate adjustments**

In 2017, the Oversight Board required PRASA to implement moderate, but consistent multi-year rate adjustments to ensure its costs are fully covered by service revenues. The increase was meant to address years of failure to perform an industry standard practice of raising rates to cover increasing costs.

Rate adjustments  
collected (FY2018 through  
FY2020)

**\$146 million**

PRASA’s current rate structure, set by its Governing Board, provides for an annual rate adjustment of up to 4.5% and not more than 25% through the use of an “Annual Adjustment Coefficient”.<sup>45</sup>

PRASA has an approved moderate rate adjustment schedule for five years between FY2018-FY2022, summarized in Table 3-2. The first three scheduled rate adjustments were implemented as planned, on January 1, 2018, July 1, 2018 and July 1, 2019, respectively. The next scheduled rate adjustment is expected to be implemented on July 1, 2020. For residential customers with low to average water consumption, these adjustments represents a \$0.60-1.15 increase to their monthly bills.<sup>46</sup>

**TABLE 3-2: IMPLEMENTED & PROJECTED RATE INCREASES**

Type of Client	Jan 1, 2018 (FY2018)	July 1, 2018 (FY2019)	July 1, 2019 (FY2020)	July 1, 2020 (FY2021)	July 1, 2021 (FY2022)
Residential	2.5%	2.5%	2.5%	2.5%	2.5%
Commercial	2.8%	2.8%	2.8%	2.8%	2.8%
Industrial	3.5%	3.5%	3.5%	3.5%	3.5%
Government	4.5%	4.5%	4.5%	4.5%	4.5%



Additional rate adjustments are forthcoming which are discussed in Section 3.2.1.1.

**3.1.2.2 Government Account Collections Improvement**

The Authority has four different government client categories: (i) central government agencies, paid from the general fund; (ii) public corporations, generally paid from their own revenues; (iii) municipalities; and (iv) Federal agencies. During the last several years, PRASA has worked jointly with the Government to reconcile balances of accounts receivables and speed up the collection process. As a result of these efforts, PRASA’s collections rate for government

Government accounts  
recovered receivables  
(FY2018 through FY2020)

**\$147 million**

<sup>45</sup> PRASA’s rate structure was adopted through the public hearing process of Act 21 and approved by the Governing Board pursuant to Resolution No. 2794 on July 3, 2013 and as amended by Resolution No. 2825. It was approved on December 18, 2013.

<sup>46</sup> 46% of residential customers consume ≤10m<sup>3</sup> (low consumption); average water use is estimated at ~14m<sup>3</sup>



accounts in FY2018 and FY2019 was 94.5% and over 100%, respectively; it recovered \$55.9 million of Government accounts receivables in FY2018 and \$72.6 million in Government and public corporations accounts receivables in FY2019.<sup>47</sup> As of January 31, 2020, the Authority was able to collect all outstanding balances from FY2019 still owed by central government agencies covered by the general fund. Furthermore, after the collection of approximately \$18 million in aged accounts receivables, only \$8 million in outstanding receivables remain from public corporations as of March 31, 2020.

### **3.1.2.3 Disconnection Cost Recovery**

To deter delinquency among its customer base and recover the cost related to service disconnection, PRASA implemented a \$15 disconnection fee in January 2018 to recover costs associated with disconnecting customers for non-payment.

Disconnection Fee Costs  
billed (FY2018 through  
FY2020)

**\$2.8 million**

Since its implementation, the revenue generated from the disconnection fee has been approximately \$100,000 per month. This benefit is expected to decrease over time as customer behavior changes in response to the introduction of the fee.

### **3.1.2.4 Leaks Adjustment Policy<sup>48</sup>**

PRASA revised its Customer Service regulations in 2018 to adjust its policy for hidden leaks adjustments.<sup>49</sup> When a hidden leak is detected, an adjustment is no longer applied to the sewer portion of customers' bills as the water has already been consumed or lost and PRASA has already incurred its production cost. Since its implementation, the hidden leaks adjustment measure has saved the Authority almost \$3M when compared to FY2017 adjustments.

Hidden Leaks  
Adjustments (FY2018  
through FY2020)

**\$3.0 million**

### **3.1.3 Cost Saving Implemented Measures**

PRASA has implemented several cost reduction measures, including various measures focused on the two largest expense categories: payroll and electricity costs.

---

<sup>47</sup> High collection rates were partly driven by arrears

<sup>48</sup> Customer's bills adjustments for hidden leaks will be limited to the wastewater portion of the bill

<sup>49</sup> Regulation 8901 for the use of water and wastewater services.



**3.1.3.1 Pre-retirement Program**

As a result of the fiscal crisis, the Government created a Voluntary Pre-Retirement Program in FY2016.<sup>50</sup> The program provides incentives to certain eligible government employees to voluntarily retire early from service.<sup>51</sup> The program was implemented to reduce the workforce progressively and voluntarily, allowing employees to retire with an orderly transition process. The resulting vacant positions created from the retirement program must be closed.

Pre-Retirement Program Savings (FY2018 through FY2020)

**\$13 million**

As of June 30, 2019, over 350 employees had retired under the program, generating an estimated average annual savings for PRASA of \$5 million per year and an estimated cumulative impact \$13.3 million through June 30, 2020.

**3.1.3.2 Electricity**

PRASA has implemented an Energy Management Program to help manage and reduce its electricity expense. PRASA implemented internal measures at a regional level to reduce electricity consumption, and supply side projects through Power Purchase Agreements (PPAs) to reduce overall electricity cost:

Electricity Savings from PPAs (FY2018 through FY2020)

**\$2 million**

- **Regional Measures:** PRASA has implemented a regional level commitment to execute energy conservation measures throughout its facilities. Since FY2013, PRASA reduced its electricity consumption by over 13%, from over 740 million kWh to under 640 million kWh through regional measures.
- **PPAs:** PRASA operates 10 facilities using solar energy, consuming approximately 11.5 million kWh at a \$0.15 per kWh blended rate, which is less than rates charged by the grid. Annual savings from these PPAs total approximately \$1 million. Facilities currently under PPA and their average annual solar energy production are shown in Table 3-3

TABLE 3-3: FACILITIES WITH SOLAR ENERGY

Facility	Million kWh
Yunque WTP	3.43
Arecibo WTP	1.71
Canóvanas WWTP	1.71
Guaynabo WTP	0.86
Aguada WWTP	0.86

<sup>50</sup> Enacted by Act 211-2015 on December 8, 2015.

<sup>51</sup> Incentives include: 60% payment of average salary, payout of unused vacation and sick days (as per Act 66-2014) and maintaining their health insurance coverage for a term of two years. These incentives are applicable until eligible employee meets the requirement for full retirement.



Facility	Million kWh
Humacao WWTP	0.86
Cayey WWTP	0.86
Culebra WWTP	0.49
Vieques WWTP	0.33
Arcadia WPS	0.19
Total kWh	11.30

Additional reductions in electricity cost as a result of future PPAs measures are included in Section 3.2.2.6: *Electricity Cost Reduction*.

### 3.1.4 Debt Service Reduction

PRASA has implemented two debt service reduction measures: federal debt reprogramming and Commonwealth supported obligations (PFC debt).

#### 3.1.4.1 Federal Debt Reprogramming

Historically, the Authority has received federal funds for its CIP through loans from the Clean Water State Revolving Fund Programs (CWSRF) and the Drinking Water State Revolving Fund Programs (DWSRF)—collectively known as the “SRFs”—and bonds or loans from the USDA Rural Development (RD) Program.

Debt service relief through  
forbearance agreements  
(FY2018 through FY2020)

**\$128 million**

On June 30, 2016, the Authority executed a Forbearance Agreement with the DOH and EQB (administrators of the DWSRF and CWSRF, respectively). PRASA was also granted a short-term forbearance period under the USDA RD loans. This allowed for deferral of payments due from 2016 through 2019, subject to certain conditions and partial payments.

On July 26, 2019, the Authority and PRFAFAA consummated definitive agreements (the “Agreements”) that reprogrammed the Authority’s debt obligations under the SRF and RD loans, which totaled approximately \$1 billion in federal debt. The Agreements were approved by the Oversight Board pursuant to Section 207 of PROMESA on July 3. The benefits of the Agreements to PRASA and the Government include the termination of existing Commonwealth guarantees over the Federal Debt—thus reducing overall Government contingent liabilities by approximately \$1 billion—and the consolidation of all the reprogrammed debt into two SRF loans and one RD loan. The restructured Federal Debt was designated as “Other System Indebtedness” in parity with other senior debt under PRASA’s MAT.

A summary of the modification to the Federal Debt terms is summarized in Exhibit 3-1



**EXHIBIT 3-1: MODIFICATIONS TO FEDERAL DEBT TERMS**

	Prior to debt modification	After debt modification	Projected Impact (FY21-FY31)
<b>SRF</b>			
Balance	\$581M	\$596M (including new loans)	
Amortization term	20 years	30 years	<b>\$260M</b>
Interest rate	2%	0% for years 1-10/1% thereafter	
Annual debt service	\$36M	\$10M for years 1-10/\$27M thereafter	
<b>RD</b>			
Balance (incl. accrued interests)	\$392M	\$392M	
Amortization term	40 years	40 years	<b>\$120M</b>
Interest rate	4% (average	2%	
Annual debt service	\$24M	\$10M for years 1-10/\$17M thereafter	

The debt service relief from FY2018-FY2020 was approximately \$128 million. The federal debt reprogramming resulted in substantial benefits for PRASA, the Government and the people of Puerto Rico, including:

- Debt service relief to the Authority of \$40 million per year and approximately \$380 million over the next ten years
- Renewed access to potential sources of funds under Federal programs for infrastructure projects
- Adequate protection of the interests of the Federal agencies
- Accrued interest forgiveness in SRF loans with savings of approximately \$30 million

**3.1.4.2 Commonwealth Supported Obligations – PFC Debt**

The Authority’s Commonwealth Supported Obligations (CSO), as defined in the MAT, include a portion of the 2011 Series B Bonds issued by PFC on December 2011 to refinance certain outstanding debt. It includes the cost of the North Coast Superaqueduct, one of the main assets owned and operated by the Authority, producing around 100 MGD or approximately 20% of the Authority’s total daily water production. The Authority agreed with the Government to pay the debt service on a portion of the PFC debt (\$162.7 million) if sufficient funds were available for these purposes. However, the Authority has no legal obligation under this debt agreement and such debt is otherwise payable solely from legislative appropriations received from the Government. The Authority has been unable to make such payments in recent years. As provided in the MAT, if the Authority is unable to make this payment, the obligation is not cumulative and therefore does not carry forward to future periods; failure to make the payments or deposits related to this debt is not an event of default under the MAT.

PFC Debt Adjustment  
(FY2018 through FY2020  
2020)  
  
**\$27 million**

The Authority is not assuming any payment related to the PFC debt during the Fiscal Plan period. The PFC debt is subject to ongoing bankruptcy proceedings of the Commonwealth under Title III of PROMESA.



## 3.2 New Measures Summary

There are several measures that PRASA must implement in order to eliminate its fiscal deficit, maintain financial stability, and improve operational performance. This will ensure PRASA's long-term sustainability and safe, reliable, and affordable service that the people of Puerto Rico deserve. Three broad categories of measures must be incorporated in the Post-Measures Financial Results:

1. **Revenue Enhancement Measures:** measures ensuring adequate cost recovery such as rate adjustments and improvements in billing accuracy for PRASA to continue operating an efficient system
2. **Expense Reduction and New Financing Measures:** measures to reduce PRASA's overall spend through labor and operational optimization across all spend categories as well as securing federal funding to help finance the CIP
3. **Enabling Measures:** measures without financial impact, but which are important to successful implementation of the Fiscal Plan and help further ingrain principles of long-term financial and operational sustainability throughout the organization

A summary of the expected net benefit for each individual measure within discussed measure category is included in Table 3-8: New Measures Projected Benefit at the end of this chapter.

### 3.2.1 Revenue Enhancement Measures

PRASA must pursue two major measures directed at increasing revenues:

- **Rate Adjustments:** continue with the scheduled implementation of modest rate increases in both FY2021 and FY2022—consistent with past Fiscal Plans and standard utility practice—and conduct a review of the current rate structure with the aim of ensuring simplicity, affordability, and adequate cost recovery in FY2023 and beyond.
- **Metering and customer service optimization:** reduce commercial water losses and improve customer experience and satisfaction either independently or through a P3 agreement.

#### 3.2.1.1 Rate Adjustments

As discussed in Section 3.1.2.1 PRASA has an approved moderate rate adjustment schedule for five years between FY2018-FY2022. This rate adjustment schedule is summarized in Table 3-2. The final two scheduled rate adjustment are expected to be implemented on July 1, 2020 and July 1, 2021.

To continue delivering reliable, affordable, and safe water and wastewater services without reducing necessary investments in its CIP, PRASA must ensure adequate revenue levels over time through a rate structure redesign. Therefore, PRASA must engage a third-party expert in utility rate design to perform a comprehensive cost of service study and recommend an optimal rate structure aligned with industry standard cost allocation and rate design principles. PRASA must also complete a comprehensive cost of service studies for the System.

Any rate structure review should emphasize the following objectives:

- Optimal cost recovery
- Affordability and protection for vulnerable customers
- Ease of implementation, understanding, and simplicity



- Fairness and equity between and within customer classes
- Incentivizing conservation, including both reduction in peak and average day demands

Finally, PRASA must commit to transparency around rate setting and structuring. Many leading water utilities make information on the frequency of rate setting proceedings, review and approval process, and general justifications for rate increases a matter of public record. Accordingly, PRASA should commit to making this information public starting in FY2021.

Currently, the rate adjustment measure has generated an estimated \$150 million in additional revenues between FY2018-FY2020. For future years, the accumulated projected impact is illustrated in Exhibit 3-2

PRASA expects further revenue growth from rate adjustments beyond FY2022, but the actual rate adjustments will be evident only after the rate redesign process is completed. Though PRASA cannot represent or guarantee what these adjustments will be, the 2020 Fiscal Plan assumes revenues generated from rate adjustments will continue at 2.5% across all customer segments in FY2023-FY2025.

**EXHIBIT 3-2: RATE ADJUSTMENT PROJECTED BENEFITS (IN \$' MILLIONS)**

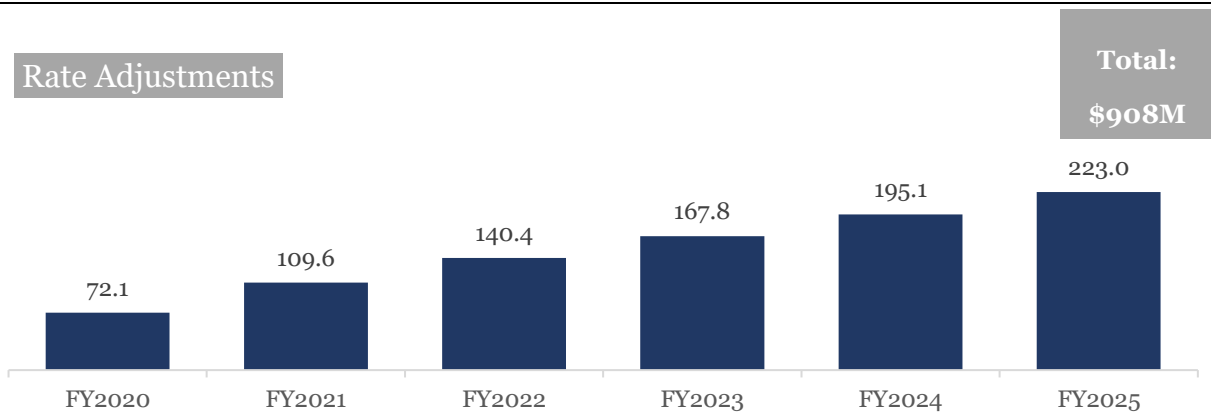


Exhibit 3-3 outlines the key action items for successful and timely delivery of this measure.





**EXHIBIT 3-3: ACTION PLAN FOR RATE ADJUSTMENT MEASURE**

<u>Action items</u>	<u>Deadline</u>	<u>Owner</u>
Implement FY2021 approved rate adjustments	July 1, 2020	Finance
Complete procurement process for rate design study	December 15, 2020	Finance
Complete comprehensive review of current rate structure	June 30, 2021	Finance
Implement FY2022 approved rate adjustments	July 1, 2021	Finance
Submit proposed revised rate structure for Board approval	July 31, 2021	Finance
Publicize information on proposed rate design changes	October 1, 2021	Finance
Implement revised rate design	July 1, 2022	Finance

**3.2.1.2 Metering and customer service optimization**

PRASA must work to reduce commercial water losses and improve customer experience and satisfaction. The main objectives of this measure are summarized in Exhibit 3-4.

**EXHIBIT 3-4: GOALS FOR METERING & CUSTOMER SERVICE OPTIMIZATION MEASURE**



This measure aims to install real-time smart meter technologies and pursue activities that would help decrease commercial water losses and—to a lesser degree—physical water losses. By increasing the accuracy of water meters, PRASA will be able to transition away from estimated commercial losses and achieve a greater level of precision in its measurements.

Moreover, by reducing the uncertainty of the System’s apparent losses, PRASA will be able to recover revenues lost to theft and unmetered usage and determine with greater accuracy the volume of real physical water losses. Ultimately, through this measure, PRASA will be able to



better determine its CIP needs and intelligently address the renewal and replacement of its linear (pipe) assets to reduce real losses.

PRASA must implement this measure either on its own or through a P3 agreement. Potential responsibilities of a private sector partner could be:

1. All customer service activities, including meter readings, collection efforts, operation of commercial offices, addressing service orders, and issuing and distributing monthly invoices
2. Replacement of all PRASA’s water meters with new ultrasonic smart meters and an island-wide Advanced Meter Infrastructure (AMI) which will feed directly into PRASA’s main operating system.

Exhibit 3-5 shows the forecasted financial impact during the plan’s fiscal years if the measure is performed through a P3 agreement. Projections shows a net benefit of \$33 million during the Fiscal Plan period.

However, P3 projects are typically long-term and should be evaluated based on the benefits generated throughout the term of the underlying agreement. This measure, over the proposed 20-year term, is expected to generate net benefits to PRASA, at nominal value, of approximately \$570 million on a fiscal basis—which excludes the avoided capital costs for meter replacement—and approximately \$870 million on a capital basis—which includes the benefit for the avoided capital costs for meter replacement.

As meter replacement ramps up during the first years of the measure, there is a negative impact on PRASA’s financial results from initial payments to the proponent for meter installation and system setup. Starting in FY2023, the net impact turn positive as PRASA begins to generate higher revenues from lower commercial water losses.

**EXHIBIT 3-5: EXPECTED BENEFITS FOR METERING AND CUSTOMER SERVICE OPTIMIZATION MEASURE (IN \$’ MILLIONS)**

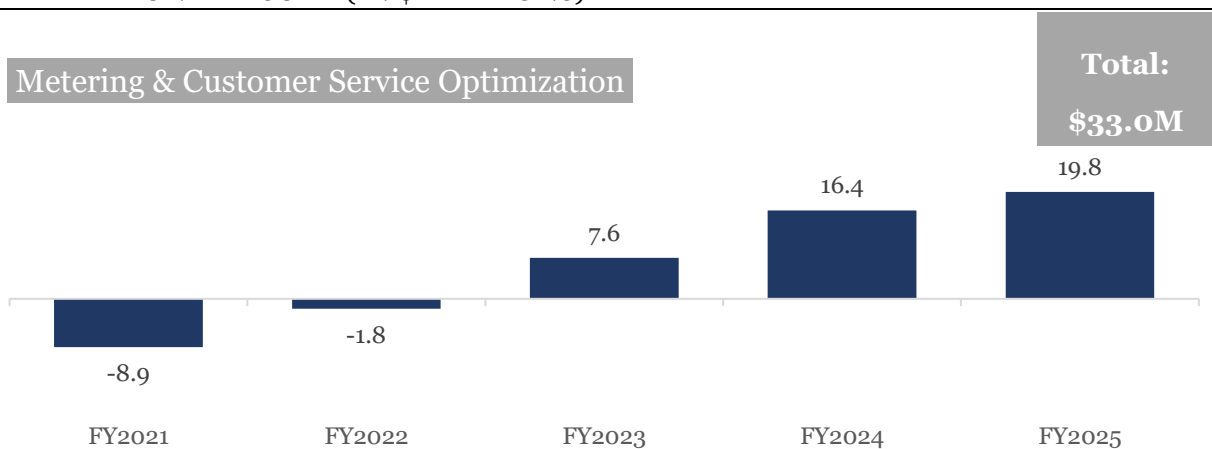


Exhibit 3-6 outlines the key action items for successful and timely delivery of this measure if implemented through a P3 agreement.



**EXHIBIT 3-6: ACTION PLAN FOR METERING AND CUSTOMER SERVICE OPTIMIZATION MEASURE**

<u>Action items</u>	<u>Deadline</u>	<u>Owner</u>
P3 Committee approval	TBD	VP of Strategic Planning
PRASA Governing Board approval	TBD	VP of Strategic Planning
AAFAP approval	TBD	VP of Strategic Planning
Oversight Board approval	TBD	VP of Strategic Planning

**3.2.2 Expense Reduction and New Financing Measures**

PRASA must pursue eight major measures to reduce operating and capital expenses:

1. **Chemical expense reduction:** reduce chemical usage and costs through improved inventorying, contracts negotiation, and laminar aeration installation at Carraizo Dam
2. **Pension reform:** improve the financial stability of public employees through reforms that maintain enough funds for employee pension plans and create a defined contribution plan for employees; consistent with the Commonwealth of Puerto Rico’s pension reform measure.
3. **Christmas bonus elimination:** remove the annual end-of-year bonus starting in FY2021
4. **Uniform healthcare:** implement a newly negotiated medical health plan by July 1, 2020
5. **Headcount cap:** limit the Authority’s workforce size to 4,600 while a comprehensive productivity and rightsizing assessment is conducted
6. **Electricity cost reduction:** reduce electricity costs through increased efficiency and distributed generation
7. **Physical water loss reduction:** reduce physical water loss through master meter installation, leaks reduction, and pressure management
8. **Capital delivery optimization:** achieve a more cost-effective way to deliver its CIP. The Oversight Board urges PRASA to onboard a Project Management Consortium (PMC), PRASA also much establish a prioritization criteria for all projects, set up a CIP tracking tool, and monitor KPIs.
9. **New Financing for CIP:** obtain new financing from two federal loan programs: State Resolving Funds (USEPA) and the Rural Development Program (USDA)

**3.2.2.1 Chemical Expense Reduction**

Chemical spend is PRASA’s fourth largest projected operating expenditure for FY2021 at almost \$40 million. While it is a cost reduction opportunity, it needs to be carefully managed in order to ensure compliance with environmental regulations.



Complicating the matter is the fact that water quality and availability in Puerto Rico are quickly and constantly changing.<sup>52</sup> Droughts, hurricanes, and climate change have altered water quality and supply, which create challenges for effective chemicals application and optimization. To appropriately understand the impact of raw water quality on the System, monitoring has started at PRASA's three main water reservoirs: La Plata, Carraizo, and Cidra.

In the meantime, PRASA has identified four levers to reduce chemical usage and spend while ensuring high water quality:

- **Chemicals Inventory and application:** PRASA must establish a detailed inventory for chemicals use and application, with the following goals:
  - Improve chemical consumption visualization
  - Increase supplier provision accuracy
  - Detect and prevent unallowed chemical uses
  - Optimize chemical inventory levels
  - Control and monitor chemical consumption by region
- **Coagulant and Flocculant cost reduction:** PRASA must issue an RFP to consolidate purchase of coagulants and flocculants for all its plants. The RFP is expected to be issued by July 2020. The centralized RFP process is expected to maximize opportunities for price reductions through bulk purchasing. Furthermore, the single supplier must provide guidance to PRASA for the adequate type of chemicals, thereby further increasing efficiency in chemicals application.
- **Liquid Chlorine Cost Reduction:** A liquid chlorine bidding process must be pursued to provide for island-wide requirements for all of PRASA's facilities based on various levels of concentration and sizing. The bulk bid must be started in the first half of FY2021 with the expectation that bulk negotiations will lead to pricing optimization.
- **Water Reservoir Laminar Aeration<sup>53</sup>:** Currently 65% of the raw water supply is from dams. Nevertheless, the eutrophic state of most of the dams (18 of 19) limit the water extraction to 35%-50% of their total capacity. Under drought events, the water available falls drastically due to algae concentration. With the reduction of organic waste (e.g., algae) the water treatment plants receiving the raw water will require less chemicals for treatment.

PRASA has already successfully implemented a laminar aeration process in the Toa Vaca reservoir, reducing chemicals consumption on the 3 plants supplied by this reservoir by almost 20-40%. A bid for providing the Carraizo Dam with laminar aeration was issued on June 2, 2020, which is expected to reduce the chemical requirement for Sergio Cuevas WTP by around 20%.<sup>54</sup>

Due to the fact that the bidding process has not been started for coagulants & flocculants and liquid chlorine, there is no current estimated financial impact from these priorities. Financial

---

<sup>52</sup> Lugo et al. 2011

<sup>53</sup> Laminar aeration injects air (microbubbles) in a laminar ascending flow in slow speed (one feet per second) from the bottom to the top of the reservoir through ceramic diffusers improving the freshwater quality and reducing the harmful algae

<sup>54</sup> Chemical spending at Sergio Cuevas was ~\$7 million. Savings from aeration approximately \$1-1.5 million per year



impact for laminar aeration is estimated based on historical performance of the same program at the Toa Vaca Reservoir.

Exhibit 3-7 estimates the projected impact for this measure between FY2021-2025.

**EXHIBIT 3-7: PROJECTED IMPACT FROM CHEMICAL SAVINGS (IN \$' MILLIONS)**

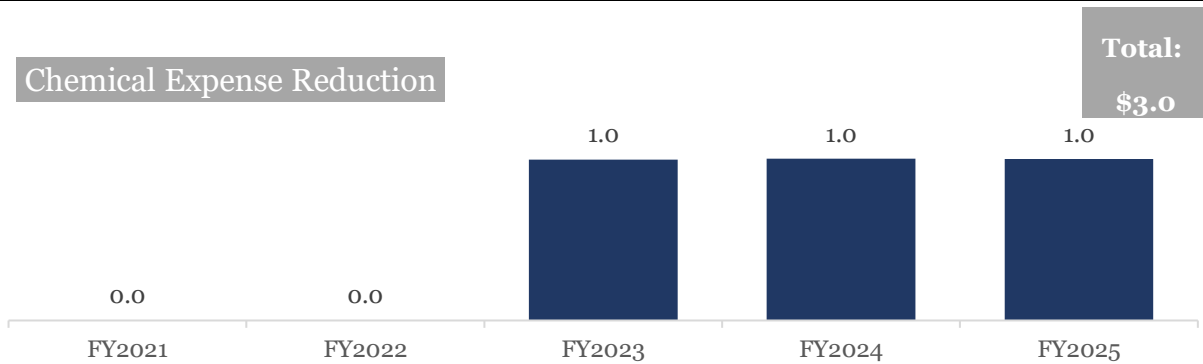


Exhibit 3-8 outlines the key action items for successful and timely delivery of this measure. The action plan also lists several reports and updates required to the Oversight Board.

**EXHIBIT 3-8: ACTION PLAN FOR CHEMICAL EXPENSE REDUCTION MEASURE**

Action items	Deadline	Owner
Issue consolidated coagulant and flocculant procurement RFP	July 31, 2020	VP of Strategic Planning
Submit construction execution planning and timing for Carraizo Dam to Oversight Board	August 15, 2020	VP of Operations
Submit purchasing strategy report with list of chemicals contracts that will be tendered in first half of FY21	August 31, 2020	VP of Strategic Planning
Submit chemicals inventory program planning and timing to FOMB	October 31, 2020	Purchasing & Logistics
Submit purchasing strategy report with list of chemicals contracts that will be tendered in second half of FY21	November 1, 2020	Purchasing & Logistics

### 3.2.2.2 Pension Reform

PRASA’s pension reform measure is part of the Commonwealth’s overall measure to progressively restore fiscal health to Puerto Rico while ensuring that adjustments to pension benefits occur in a manner that protects the economic well-being of all retirees. PRASA (in compliance with Act 106-2017) uses the Pay-as-you-Go (“PayGO”) system. PRASA’s pension contributions will be reduced by a maximum of 8.5% depending on participant with no reduction to those with benefits less than \$1,200 per month starting in FY2022 following the Commonwealth’s direction.

Total savings from this measure during the Fiscal Plan period is projected at \$21.0 million as illustrated in Exhibit 3-9 below.



**EXHIBIT 3-9: PENSION REFORM SAVINGS (IN \$' MILLIONS)**

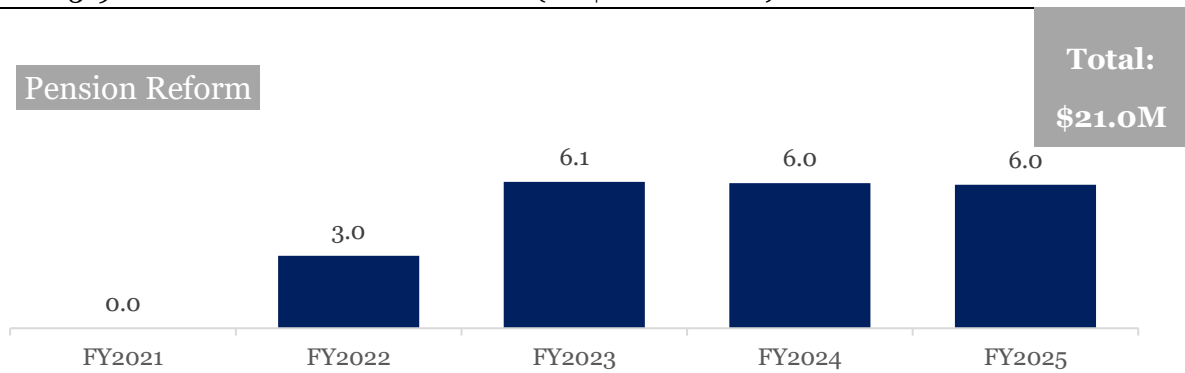


Exhibit 3-10 outlines the key action items for successful and timely delivery of this measure.

**EXHIBIT 3-10: ACTION PLAN FOR PENSION REFORM MEASURE**

Action items	Deadline	Owner
Implement Pension Reform	January 1, 2022	Commonwealth

**3.2.2.3 Christmas Bonus Elimination**

In an attempt to reduce cost without impacting personnel PRASA will look to reduce non-salary compensation paid to employees such as Christmas bonuses for both temporary and permanent workers, as well as existing and new hires. The Christmas Bonus program is not to be replaced by another form of annual bonus program.

Total savings from this measure during the fiscal plan period is illustrated in Exhibit 3-11 below.

**EXHIBIT 3-11: CHRISTMAS BONUS ELIMINATION SAVINGS (IN \$' MILLIONS)**

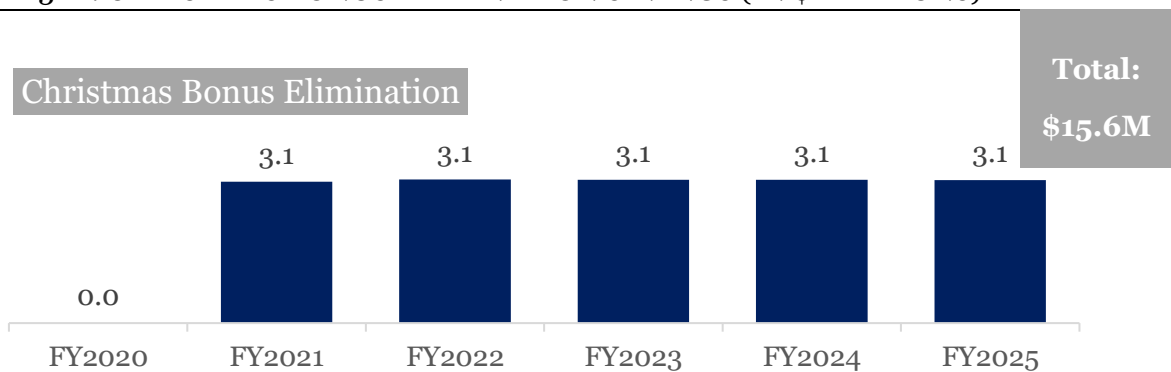


Exhibit 3-12 outlines the key action items for successful and timely delivery of this measure.



**EXHIBIT 3-12: ACTION PLAN FOR CHRISTMAS BONUS ELIMINATION MEASURE**

Action items	Deadline	Owner
Implement Christmas Bonus Elimination	November 1, 2020	Human Resources & Labor Relations

**3.2.2.4 Uniform healthcare**

PRASA must sign a new medical health plan agreement that enters into effect on July 1, 2020 in order to lower costs, but not quality in coverage for its employees. PRASA issued an RFP for health plan services in November 2019 with the goal to standardize health insurance contributions so that all regular employees without pre-existing conditions have an average contribution of \$125 per employee per month (lowered from \$495) and regular employees with pre-existing conditions remain at their current contribution level of \$495 in accordance to Commonwealth guidance. On June 1, 2020 awarded the contract for FY2021 to the preferred proponent. The selection of the preferred proposal took in consideration cost savings and minimization of impact on current benefits and service provider availability throughout the Island.

The new contract represents a projected average annual saving of \$2.3 million and total savings of \$11.5 million during the Fiscal Plan period, as illustrated in Exhibit 3-13 below.

**EXHIBIT 3-13: UNIFORM HEALTHCARE PROJECTED SAVINGS (IN \$' MILLIONS)**

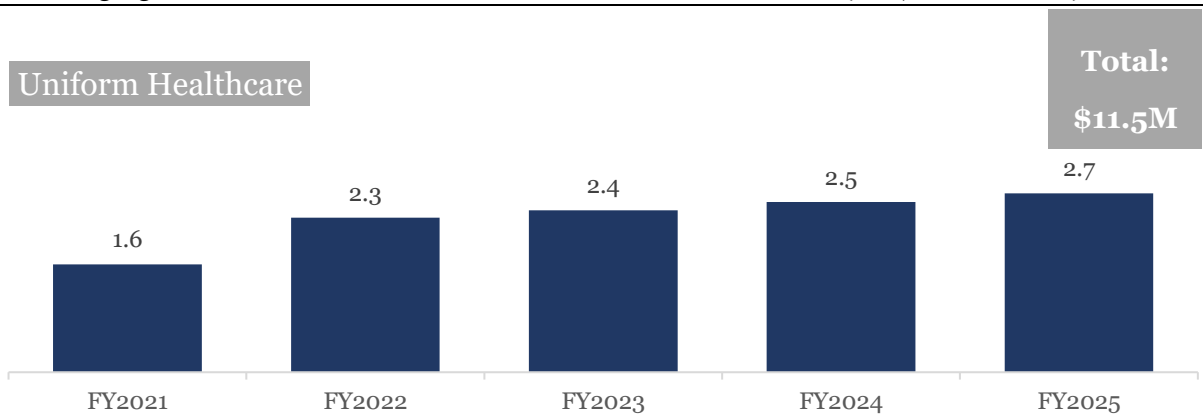


Exhibit 3-14 outlines the key action items for successful and timely delivery of this measure.

**EXHIBIT 3-14: ACTION PLAN FOR UNIFORM HEALTHCARE MEASURE**

Action items	Deadline	Owner
Implement new medical plan	July 1, 2020	Human Resources & Labor Relations

**3.2.2.5 Headcount Cap**

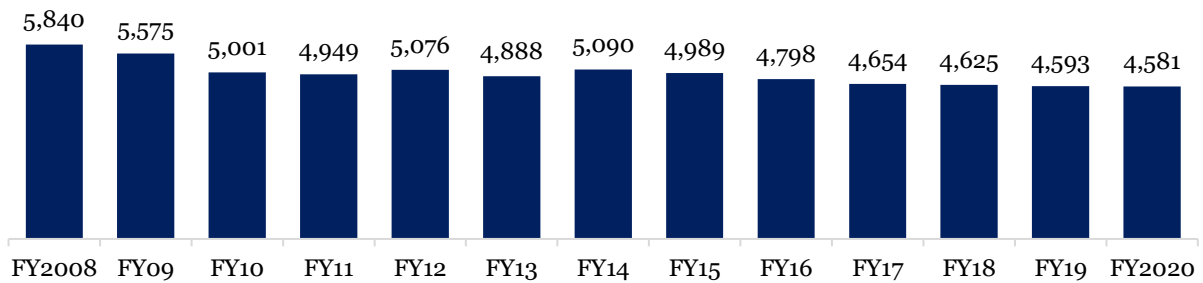
As of May 2020, the Authority's workforce was 4,581, 119 less than its FY2020 target of 4,700 employees. Since FY2008, with the exception of FY2014, the Authority has experienced year-



over-year reductions in headcount and has been unable to reach its target employee headcount, even though funding has been allocated to do so (Exhibit 3-15). More recently, PRASA has operated with fewer than 4,600 employees, experiencing a net reduction of 12 employees from FY2019 to FY2020. PRASA’s most recent labor capacity and productivity assessment was conducted in 2014 and must be revised in order to provide an updated assessment of PRASA’s optimal workforce structure and number.

In FY2020, the Authority used 26% of its labor "net additions" budget – an allocation of funds within previous Fiscal Plans specifically for hiring purposes –to cover costs associated with staff replacement—and to reapportion funding towards other cost categories.

**EXHIBIT 3-15: PRASA HEADCOUNT FY2008-FY2019**



Given the Authority’s historical year-over-year reductions in headcount, its underspending in “net addition” in FY2020, and the need to conduct an updated labor capacity assessment to provide a better understanding of PRASA’s labor needs, PRASA’s must enforce a headcount cap of 4,600 employees which shall be assumed to remain in place for the 2020 Fiscal Plan period. By capping PRASA’s headcount at 4,600, the 2020 Fiscal Plan allows PRASA to continue its hiring efforts and provides sufficient funding to increase its current workforce by an additional 19 employees. If circumstances are such that PRASA needs additional funds for hiring beyond the 4,600 target, PRASA and the Oversight Board will discuss feasibility, scope, and alignment of potential modifications with the 2020 Fiscal Plan.

Meanwhile, in FY2021, PRASA must conduct an updated labor capacity and productivity assessment aimed at the following:

- determine the adequate personnel resources to operate and maintain PRASA’s System in optimal conditions
- improve recruiting and retention practices
- bring compensation levels in line with the Puerto Rico and U.S. mainland markets

The headcount cap represents a projected average annual reduction in payroll expenditures of \$3.3 million and total reduction of \$16.3 million during the Fiscal Plan period, when compared with PRASA’s original target of 4,700 employees by FY22, as illustrated in Exhibit 3-16. The reduced expenditure in payroll helps PRASA reduce its projected pre-measure operating deficit and focus investments in critical areas for system reliability and safety.





**EXHIBIT 3-16: HEADCOUNT CAP PROJECTED SAVINGS (IN \$' MILLIONS)**



Exhibit 3-17 outlines the key action items for successful and timely delivery of this measure.

**EXHIBIT 3-17: ACTION PLAN FOR HEADCOUNT CAP MEASURE**

<u>Action items</u>	<u>Deadline</u>	<u>Owner</u>
Implement headcount cap	July 1, 2020	Human Resources & Labor Relations
Complete procurement process for productivity and rightsizing study	October 15, 2020	Human Resources & Labor Relations
Complete comprehensive productivity and rightsizing study	February 28, 2021	Human Resources & Labor Relations
Submit key findings and proposed changes resulting from workforce planning and talent management study to Oversight Board	March 15, 2021	Human Resources & Labor Relations
Discuss findings and proposed changes with Oversight Board	April 1, 2021	Human Resources & Labor Relations

### **3.2.2.6 Electricity Cost Reduction**

PRASA must continue reducing electricity costs and consumption through efficiency measures and distributed generation. Similar to the past measures, reducing its second largest cost must include various non-capital intensive measures:

- Performing further operational improvements focused on conservation measures in its water treatment plants (WTPs) and wastewater treatment plants (WWTPs)
- Leveraging hydraulic modeling analyses and optimization efforts to reduce energy consumption in the water distribution and wastewater collection system (i.e., pump station facilities)
- Providing more flexibility to the System, reducing and optimizing the hours of operation at the facilities
- Identifying energy conservation measures in equipment operation



Through the measures set forth above, PRASA expects to reduce its consumption by almost 16 million kWh by FY2025.

PRASA must also pursue additional PPA measures at 14 new sites to obtain up to 26 million kWh from solar energy at a reduced rate projected at \$0.13 per kWh. The timeline for the new PPAs is included in Table 3-4 below.

**TABLE 3-4: NEW PROJECTED PPAS**

Facility	Million kWh	Expected by:
Barceloneta WWTP	1.66	FY 2026
Bayamon WWTP	1.64	FY 2024
Mayaguez WWTP	4.96	FY 2025
SuperAqueduct RWPS	4.92	FY 2024
Guayama WWTP	1.64	FY 2024
Fajardo WWTP	1.66	FY 2026
Fajardo WTP & RWPS	1.66	FY 2026
Ponce WWTP	1.65	FY 2025
Utua WWTP	1.00	FY 2026
Hatillo Camuy WWTP	1.00	FY 2026
Arecibo Islote WWTP	1.00	FY 2026
Caguas WWTP	1.17	FY 2026
Carolina WWTP & Torrecillas WWPS	1.65	FY 2025
Santa Isabel WWTP	1.00	FY 2026
<b>Total kWh</b>	<b>26.62</b>	

The actual cost savings from this measure will depend on the cost of electricity produced by PREPA. Based on current projected electricity rates, the financial impact of this measure is illustrated in Exhibit 3-18, with total expected saving of \$13.2 million during the fiscal plan period.

**EXHIBIT 3-18: PROJECTED ELECTRICITY COST REDUCTION (IN \$' MILLIONS)**

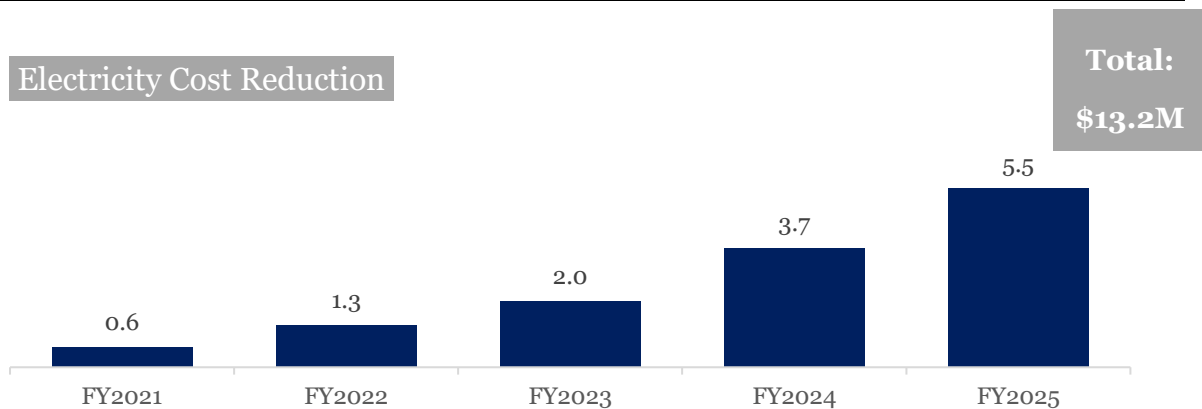


Exhibit 3-19 outlines the key action items for successful and timely delivery of this measure.



**EXHIBIT 3-19: ACTION PLAN FOR ELECTRICITY COST REDUCTION MEASURE**

Action items	Deadline	Owner
Energy Office to target energy reduction goal in kWh per region and create structured plan	July 31, 2020	VP of Operations
Submit proposed goals and action plan to Oversight Board	August 25, 2020	VP of Operations
Begin monthly tracking of energy reduction across regions	September 15, 2020	VP of Operations

**3.2.2.7 Physical Water Loss Reduction**

High levels of physical water losses are one of PRASA’s major challenges and it must take steps to reduce it. Physical losses are due to leaks and breaks throughout the System. The water fails to reach the customer and therefore is not billed even though the cost of producing it is incurred. By addressing physical water loss, PRASA can lower production requirements, thus reducing the strain on its infrastructure and lowering electricity and chemical costs. It can also conserve and manage the Island’s water resources more effectively, which will help minimize the need for rationing during drought periods.

PRASA’s Water Recovery Office (WRO) is responsible for guiding the Authority’s three main physical water loss reduction programs:

1. **Master Meters:** accurately measuring water production by the installation of water meters at critical facilities
2. **Pressure Management:** incorporating pressure management best practices across the transmission and distribution network
3. **Leaks Detection and Reduction:** improving identification, prioritization, and resolution of major leaks across PRASA assets

These three measures will address the largest pain points and are central to achieving PRASA’s goal of reducing losses by 41 MGD by FY2025.

**3.2.2.7.1 Master Meters Program**

Master Meter validation, calibration or replacement will allow PRASA to obtain the most accurate flow (production) data for evaluation of System performance and water balance calculations. Only with accurate production data may the Authority accurately determine the true cost of water production and the losses incurred. The goal of this program is to increase the percentage of the Authority’s water production that is accurately and reliably measured.

Of PRASA’s 113 water treatment plants and ~250 wells, only 58% of the facilities currently provide a measured value of production. PRASA’s goal is to increase the measured water production to 80% by the end of FY2021.

The Master Meter program’s current approach is to visit the top water production facilities and determine whether the current Master Meter complies with the manufacturer specifications and if the value provided is reliable and consistently entered in PRASA’s SCADA system. Meters that do not comply must be either replaced with another technology or moved to a new location at the



facility to ensure compliance. PRASA must contract a third party for meter installation services, including the validation and transfer of water production information to the SCADA system.

### **3.2.2.7.2 Pressure Management Program**

Pressure Management is one of the most basic tools available to address total water losses. Lowering the water pressure within the System will essentially reduce leakage, thereby reducing water production requirements. Most of the Potable Water System Identification (PWSIDs) on the Island operate with a focus on a minimum pressure requirement and not a maximum pressure restriction or limitation, resulting in numerous high pressures areas. This program will allow for the optimization of the pressure for each PWSID through repairs or replacement of equipment and reducing excess pressure events in the system.<sup>55</sup>

Moreover, PRASA must monitor and control pressure on a live basis, a capability it does not currently possess.

### **3.2.2.7.3 Leaks Reduction Program**

Water leaks are one of the main reasons for physical water losses. Leaks can occur on transmission or distribution lines, tanks, and on service connections up to the customer meter. An active leak detection program paired with prompt repair is an essential component for every utility to lower their Non-Revenue Water (NRW) levels. In previous years, PRASA has contracted third parties to perform active leakage detection in certain areas of the system. In the North, Metro and East region alone 2,362 leaks were identified.

PRASA must continue to contract outside services to identify leaks, prioritize underground infrastructure repairs and replacements, and train PRASA teams to perform the work. PRASA has recently procured specialized equipment that must be used to support this initiative, not only in identifying existing undetected leaks, but also in emergency responses to effectively identify impacted transmission and distribution pipelines. The WRO must also collect field data on leak occurrences and guide regional teams to make repairs.

### **3.2.2.7.4 Physical Water Loss Projected Financial Impact**

Exhibit 3-20 shows estimated financial impact for FY2021-FY2025. Depending on the unit cost of chemicals and electricity, total projected savings by FY2025 is estimated at up to \$6M per year, net of the measure costs.

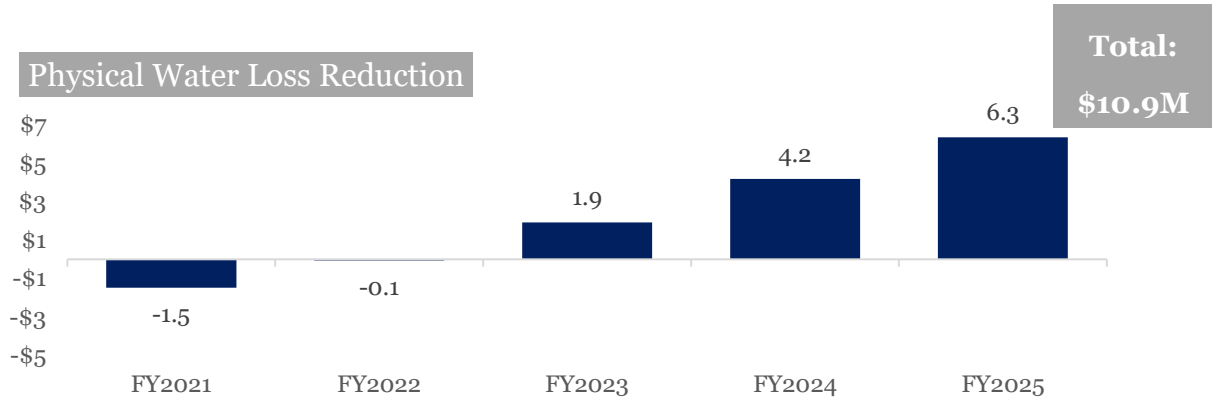
---

<sup>55</sup> Each PSI lowered is expected to result in 1% reduction of physical water loss;

J. Schwaller, Modelling The Effects Of A Large Number Of Leaks In A Water Distribution Network Using The Favard Equation. In Civil Engineering, Water Infrastructure Engineering, M.Sc. Thesis, University of Applied Sciences Karlsruhe. Karlsruhe, Germany, 2012.



**EXHIBIT 3-20: PHYSICAL WATER LOSS REDUCTION PROJECTED INITIATIVE IMPACT (IN \$' MILLIONS)**



For FY2021 and FY2022 the initial costs to install master meters and to start the leak detection measure deployment is higher than the expected return. Net savings are expected starting in FY2023.

**3.2.2.7.5 Milestones and Action plan**

The first step of the physical water reduction measure is aimed at installing and/or calibrating the meters on production plants that account for at least 80% of water production by the end of FY2021. In order to accelerate this measure, PRASA established specific goals for each fiscal year; these are summarized in Exhibit 3-21.

**EXHIBIT 3-21: KPIS FOR NRW MEASURE**

	FY2021	FY2022	FY2023	FY2024	FY2025	Total 2021/2025
<b>Master Meters (MM):</b>						
Installed/ Calibrated MM	39	27	27	26	25	144
Production Metered (MGD)	425	15	15	14	14	482
% of Water Production Measured	83%	3%	3%	3%	3%	95%
<b>Pressure Management:</b>						
Pressure Zones Visits	39	55	62	66	74	296
Average PSI	78.8	77.8	76.8	75.8	74.8	74.8
Recovered MGDs	1.4	2.0	2.2	2.3	2.6	10.5
<b>Leak Detection:</b>						
Covered Miles	951.0	1,141.2	1,331.4	1,521.6	1,711.8	6,657.2
Estimated Leaks Detected	195	234	273	312	351	1,366
Recovered MGDs (Pipes Leaks)	3.4	4.1	4.8	5.5	6.2	23.9
Pumps with leaks visited	538	398	490	178	-	1,604
Recovered MGDs (Pumps Leaks)	2.2	1.7	2.1	0.8	-	6.8
<b>Total Recovered MGDs</b>	<b>7.0</b>	<b>7.8</b>	<b>9.1</b>	<b>8.6</b>	<b>8.7</b>	<b>41.2</b>
<b>Accumulated Reduction (MGD)</b>	<b>7.0</b>	<b>14.8</b>	<b>23.9</b>	<b>32.5</b>	<b>41.2</b>	

The objectives and milestones must be reviewed once leak detection and pressure management intervention strategies are in place and every 6 months thereafter to reflect actual performance



values. The information obtained through these measures will help develop a more accurate and reliable Water Balance report.

Based on current available information and assumptions included above, Table 3-5 below shows the expected reduction in MGD by program.

**TABLE 3-5: EXPECTED MGD REDUCTION**

<b>In MGDs</b>	<b>FY2021</b>	<b>FY2022</b>	<b>FY2023</b>	<b>FY2024</b>	<b>FY2025</b>
Pressure Management Program	1.4	2.0	2.2	2.3	2.6
Leak Reduction Program	5.6	5.8	6.9	6.2	6.2
<b>Reduction in Production (MGD)</b>	<b>7.0</b>	<b>7.8</b>	<b>9.1</b>	<b>8.6</b>	<b>8.7</b>
<b>Accumulated Reduction (MGD)</b>	<b>7.0</b>	<b>14.8</b>	<b>23.9</b>	<b>32.5</b>	<b>41.2</b>

PRASA has contracted an external project manager, architect and engineering consultant in June 2020 to execute the Physical Water Loss reduction measure. The execution phase must include close collaboration with PRASA operational teams, specifically within each operational region. Next steps must include onboarding the external project manager and revising the measure project plans and translating the measure objectives into actionable activities. The collaboration must also include designing and implementing several controls and reports to manage and communicate the measure progress.

Exhibit 3-22 lays out the actions required for timely and effective delivery of the overall NRW reduction measure and for each of the specific programs.



**EXHIBIT 3-22: ACTION PLAN FOR PHYSICAL WATER LOSS REDUCTION MEASURE**

<u>Action items</u>	<u>Deadline</u>	<u>Owner</u>
<i>Overall-</i> Complete procurement of Third Party Leak detection support	October 1, 2020	VP of Strategic Planning
<i>Leak Reduction-</i> PRASA to start reporting quarterly on progress of leaks located and addressed	September 15, 2020	VP of Strategic Planning / VP of Operations
<i>Master Meters-</i> Reporting on maintenance conducted for Master Meters	December 1, 2020	VP of Operations
<i>Master Meters-</i> Installation of Master Meter to be installed by FY2021 after received	February 1, 2021	VP of Strategic Planning
<i>Master Meters-</i> Data Validation of new meters installed during FY2021	March 1, 2021	VP of Strategic Planning
<i>Pressure Management-</i> Condition assessment and prioritization of pressure zones (39 in total) based on analysis	September 1, 2020	VP of Strategic Planning
<i>Pressure Management-</i> Procurement, Stabilization & Repair occurs as WRO team identifies deficiencies in the field (for 39 zones)	March 15, 2021	VP of Strategic Planning
<i>Pressure Management-</i> Optimization post repairs and analysis of new field condition (for 39 zones)	April 30, 2021	VP of Strategic Planning
<i>Pressure Management-</i> Monitoring of controlled pressure zone and maintenance (for 39 zones)	June 15, 2021	VP of Strategic Planning

**3.2.2.8 Capital Delivery Optimization**

PRASA must take steps to deliver its CIP more efficiently. As discussed in Section 2.4: Capital Improvement Plan, in order to budget for all of the required activities to execute construction work, PRASA uses a 1.6 factor, which means that on average, a project must be assigned a budget for its estimated construction plus an additional 60% to cover overheads and expected contingencies. As the CIP is fully implemented and goes into effect in FY2021, PRASA must take the following actions to improve overall project execution and delivery:

- **Project Management Consortium (PMC):** contracting of a PMC in order to support management of its capital projects during construction, it is expected to have a firm signed on by August 2020
- **Prioritization Criteria for all projects:** Part of the 10-year Master Plan must include a prioritization process for key project types for the Authority including specific criteria for scoring of all projects
- **CIP Tracking Tool:** updating current tracking tool to establish metrics by project and to monitor budget and schedule compliance and execution
- **KPI monitoring:** measuring Cost Performance Index (CPI) and Schedule Performance Index (SPI) at the start of FY2021 to provide transparency on CIP cost and schedule performance

With the efforts listed above it is expected that overall project execution must be optimized for timing and cost with the goal of reducing fully loaded cost of executing projects. Additionally with

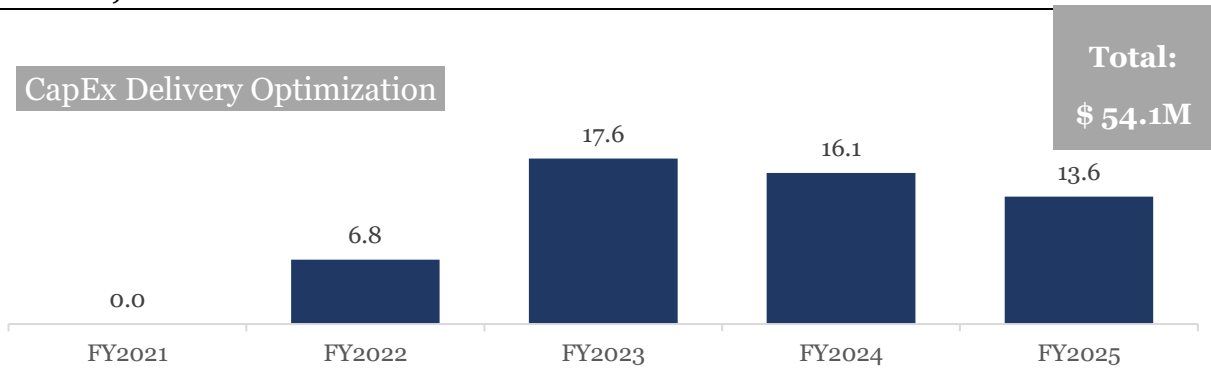


the support of the FOMB and capital project delivery experts, PRASA must take the following actions:

- Understand historical spend components included in 1.6 factor
- Establish clear and achievable savings targets reflective of construction costs in Puerto Rico
- Create an action plan to achieve savings

Improvement in capital delivery is required to ensure that the full CIP can be implemented at lowest possible cost. Exhibit 3-23 provides preliminary savings targets for gradually moving to a 1.3 factor while keeping safety, reliability, and water quality as the core requirements.

**EXHIBIT 3-23: PROJECTED CAPITAL DELIVERY OPTIMIZATION SAVINGS (IN \$' MILLIONS)**



Due to the highly preliminary nature of savings targets, it will be critical for PRASA to comply with the action plan in Exhibit 3-24 to ensure estimates can be properly refined and savings achieved.

**EXHIBIT 3-24: ACTION PLAN FOR CAPITAL DELIVERY OPTIMIZATION MEASURE**

<u>Action items</u>	<u>Deadline</u>	<u>Owner</u>
Complete contract with PMC firm	August 31, 2020	Infrastructure
Identify clear and achievable % of possible savings across activities with Oversight Board	September 15, 2020	Infrastructure
Implement new CIP Tracking Tool	December 1, 2020	Infrastructure
Create and submit action plan to achieve and refine savings starting in FY22 to FY25 to Oversight Board	December 15, 2020	Infrastructure
Discuss action plan with Oversight Board	January 15, 2021	Infrastructure

### 3.2.2.9 *New Financing for CIP*

After the reprogramming of Federal Debt, PRASA recovered access to future funding from both programs. Table 3-6 describes the two federal funding programs for which PRASA requalifies.





TABLE 3-6: FEDERAL FUNDING PROGRAMS

Program	Description
<b>State Revolving Funds (SRF) Loans</b>	<ul style="list-style-type: none"> <li>Annual grants from USEPA of around <b>\$30 million</b> for Drinking Water SRF (DWSRF) and Clean Water SRF (CWSRF) Programs,</li> <li>Commonwealth match of 20% of the annual grant provided by the Department of Health (DOH) and the Department of Natural Resources (DNR), respectively</li> <li>The program’s Repayment Funds are also available, currently with a balance of around <b>\$200 million</b> to be assigned through new loans for qualifying projects without a state match requirement</li> </ul>
<b>Rural Development (RD) Program</b>	<ul style="list-style-type: none"> <li>Bond program operated through Rural Development division of the US Department of Agriculture to provide funds for water and wastewater projects in rural areas</li> <li>Annual appropriation for Puerto Rico has been historically around <b>\$10 million</b></li> </ul>

PRASA’s opportunities for funding are limited to the cost of qualifying projects and capped at the annual appropriations and repayment funds available through these programs.

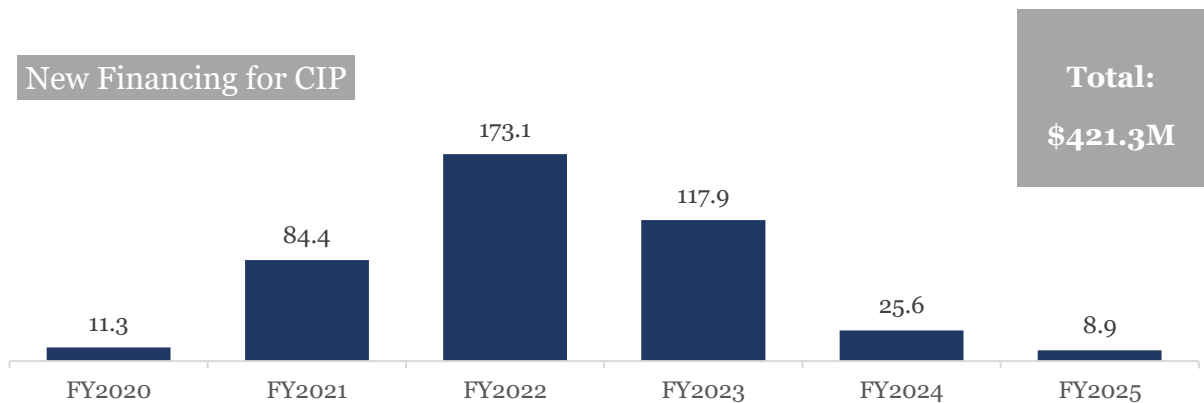
The new funds are projected net of the projected debt service calculated as 30-year loans at 1% for the SRF Program and 40-year loans at 4% for the RD Program. Table 3-7 present the expected federal funding and corresponding costs during the fiscal plan period.

TABLE 3-7: EXPECTED FEDERAL FUNDING AND COST (IN \$’ MILLIONS)

<i>in \$’ Millions</i>	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY20/25
SRF Funds	10.7	82.5	166.3	122.9	32.4	18.5	433.3
RD Funds	1.0	4.4	16.5	10.0	10.0	8.3	50.3
SRF Debt Service	(0.4)	(2.3)	(8.7)	(13.4)	(14.7)	(15.4)	(54.9)
RD Debt Service	-	(0.2)	(1.1)	(1.6)	(2.1)	(2.5)	(7.4)
<b>New Federal Funds, Net</b>	<b>11.3</b>	<b>84.4</b>	<b>173.1</b>	<b>117.9</b>	<b>25.6</b>	<b>8.9</b>	<b>421.3</b>

A total of \$483 million of federal funds are projected to be received during the fiscal plan period with a net impact after debt service of \$421 million as presented in Exhibit 3-25.

EXHIBIT 3-25: PROJECTED NEW NET FEDERAL FUNDS MEASURE (IN \$’ MILLIONS)



The projections included herein may change based on the projects and progress of federally funded capital improvements as well on the federal funds’ annual appropriations and availability.

Exhibit 3-26 outlines the key action items for successful and timely delivery of this measure.

**EXHIBIT 3-26: ACTION PLAN FOR NEW FINANCING FOR CIP**

Action items	Deadline	Owner
Apply for SRF grant or loan with applicable projects	TBD	Infrastructure
Apply for RD grant or loan with applicable projects	TBD	Infrastructure

### 3.3 Enabling Measures

Beyond the measures discussed above, PRASA is developing additional measures with the goal of improving efficiencies and reducing costs:

- **Project Management Office (PMO) execution:** establish a PMO office tasked and empowered to ensure the successful execution of the measures outlined in the 2020 Fiscal Plan and key internal projects within the organization
- **Emergency response plan and climate risk preparedness:** develop and update PRASA’s Emergency Response Plan and ensure findings are integrated across the organization and specifically into the CIP
- **10-year Master Plan:** PRASA’s 10-year plan, to be developed with results from the 2020 US Census, must provide a long-term roadmap to transform PRASA’s system into a simpler, safer, operationally efficient, and financially sustainable system and serve to consolidate recommendations from other plans and strategies (e.g., Fiscal Plan, Emergency Preparedness Plan, Climate Change Adaptability Plan)
- **Asset management and maintenance:** properly track and monitor the condition of all PRASA assets and revamp maintenance program from primarily corrective to a more balanced target that promotes higher preventative maintenance practices

The financial impact of these measures has not been included in the financial projections presented herein.

Additional non-financial measures are discussed in the Appendix.<sup>56</sup>

#### 3.3.1 PMO Execution

PRASA must properly set up its PMO and provide enough leadership support and autonomy to be effective. The PMO, under the purview of the Vice President of Strategic & Corporate Planning, serves as a key component for the implementation and monitoring of Fiscal Plan measures. Key responsibilities are summarized in Exhibit 3-27.

---

<sup>56</sup> Measures discussed in the appendix: strategic plan update, water availability increase, improving system resiliency, and facilities automation



**EXHIBIT 3-27 RESPONSIBILITIES OF THE PMO**

PMO roles	PMO responsibilities
Strategic business planning	1 Evaluate corporate risks and provide guidance to project teams
	2 Develop departmental strategies aligned with PRASA's Fiscal and Strategic Plans
	3 Develop and launch new transformational initiatives
Initiative implementation	4 Direct initiative execution
	5 Support project teams with guidance and alignment
	6 Ensure alignment across departmental stakeholders, goals, and objectives to support project teams
	7 Problem solve and escalate program level bottlenecks, risks, issues, and interdependencies
Transparency, control, and accountability	8 Ensure standardization and tracking of project documentation
	9 Monitor progress and overall performance with a clear set of KPIs and milestones
	10 Provide progress updates and escalate issues to different governance boards

The PMO governance and structure is shown in Exhibit 3-28. It promotes executive sponsorship by strategically assigning each measure to an Executive Officer. In turn, each executive officer assigns project manager (PM) to oversee the measure or the projects created underneath it. The PM develops a Project Committee with project measures led by their Direct Reports. The Project Manager monitors the progress of individual projects and measures within their purview, and in turn provides visibility to the other Steering Committee Members, ensuring the alignment of objectives across the organization. A detailed breakdown of structure and responsibilities is below:

- Each PM must participate in the department’s Project Committee
- In some cases, the Project Committee Lead (member of the Steering Committee) may be the PM of an individual project
- The Project Committee must provide alignment and visibility across the specific executive organization
- The Steering Committee must provide alignment and visibility across the organization

The PMO Director’s role is to coordinate efforts across Project Managers and Project Committees, provide necessary support to them, monitor and report on progress, and escalate decisions and issues to the Cross-Functional Steering Committee as needed.

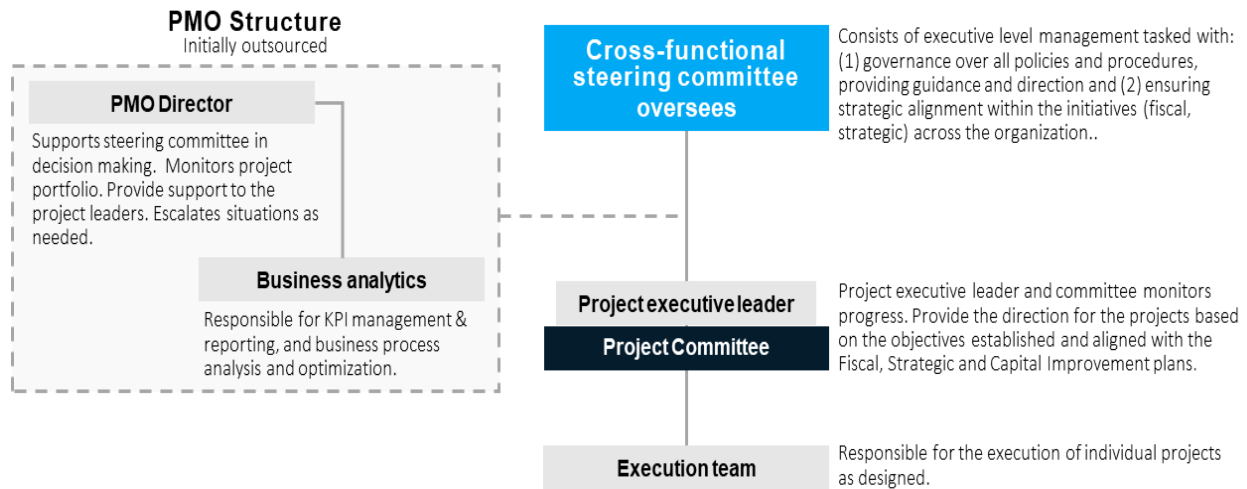
The Cross-Functional Steering Committee is chaired by the Executive President and is composed of the Executive Officers and Project Committee Leaders. The PMO Director serves as the



Committee Coordinator. The Steering Committee is responsible for monitoring progress the Fiscal Plan, ensuring alignment across all plans and priorities, and providing oversight, guidance, and direction to ensure the goals of the plans are met in a timely, efficient, and cost-effective manner.

Key performance indicators (KPIs) must be defined and monitored to ensure the objective achievement and successful performance. Throughout the life of the projects, based on actual results, adjustments to goals might be necessary, subject to approval from the initiative’s Steering Committee. In turn, each initiative’s leader must be accountable for any deviation and is monitored by the Steering Committee.

**EXHIBIT 3-28: PMO STRUCTURE**



Though PRASA has set up this PMO structure, they still need to institute the elements that are critical to effective and efficient operations. These include: assigning a PMO Director and measures owners, creating project committees and execution teams, setting meeting cadence and reporting cadences, and establishing KPIs for the measures and underlying projects. PRASA must have all of these in place by start of FY2022.

Exhibit 3-29 outlines the key action items for successful and timely delivery of this measure. During these months, PRASA should update FOMB on its progress in establishing the PMO.



**EXHIBIT 3-29: ACTION PLAN FOR PMO EXECUTION**

Action items	Deadline	Owner
Assign initiative owners for all Fiscal Plan initiatives	July 15, 2020	PMO Director
Establish project committees and execution teams and assign project executive leaders	July 31, 2020	PMO Director
Convene first Cross-functional steering committee meeting to kick-off PMO process	July 31, 2020	PMO Director
Establish meeting cadences, reporting requirements, and initiative/project KPIs	August 31, 2020	PMO Director
Appoint permanent PMO Director	July 1, 2021	VP of Strategic Planning

**3.3.2 Emergency Response Plan and Climate Risk Preparedness**

Puerto Rico faces significant risk from natural disasters (e.g., droughts, earthquakes, and hurricanes) and events outside of its direct control (e.g., COVID-19 pandemic) that can threaten its ability to provide safe, reliable, and affordable water and wastewater treatment services.

Section 2013 of America’s Water Infrastructure Act of 2018 (AWIA) requires all community water systems that serve more than 3,300 people to complete a risk and resilience assessment (“RRAs”) and emergency response plans (“ERPs”) for all hazards and threats beyond terrorism.

After the RRAs are finalized, ERPs will be developed to be define, amongst others:

- Strategies and resources to improve system resilience, including physical & cyber security
- Plans, actions, procedures, & equipment to be utilized & lessen the impact of malevolent acts or natural hazards
- Actions/procedures/equipment that can significantly lessen the impact of a malevolent act or natural hazard on the public health and the safety/supply of drinking water
- Strategies that can be used to aid in the detection of malevolent acts or natural hazards that threaten the security or resilience of the System

The final objective of this measure is to incorporate the plans into PRASA’s planning, procedures, and decision-making to ensure continual improvement of the utility safety and reliability in the face of a changing threat environment. Particularly, it should ensure the recommendations from these plans are incorporated into the CIP.

The Authority is in the process of updating its current Vulnerability Analysis and Emergency Response Plan to comply with the America Water Infrastructure Act of 2018 (AWIA), which will include an assessment of the Authority’s System vulnerability to several threats, including climate change and natural disasters. Also, during calendar year 2021, PRASA will update its Master Plan with information from the 2020 census, to be able to include any required project to address climate and population changes. Exhibit 3-30 outlines the timeline for completing its RRA and ERP.



**EXHIBIT 3-30: ACTION PLAN FOR EMERGENCY RESPONSE PLAN AND CLIMATE RISK PREPAREDNESS MEASURE**

<u>Action items</u>	<u>Deadline</u>	<u>Owner</u>
Update Vulnerability Study	June 30, 2021	Corporate Security and Emergency Department
Submit key findings to Oversight Board	August 15, 2021	Corporate Security and Emergency Department
Complete and submit Emergency Response Plan to EPA	December 30, 2021	Corporate Security and Emergency Department
Submit key findings and proposed changes resulting from plan to Oversight Board	February 15, 2022	Corporate Security and Emergency Department

**3.3.3 10-year Master Plan**

Every ten years, using the data published in the United States Census, PRASA develops its Water and Wastewater Master Plan (Master Plan). The current Master Plan was last completed in 2010 and then revised in 2014 to account for adjusted population projections.<sup>57</sup>

The 2020 Master Plan must focus on achieving long-term structural integrity, ensuring clean, affordable, and safe water and wastewater provision for the island, while ensuring financial sustainability. In the plan, the Authority must create a roadmap for transforming Puerto Rico’s water and wastewater infrastructure from a complex, expensive, and highly vulnerable system to a simpler, safer, resilient, operationally efficient, and financially viable system.

The new 2020 Master Plan must also incorporate the recommendations of the Fiscal Plan, Emergency Response Preparedness Plan, the Climate Change Adaptation Plan, and other inputs that have long-term implications on the System.

The Master Plan must also provide PRASA with an updated prioritization tool which must determine project order in the CIP. PRASA’s CIP projects must be developed in accordance with the Master Plan and the CIP will be constantly updated to align with the System needs.

Exhibit 3-31 outlines the key action items for successful and timely delivery of this measure. However, PRASA’s ability to complete the plan in 2021 will be contingent on the availability of 2020 US Census data.

---

<sup>57</sup> Population projection adjustments provided in 2013 by the Puerto Rico Planning Board reflected a reduction in population, as opposed to the data from the 2010 Census which showed an increase, which is attributed in part to migration trends from Puerto Rico to the continental United States



**EXHIBIT 3-31: ACTION PLAN FOR MASTER PLAN MEASURE**

Action items	Deadline	Owner
Complete 2020 Master Plan	TBD	Infrastructure
Submit key findings and proposed changes resulting from Master Plan to Oversight Board	TBD	Infrastructure
Incorporate findings from Master Plan into CIP	TBD	Infrastructure

**3.3.4 Asset Management and Maintenance**

PRASA aims to develop an Asset Management Program in order to properly track and monitor the condition of all PRASA assets and shift its maintenance strategy from primarily corrective to primarily preventative. Doing so would help to prolong asset life, reduce operating and capital expenditures, improve the security and safety, and shorten responses times to maintenance needs. PRASA is currently in the process of:

- Implementing a revised organizational structure in its maintenance department incorporating project portfolio management and training compliance
- Tracking actual time spent on maintenance activities—with clear differentiation between corrective and preventative work—instead of its current practice of estimating
- Creating a new Planning Center of Excellence
- Implementing a master planning schedule process focused on a sound preventive maintenance plan
- Strengthening and optimizing current data management to provide for timely and effective monitoring, allowing for redesigned key performance indicators follow up and correction plans implementation
- Incorporating the condition and performance of each asset in SAP to better identify and prevent failures
- Budgeting to fund these activities

PRASA is currently in the process of defining current available resources and information to complete its Asset Management Program.

Exhibit 3-32 outlines the key action items for successful and timely delivery of this measure.



**EXHIBIT 3-32: ACTION PLAN FOR ASSET MANAGEMENT AND MAINTENANCE MEASURE**

<u>Action items</u>	<u>Deadline</u>	<u>Owner</u>
Revise organization structure for maintenance department	August 31, 2020	VP of Operations
Establish Planning Center of Excellence	September 30, 2020	VP of Operations
Transition to system of tracking actual time spent on maintenance activities	October 31, 2020	VP of Operations
Strengthen and optimize current data management	November 30, 2020	VP of Operations
Implement master planning schedule	December 15, 2020	VP of Operations
Create plan and target for incorporation of condition and performance of each asset in SAP	January 31, 2021	VP of Operations
Discuss action plan with Oversight Board	February 1, 2021	VP of Operations

### 3.4 Summary of Proposed New Measures

The benefit of the new measures is projected at \$1.6 billion during the Fiscal Plan period. A summary of the New Measures projected net benefit is set forth in Table 3-8.

**TABLE 3-8: NEW MEASURES PROJECTED BENEFIT (IN \$' MILLIONS)**

<i>in \$'Millions</i>	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY20/25
Rate Adjustments	72	110	140	168	195	223	908.1
Government Account Collections Imp	18	1	4	6	8	10	47.3
Leaks Adjustment Policy	2	2	2	2	2	2	11.9
Disconnection Cost Recovery	1	1	1	1	1	1	6.1
Pre-retirement Program	7	6	6	6	6	6	38.2
Metering & Customer Service Optimiz	-	(9)	(2)	8	16	20	33.0
Physical Water Loss Reduction	-	(1)	(0)	2	4	6	10.9
Pension Reform	-	-	3	6	6	6	21.0
Uniform Healthcare	-	2	2	2	3	3	11.5
Headcount Cap	-	2	4	4	4	4	16.3
Christmas Bonus Elimination	-	3	3	3	3	3	15.6
Electricity Cost Reduction	-	1	1	2	4	6	13.2
Chemical Expense Reduction	-	-	-	1	1	1	3.0
Capital Delivery Optimization	-	-	7	18	16	14	54.1
New Financing for CIP	11	84	173	118	26	9	421.3
<b>Initiatives Benefit</b>	<b>112</b>	<b>201</b>	<b>345</b>	<b>346</b>	<b>295</b>	<b>313</b>	<b>1,612</b>
Impact in ORF and OH	-	(0)	(2)	(3)	(2)	(1)	(8)
<b>Initiatives Benefit, Net</b>	<b>112</b>	<b>201</b>	<b>343</b>	<b>344</b>	<b>292</b>	<b>312</b>	<b>1,604</b>





### 3.5 Post-Measures Financial Result

Implementation of the measures explained in this chapter will allow PRASA to improve its financial position. However, it will be insufficient to close the fiscal deficit forecasted annually in FY2020–2024, as stipulated in PROMESA Section 201(b)1(d). As such, PRASA will utilize reserves in its Current Expense Fund to close the fiscal deficits for the aforementioned fiscal years and will experience a cumulative surplus of \$9 million during the fiscal plan period, which is expected to be deposited in the Rate Stabilization Account. Table 3-9 presents the Post-Measures Financial Results during the Fiscal Plan period.

**TABLE 3-9: POST-MEASURES FINANCIAL RESULTS (IN \$' MILLIONS)**

<i>in \$' Millions</i>	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY20/25
Authority Revenues	945	953	925	914	904	895	5,536
Senior Debt Service	(251)	(251)	(251)	(251)	(251)	(251)	(1,505)
Net Operating Expenses	(721)	(668)	(711)	(720)	(730)	(741)	(4,291)
Operating Reserve Fund	(32)	(33)	(5)	(2)	(3)	(3)	(78)
Capital Improvement Fund	(97)	(178)	(279)	(271)	(198)	(171)	(1,195)
Commonwealth Payment Fund	(21)	(26)	(28)	(28)	(32)	(32)	(167)
<b>Pre-Measures Financial Result</b>	<b>(178)</b>	<b>(203)</b>	<b>(348)</b>	<b>(359)</b>	<b>(310)</b>	<b>(303)</b>	<b>(1,700)</b>
Measures Benefit	112	201	343	344	292	312	1,604
<b>Post-Measures Financial Result</b>	<b>(66)</b>	<b>(1)</b>	<b>(5)</b>	<b>(15)</b>	<b>(18)</b>	<b>9</b>	<b>(96)</b>
Funds available at CEF	66	1	5	15	18	-	105
Transfer to RSA	-	-	-	-	-	(9)	(9)
<b>Final Annual Need</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>



## 4 Long-Term Financial Sustainability

---

Since FY2016, PRASA has been able to gradually fund some of its CIP through the implementation of several prior fiscal plans' measures. At the beginning of FY2020, PRASA successfully reprogrammed its federal debt and is paying all its operating expenses and debt service obligations under the MAT with operating revenues. Nevertheless, based on the capital-intensive nature of water utility operations, restoring access to short-term and long-term capital market at reasonable rates to meet its borrowing needs is essential to providing the necessary funding for a portion of its CIP over the long term.

PRASA has defined achieving financial sustainability as the ability to:

- Generate sufficient revenue through a rate structure that allows the PRASA to provide safe, affordable, and reliable service
- Regain access to the capital markets at reasonable rates while adequately meeting all its financial obligations (i.e., operating expenses, debt service requirements, CIP contributions)

PRASA aims to gradually establish self-funding for:

- Annual renewal and replacement investments that allow PRASA to maintain the System in optimal condition for operation
- At least 50% of the total CIP portfolio on a project basis (excluding projects funded through federal loans or grants such as SRF, RD, and FEMA)

PRASA's core goals for self-funding targets are based on industry standard practices and analysis of overall capital portfolio completed by a third party.<sup>58</sup> Once PRASA has addressed its underlying management and operational deficiencies and has regained access to capital markets at reasonable rates in a manner consistent with PROMESA, PRASA expects the CIP to be partially financed through the issuance of long-term debt.<sup>59</sup> This approach will help distribute the financial burden of major capital works to customers across a longer time period, thus helping to maintain affordable rates while performing essential work on the System.

### 4.1 Plan for Restoring Long-Term Financial Sustainability

To achieve long-term financial sustainability, PRASA must first implement all measures outlined in Chapter 3 in order to leverage improvements in financial and operational performance and also mitigate for future demographic, economic, environmental/climate, and fiscal challenges Puerto Rico faces.

PRASA will also need to demonstrate improvements in the main areas of creditworthiness identified by the major rating agencies, such as:

---

<sup>58</sup> Professional Opinion Report: Puerto Rico Aqueduct and Sewer Authority, prepared by Raftelis Financial Consultants, 2016.

<sup>59</sup> CIP will continue to be partly funded through self-funding (i.e., operating revenues), federal funds, and insurance proceeds



- Health of the system, service area, and the economy
- Financial strength of operations (including liquidity and reserves)
- Strength and independence of rate-setting structure and regulatory compliance
- Strength and independence of governance
- Operational and financial management assessments
- Capital improvement plan execution and oversight requirements

Table 4-1 sets forth key steps being taken by PRASA that demonstrate its commitment to long-term financial sustainability through meaningful and measurable actions.

TABLE 4-1: PLAN TO RESTORE COST-EFFECTIVE CAPITAL MARKET ACCESS

Authority action plan		STATUS
<b>Implementation of Measures in Fiscal Plan</b>	<ul style="list-style-type: none"> <li>• Ensure implementation of measures discussed in Chapter 3 through effective planning and implementation of PMO office</li> </ul>	In progress
<b>System health, service area, and economy</b>	<ul style="list-style-type: none"> <li>• Ensure long-term planning by updating the Authority’s Master Plan, ten-year CIP, Climate Change Adaptability Plan, and Emergency Response Plan</li> </ul>	In progress
<b>Financial strength of operations</b>	<ul style="list-style-type: none"> <li>• Update budgeting efforts to exceed covenant requirements, particularly covenants that consider all expenses (including operating revenue deposits to the CIP Fund)</li> <li>• Publish long-term financial projections in annual Fiscal Plan</li> <li>• Publish short-term financial reviews in required quarterly reports</li> <li>• Implement current plan to fund operating reserve requirement with at least 90 days of cash on hand and approximately \$180 million in unrestricted reserves for the Authority to ensure liquidity in the event of disruption</li> </ul>	In progress
<b>Rate setting process and regulatory compliance</b>	<ul style="list-style-type: none"> <li>• Establish systematic annual rate increases approved on a five-year schedule</li> <li>• Establish cadence for conducting necessary studies and analysis for future rate proceedings and transparency on findings</li> <li>• Ensure affordability is taken into consideration by segmenting rate schedules to account for economic conditions and potential customer hardships</li> </ul>	In progress
<b>Strength and independence of governance</b>	<ul style="list-style-type: none"> <li>• Limit turnover of key decision makers by continuing current succession planning process</li> </ul>	Implemented



Authority action plan		STATUS
<b>Operational and financial management assessments</b>	<ul style="list-style-type: none"> <li>• Develop and implement disclosure best practices, including:                             <ul style="list-style-type: none"> <li>○ Operational and financial measure tracking</li> <li>○ Timely publication of audited financial statements</li> <li>○ Quarterly interim operating reports</li> <li>○ Consulting engineer reports</li> </ul> </li> <li>• Provide progress reports on Fiscal Plan implementation (detailed in Section 5, “Reporting requirements”)</li> </ul>	In progress
<b>CIP requirements</b>	<ul style="list-style-type: none"> <li>• Maximize use of lower cost funding resources such as SRF program or RD bonds by ensuring project compliance with these programs</li> <li>• Maximize FEMA fund proceeds for replacement or repairs of infrastructure damaged by disasters.</li> <li>• Ensure efficient execution of capital projects through capital delivery optimization including (but not limited to) performance tracking, PMC support, and schedule compliance &amp; execution</li> </ul>	In progress

## 4.2 Debt Sustainability Analysis

The debt sustainability analysis (“DSA”) is intended to provide a framework for assessing PRASA’s long-term capacity to pay debt service under the terms of the MAT. PRASA’s debt levels need to be consistent with the objective of recovering capital market access for future new money borrowings, ongoing infrastructure investment, and/or refunding opportunities (e.g., based on outstanding callable bonds) for savings. PRASA is focused on executing a set of financial and non-financial measures that will set the path for it to regain its investment grade rating and establish a self-sufficient long-term fiscal framework. The following debt sustainability analysis describes PRASA’s capacity to pay current and projected debt within the constraints of the MAT.

The DSA includes implied debt capacity based on a range of interest rates, cash flow availability, and assumed 30-year term and level debt service. The level of sustainable debt shown in illustrates for PRASA ranges from \$2.0 Billion to \$6 Billion, inclusive of existing outstanding bonded debt, depending on the assumed borrowing rate and the level of post-measures cash flow available for debt service.

TABLE 4-2: SENSITIVITY ANALYSIS – IMPLIED DEBT CAPACITY (IN \$’ MILLIONS)

Illustrative Cash Flow Available		\$150	\$200	\$250	\$300	\$350
PV Rate %	4.00%	\$2,594	\$3,458	\$4,323	\$5,188	\$6,052
	5.00%	\$2,306	\$3,074	\$3,843	\$4,612	\$5,380
	6.00%	\$2,065	\$2,753	\$3,441	\$4,129	\$4,818



## 5 Reporting Requirements

As part of the monitoring progress of Fiscal Plan measures, PRASA is required to submit several reports to FOMB and, on occasion, to the public as well. Table 5-1 lists these reports and the frequency in which they shall be prepared.

TABLE 5-1: REPORTS TO BE PRESENTED

Report type	Detail	FOMB reporting cadence	Public reporting
<b>Budget to actuals (B2A)</b>	Tracking of budgeted to actual spend per budget certification agreement with FOMB, including: <ul style="list-style-type: none"> <li>• Explanation for material variances for YTD (&gt;10% and &gt;\$1 million or &gt; USD 10 million)</li> <li>• Accounts receivable by type of client (residential, commercial, industrial, and governmental)</li> <li>• Schedule with amounts owed by each government client</li> </ul>	<ul style="list-style-type: none"> <li>• Monthly reporting after budget is certified</li> <li>• Quarterly 203 reporting after budget is certified</li> </ul>	<ul style="list-style-type: none"> <li>• Quarterly</li> </ul>
<b>Liquidity</b>	Cash flow report, including: <ul style="list-style-type: none"> <li>• Monthly and weekly view of actual and projected cash flows for the FY, including Current Expense Fund beginning and final balance</li> <li>• Total entity cash balance by account, available upon FOMB request</li> </ul>	<ul style="list-style-type: none"> <li>• Monthly</li> </ul>	<ul style="list-style-type: none"> <li>• Monthly (cash flow actuals)</li> </ul>
<b>Measures</b>	<ul style="list-style-type: none"> <li>• Fiscal Plan measures status, schedule, and fiscal impact</li> <li>• Specific reporting requirements for measures included in Table 5-2</li> </ul>	<ul style="list-style-type: none"> <li>• Monthly</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>



Report type	Detail	FOMB reporting cadence	Public reporting
<b>CIP: implementation plan tracking</b>	<ul style="list-style-type: none"> <li>CIP monthly progress reports, including schedule performance index, cost performance index, and actual spend to date</li> </ul>	<ul style="list-style-type: none"> <li>Project-level reporting: monthly</li> <li>Detailed view of top-ten project list per agreed-upon template<sup>60</sup></li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<b>Water quality KPIs and environmental compliance</b>	<ul style="list-style-type: none"> <li>Summary of KPI dashboard, including monitoring/quality violation breakout (i.e., health-based violations)</li> <li>Detailed compliance reports, by plant, available upon FOMB request</li> </ul>	<ul style="list-style-type: none"> <li>Quarterly</li> </ul>	<ul style="list-style-type: none"> <li>Annual Consumer Confidence Report</li> </ul>
<b>Others</b>	<p>Additional reporting on:</p> <ul style="list-style-type: none"> <li>Status of FEMA funding, on a project-level basis</li> <li>Government collections and payment plans (top-15)</li> <li>Monthly headcount rollforward and by function</li> <li>Monthly profit and loss statement</li> </ul>	<ul style="list-style-type: none"> <li>Monthly summary submitted along with B2As</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>

## 5.1 Monthly KPIs for Measures

In order to ensure appropriate tracking of all measures within the Fiscal Plan, PRASA must continue to track the Financial Impact of the following implemented measures in a monthly cadence:

- Government Account Collections
- Disconnection Cost Recovery
- Leaks Adjustment Policy
- Pre-retirement Program

---

<sup>60</sup> Specific project types: Nonmandatory Compliance, Mandatory Compliance, Emergency/Permanent Works, Renewal & Replacement, Others. Others includes: Meter Replacement, Projects Not Included in FP, Growth, and Fleet & IT project categories.



For new measures the following Table 5-2 identifies the critical KPI's to be tracked monthly and start date of tracking such measures. All start dates are assumed to be July 15<sup>th</sup> of listed Fiscal Year unless otherwise listed or modified by FOMB through prior authorization.

TABLE 5-2: NEW MEASURE KPIs

<b>Measure</b>	<b>KPI</b>	<b>Start Date</b>
<b>Rate Adjustment</b>	Financial Impact of Measure	FY2021
<b>Metering and customer service optimization</b>	Financial Impact of Measure	FY2021
	Actual collection rate when compared with the established billing budget	FY2021
	Percent billing adjustments	FY2021
	Percentage of bills generated with actual readings (not estimated)	FY2021
<b>Chemical Consumption Optimization</b>	Financial Impact of Measure	FY2022
	Chemical purchases (spend and volume) at all facilities by chemical	FY2021
<b>Pension Reform</b>	Financial Impact of Measure	FY2022
<b>Christmas Bonus Elimination</b>	Financial Impact of Measure	FY2021
<b>Uniform Healthcare</b>	Financial Impact of Measure	FY2021
<b>Headcount cap</b>	Financial Impact of Measure	FY2021
<b>Electricity Cost Reduction</b>	Financial Impact of Measure	FY2021
	Energy consumption at all facilities	FY2021
<b>Physical Water Loss Reduction-Overall</b>	Real Losses (gallons / serv conn / day)	FY2022
	Real Losses (gallons / mile of main / day)	FY2022
	Real Losses (gallons / serv conn / day / PSI)	FY2022
	Infrastructure Leakage Index	FY2022
<b>Physical Water Loss Reduction-Master Meters</b>	Number of visited facilities	FY2021
	Estimated volume (MGDs) produced per facility	FY2021
	Measured volume (MGDs) produced per facility	FY2021
	Master Meters needed to be replaced and number replaced/installed	FY2021
	Projected Master Meter investment and amount invested to date	FY2021
<b>Physical Water Loss Reduction-</b>	Number of pressure zones visited each month	FY2021
	Number of valves to be installed and number installed each month	FY2021



<b>Measure</b>	<b>KPI</b>	<b>Start Date</b>
<b>Pressure Management</b>	Number of other components to be installed and number installed each month	FY2021
<b>Physical Water Loss Reduction- Leaks Reduction</b>	Unreported Leaks Pre-Located	FY2021
	Average Leaks per Mile	FY2021
	Average Pressure Zones per Region (for Visited Regions)	FY2021
	Unreported Leaks Pinpointed	FY2021
	Average MGDs Loss per Pinpointed Leaks	February 2021
	Average Leak Cost per Day (Leakage Cost)	February 2021
	Leaks Mean Time to Repair	February 2021
	Percentage (%) of Leaks Repaired	February 2021
	Average MGDs Saved per Day	February 2021
<b>Capital Delivery Improvement</b>	Cost Performance Index	FY2021
	Schedule Performance Index	FY2021
<b>New Federal Funds</b>	Financial Impact of Measure	FY2021





## 6 Risks and Mitigating Strategies

As with any large and complex utility operating in an uncertain environment, the implementation of key measures is subject to risks and unforeseen events that may be outside of the Authority’s control. Table 6-1 summarizes an analysis of the key risks that have been identified as having the potential to impact or delay PRASA’s Fiscal Plan implementation with corresponding mitigation strategies. However, it is worth noting that this outlook is based on best information available at the date of creation of the Fiscal Plan, thus there may be additional risks which have not yet been identified that could affect the Authority’s financial and/or operational performance.

**TABLE 6-1: RISKS TO FISCAL PLAN IMPLEMENTATION AND MITIGATING STRATEGIES**

Risk category	Potential impacts	Mitigating Strategies
<b>Natural disasters</b>	<b>Catastrophic natural disasters</b> Events such as droughts, floods, hurricanes, and earthquakes could have significant financial and operational impacts, including system failures, water rationing, and water health risks. The severity of some of these events and their impacts on the Authority will be exacerbated over time due to climate change.	<ul style="list-style-type: none"> <li>• Develop Emergency Preparedness Plan and update Climate Change Vulnerability Study and Adaption Plan; ensure plans are integrated into operations and capital requirements are integrated into CIP</li> <li>• Ensure operating reserve fund has at least 90 days of cash to use for emergency operational funding</li> </ul>
<b>Revenue risks</b>	<p><b>Lowered collections recovery</b> – Collections rates may be lower than forecasted due to overall inability for customers to pay for services, resulting in decreased revenues. The economic downturn caused by COVID-19 has increased the likelihood of such an event materializing.</p> <p><b>Decreased demand</b> – Decreases in population or reduced consumption among customers would lower revenue projections for FY2021 to FY2025. The economic downturn caused by COVID-19 has increased the likelihood of such an event materializing.</p>	<ul style="list-style-type: none"> <li>• Ensure operating reserve fund has at least 90 days of cash to use for emergency operational funding</li> <li>• Increase and enhance digital payment monitoring and collection capabilities</li> <li>• Identify vulnerable customers and offer custom payment plans (e.g., deferred payment plans)</li> <li>• Identify additional opportunities to increase operational efficiency and/or reduce capital and operating costs</li> </ul>



Risk category	Potential impacts	Mitigating Strategies
<b>Expense risks</b>	<b>Major change in system performance</b> – A decrease in system performance (e.g., major infrastructure failure, water quality crisis) due to deteriorating system quality may significantly increase operating and capital expenses to address issues.	<ul style="list-style-type: none"> <li>• Ensure operating reserve requirement funding has at least 90 days of cash to use for emergency operational funding</li> <li>• Ensure CIF is funded to appropriate levels to address CIP project outlay and potential emergency projects not identified at time of Fiscal Plan creation when necessary</li> </ul>
	<b>Changes in payroll legislation</b> – Payroll expenses account for 45% of projected operating expenses. Changes in payroll legislation may impact the execution of right-sizing measures and projections of future operating expenses.	<ul style="list-style-type: none"> <li>• Payroll expense projections were calculated applying Act No. 26-2017, protecting PRASA from unforeseen incremental labor costs</li> <li>• Identify additional opportunities to increase operational efficiency or reduce operating costs</li> </ul>
	<b>Changes in electricity rate costs</b> – Electricity accounts for 20% of projected operating expenses in FY2021. Variations of USD 0.01/kWh can lead to expense variances of ±USD 6.5 million.	<ul style="list-style-type: none"> <li>• Implement energy efficiency and electricity consumption reduction measures contained in this Fiscal Plan</li> </ul>
	<b>More stringent environmental regulations</b> – Changes in environmental legislations (e.g., more stringent drinking water standards) may increase overall expenses for chemical and lab usage, in addition to incurring additional mandated project costs.	<ul style="list-style-type: none"> <li>• Implement chemical consumption and purchasing optimization measures in order to lower the variable cost of additional supplies needed</li> <li>• Implement source protection programs (e.g., upstream mitigation programs) that aim to protect water supply</li> </ul>
<b>Operational risks</b>	<b>Under-delivery of the capital portfolio</b> – As the CIP emphasizes mandatory compliance (“Base List”) projects, potential noncompliance fines and an overall decrease in performance may occur if projects are under-delivered, which may lead to system failures and water health risks.	<ul style="list-style-type: none"> <li>• Ensure transparent progress on “Base List” projects for FY2021 and identify roadblocks early in project delivery timeline</li> </ul>



Risk category	Potential impacts	Mitigating Strategies
	<p><b>Reduced federal funding levels</b> – Financing of CIP through federal funding is critical for full delivery of CIP project portfolio—specifically for emergency and permanent works—which may lead to system failures and water health risks.</p>	<ul style="list-style-type: none"> <li>• Improve capital delivery for projects to reduce overall need for overhead costs allowing for project completion at lower funding requirements</li> <li>• Refine CIP portfolio to appropriate levels to adequately maintain PRASA liquidity while appropriately supporting the System</li> <li>• Consider additional rate increases or special charges (e.g., System Distribution Charge) to fund potential shortfalls</li> </ul>
	<p><b>Regulation challenges</b> – Challenges such as long permitting processes, misalignment between federal and local regulations, and lack of private and public sector coordination have the potential to delay construction timelines of key capital projects that are crucial to the system.</p>	<ul style="list-style-type: none"> <li>• Allocate sufficient time in the first phase of the CIP process to ensure permitting and regulatory aspects are completed</li> <li>• Support Commonwealth and other regulatory bodies to streamline the preconstruction process</li> </ul>
	<p><b>Labor availability</b> – Decreased availability in labor workforce due to policy restrictions (e.g., COVID-19 policies), labor strikes, or other factors could prevent critical work completion, which may lead to system failures and water health risks.</p>	<ul style="list-style-type: none"> <li>• Identify all critical facilities for societal continuity and ensure robust processes to keep the status list of these current</li> <li>• Identify opportunities to use a likely increase in available labor force with noncontact heavy jobs (e.g., pipeline replacement)</li> <li>• Work with government/regulators on compliance plans for work that was not completed due to resource constraints</li> </ul>
	<p><b>Management capability</b> – Lack of capability to execute and fully deliver on assigned measures in the Fiscal Plan. If 25% of value is not achieved that could add a cumulative deficit of USD 336 million for FY2020 to FY2025.</p>	<ul style="list-style-type: none"> <li>• Ensure PMO has a clear oversight role over Fiscal Plan implementation and the ability to escalate problems to the appropriate decision making parties</li> <li>• Ensure consistent monitoring of KPIs and milestones for all measures to ensure the PMO has the ability to measure and report on progress, identify roadblocks, and address them in a timely manner</li> </ul>



Risk category	Potential impacts	Mitigating Strategies
	<p><b>Coordination</b> – Some measures require coordination across many functional groups, agencies, and stakeholders. There is a risk that a lack of coordination prevents the full implementation of measures in a timely manner, which would delay the Fiscal Plan objectives of long-term financial and operational sustainability.</p>	<ul style="list-style-type: none"> <li>• Ensure PMO has a clear oversight role over Fiscal Plan implementation and the ability to escalate problems to the appropriate decision making parties</li> <li>• Assign clear owners for each measure and establish an operating model for cross-department collaborations</li> </ul>
	<p><b>Cultural/behavioral</b> – Measures must require long-term operational changes and ways of working. There is a risk that teams revert back to old ways of working or outright refuse to implement the action plans, which would delay the Fiscal Plan objectives of long-term financial and operational sustainability.</p>	<ul style="list-style-type: none"> <li>• Ensure leadership visibly champions Fiscal Plan implementation</li> <li>• Assign clear owners and ensure their buy-in through proper incentives (e.g., promote collaboration by acknowledging top performers)</li> <li>• Communicate regularly throughout the organization and ensure a high degree of transparency, including the celebration of successes</li> </ul>



## 7 Conclusion

---

PRASA's 2020 Fiscal Plan reflects the fiscal goals and requirements as stipulated and required by PROMESA to ensure financial sustainability and access to credit markets at reasonable rates, oriented to ensure a reliable, safe, and affordable water and wastewater service. In providing these essential services, the Authority must ensure compliance with federal and local environmental regulations, thus safeguarding the health of the population and protecting the environment. The Fiscal Plan aims to strike a balance across the interests of all stakeholders involved, including maintaining an affordable cost of services for its customers while continually improving and maintaining the reliability and quality of its service.

Even though PRASA has made some progress in stabilizing its finances, sustained underinvestment and a lack of comprehensive operational reforms has led to underperformance in many respects, including:

- High levels of water loss
- Inability to proactively perform system maintenance
- Under-delivery of critical CIP projects

In light of this, PRASA must take further steps to fully bridge its operational deficiencies to ensure true, long-term financial and operational sustainability.

PRASA's chief priority must be the provision of an essential service while punctually and comprehensively implementing the Fiscal Plan initiatives that will transform the course of water and wastewater services in Puerto Rico. While debt service reduction and rate increases have improved PRASA's economic health over the past several years, it has continued to fall short on fully implementing operational measures and delivering critical maintenance and capital projects on time and on budget. Should there be underperformance in Fiscal Plan implementation, the Oversight Board may rely on its powers and rights to take corrective actions, including the measures provided in PROMESA Sections 203 and 204.

Failure to fully implement the operational measures outlined in this Fiscal Plan would mean that PRASA would need to further rely on rate increases to achieve a balanced budget or risk ongoing structural deficits. Furthermore, not executing the Fiscal Plan threatens the safety and reliability of the Authority's infrastructure, thus putting Puerto Ricans at risk of poor water quality and diminished availability or access. Without sustained dedication to implementing all Fiscal Plan measures, and the willingness to pursue additional transformational changes to enhance system efficiency, simplicity, and resiliency in the future, the challenges that have held back the Authority will continue and PRASA will have lost a critical window to restore financial and operational sustainability.

Achieving a balanced budget will also put PRASA on a path to access short-term and long-term capital markets at reasonable rates to fund critical capital expenditures in a manner consistent with other water and wastewater utilities. Achieving access to capital markets at reasonable rates will provide PRASA with opportunities to expand its CIP to meet critical System health, safety, reliability and resilience requirements. Progress on these objectives will allow PRASA to move closer to attaining long-term sustainability.

To achieve sustainability and ensure funding is available for executing PRASA's critical CIP projects, full implementation of all measures outlined in this Fiscal Plan, including rate



adjustments and enhancements and all-expense-saving measures, will be necessary to prevent a sustained structural deficit throughout the lifetime of the Fiscal Plan. Provided that all Fiscal Plan measures are implemented in an efficient and timely manner, PRASA can achieve the Fiscal Plan's objectives of long-term financial and operational sustainability, thus enabling the sustained provision of reliable, affordable, and safe water and wastewater services to the people of Puerto Rico.



## 8 Appendix

### Details on Consent Decree

The consent decree with USEPA and the settlement agreement with PRDOH require PRASA to implement remedial plans, develop and implement CIP projects to bring the System into compliance with regulatory requirements, and conduct evaluations concerning specific System's infrastructure and operational issues. PRASA currently estimates that the total cost (incurred, since inception and projected) of compliance with the existing consent decrees and agreements will be over \$1,700 million through fiscal year 2026.

Up until 2015, PRASA was subject to three consent decrees with USEPA and one settlement agreement with PRDOH to eliminate treatment plant non-compliance and unpermitted discharges of untreated sewage, and to improve the quality of potable water and sludge treatment systems (STSeS). These agreements included the following:

1. **2003 Consent Decree (PRASA IV), U.S. v. PRASA, Commonwealth of Puerto Rico, and “Compañía de Aguas de Puerto Rico”, Inc., Civil Action No. 01-1709 (JAF)** – Addresses violations to the Section 301 and 402 of the Clean Water Act (CWA) and regulations and PRASA's NPDES permits with regards to certain PRASA's WWPSs.
2. **2006 Wastewater Consent Decree, U.S. v. PRASA and Commonwealth of Puerto Rico, Civil Action No. 06-1624 (SEC)** – Addresses violations to the Section 301 and 402 of the CWA and regulations promulgated there under, and PRASA's NPDES permits with regards to PRASA's WWTPs.
3. **2006 PRDOH Drinking Water Settlement Agreement, Civil Action KPE 2006-085818 as amended** – Addresses non-compliance and alleged violations with the Puerto Rico Potable Water Purity Protection Law, as amended (“Ley para Proteger la Pureza de las Aguas Potables de Puerto Rico, Ley Núm. 5 de 21 de Julio de 1977, según enmendada”), the Safe Drinking Water Act (SDWA) and applicable regulations, and the General Environmental Health Regulation (“Reglamento General de Salud Ambiental, Reglamento Núm. 6090 de 4 de febrero de 2000”).<sup>18</sup> The Settlement Agreement was signed: March 15, 2007 and subsequently amended on June 16, 2008.<sup>61</sup>
4. **2010 USEPA STS Consent Decree, U.S. v. PRASA and Commonwealth of Puerto Rico** – Addresses alleged violations to the SDWA and the CWA specifically to the National Primary Drinking Water Regulations.

In light of the challenges faced by PRASA, resulting from the continued uncertainty and strain on the Government's economy and despite PRASA being in material compliance with the capital improvement requirements of the consent decrees and agreements, PRASA requested and negotiated amendments to the above-mentioned consent decrees. In 2012, PRASA and the Regulatory Agencies began discussions to modify certain requirements of the consent decrees and agreements to re-align compliance priorities and, in turn, help alleviate PRASA's financial

<sup>61</sup> FY2016 and FY2017 Consulting Engineer's Report for The Puerto Rico Aqueduct And Sewer Authority, published by Arcadis in December of 2017.



burden. After an extensive negotiation process and under the terms agreed upon by PRASA and USEPA, on September 15, 2015, the U.S. Department of Justice (USDOJ) filed the 2015 USEPA Consent Decree executed among USEPA, PRASA and the Commonwealth of Puerto Rico in settlement of the matters addressed in a complaint brought against PRASA by USDOJ on behalf of USEPA also filed on such date.

On May 23, 2016, the 2015 Consent Decree between USEPA and PRASA was officially logged and accepted by the Court, placing an end to the extensive renegotiation process. The 2015 USEPA Consent Decree consolidates and supersedes the three previous USEPA's Consent Decrees with PRASA (i.e. PRASA IV: 2003 Consent Decree, 2006 Wastewater Consent Decree and 2010 USEPA STS Consent Decree).





## Consolidated Action Plan

Initiative	Action items	Deadline	Owner
Headcount Cap	Implement headcount cap	July 1, 2020	PRASA
Uniform Healthcare	Implement new medical plan	July 1, 2020	PRASA
PMO Execution	Assign initiative owners for all Fiscal Plan initiatives	July 15, 2020	PRASA
Chemical Expense Reduction	Issue consolidated coagulant and flocculant procurement RFP	July 31, 2020	PRASA
Electricity Cost Reduction	Energy Office to target energy reduction goal in kWh per region and create structured plan	July 31, 2020	PRASA
PMO Execution	Establish project committees and execution teams and assign project executive leaders	July 31, 2020	PRASA
PMO Execution	Convene first Cross-functional steering committee meeting to kick-off PMO process	July 31, 2020	PRASA
Chemical Expense Reduction	Submit construction execution planning and timing for Carraizo Dam Oversight Board	August 15, 2020	PRASA
Electricity Cost Reduction	Submit proposed goals and action plan to Oversight Board	August 30, 2020	PRASA
Asset Management and Maintenance Plan	Revise organization structure for maintenance department	August 31, 2020	PRASA
Capital Delivery Optimization	Complete contract with PMC firm	August 31, 2020	PRASA
Chemical Expense Reduction	Submit purchasing strategy report with list of chemicals contracts that will be tendered in first half of FY21	August 31, 2020	PRASA
PMO Execution	Establish meeting cadences, reporting requirements, and initiative/project KPIs	August 31, 2020	PRASA
Physical Water Loss Reduction (Pressure Management)	Condition assessment and prioritization of pressure zones (39 in total) based on analysis	September 1, 2020	PRASA
Capital Delivery Optimization	Identify clear and achievable % of possible savings across activities with Oversight Board	September 15, 2020	PRASA, FOMB
Electricity Cost Reduction	Begin monthly tracking of energy reduction across regions	September 15, 2020	PRASA



<b>Initiative</b>	<b>Action items</b>	<b>Deadline</b>	<b>Owner</b>
Physical Water Loss Reduction (Leak Reduction)	PRASA to start reporting quarterly on progress of leaks located and addressed	September 15, 2020	PRASA
Asset Management and Maintenance Plan	Establish Planning Center of Excellence	September 30, 2020	PRASA
Physical Water Loss Reduction (Overall)	Complete procurement of Third Party Leak detection support	October 1, 2020	PRASA
Headcount Cap	Complete procurement process for productivity and rightsizing study	October 15, 2020	PRASA
Asset Management and Maintenance Plan	Transition to system of tracking actual time spent on maintenance activities	October 31, 2020	PRASA
Chemical Expense Reduction	Submit chemicals inventory program planning and timing to FOMB	October 31, 2020	PRASA
Chemical Expense Reduction	Submit purchasing strategy report with list of chemicals contracts that will be tendered in second half of FY21	November 1, 2020	PRASA
Christmas Bonus Elimination	Implement Christmas Bonus Elimination	November 1, 2020	PRASA
Asset Management and Maintenance Plan	Strengthen and optimize current data management	November 30, 2020	PRASA
Capital Delivery Optimization	Implement new CIP Tracking Tool	December 1, 2020	PRASA
Physical Water Loss Reduction (Master Meters)	Reporting on maintenance conducted for Master Meters	December 1, 2020	PRASA
Asset Management and Maintenance Plan	Implement master planning schedule	December 15, 2020	PRASA
Capital Delivery Optimization	Create and submit action plan to achieve and refine savings starting in FY22 to FY25 to Oversight Board	December 15, 2020	PRASA
Rate Adjustments	Complete procurement process for rate design study	December 15, 2020	PRASA
Capital Delivery Optimization	Discuss action plan with Oversight Board	January 15, 2021	PRASA, FOMB
Asset Management and Maintenance Plan	Create plan and target for incorporation of condition and performance of each asset in SAP	January 31, 2021	PRASA



<b>Initiative</b>	<b>Action items</b>	<b>Deadline</b>	<b>Owner</b>
Asset Management and Maintenance Plan	Discuss action plan with Oversight Board	February 1, 2021	PRASA, FOMB
Physical Water Loss Reduction (Master Meters)	Installation of Master Meter to be installed by FY2021 after received	February 1, 2021	PRASA
Headcount Cap	Complete comprehensive productivity and rightsizing study	February 28, 2021	PRASA
Physical Water Loss Reduction (Master Meters)	Data Validation of new meters installed during FY2021	March 1, 2021	PRASA
Headcount Cap	Submit key findings and proposed changes resulting from workforce planning and talent management study to Oversight Board	March 15, 2021	PRASA, FOMB
Physical Water Loss Reduction (Pressure Management)	Procurement, Stabilization & Repair occurs as WRO team identifies deficiencies in the field (for 39 zones)	March 15, 2021	PRASA
Headcount Cap	Discuss findings and proposed changes with Oversight Board	April 1, 2021	PRASA, FOMB
Physical Water Loss Reduction (Pressure Management)	Optimization post repairs and analysis of new field condition (for 39 zones)	April 30, 2021	PRASA
Physical Water Loss Reduction (Pressure Management)	Monitoring of controlled pressure zone and maintenance (for 39 zones)	June 15, 2021	PRASA
Emergency Response Plan and Climate Risk Preparedness	Update Vulnerability Study	June 30, 2021	PRASA
Rate Adjustments	Complete comprehensive review of current rate structure	June 30, 2021	PRASA
PMO Execution	Appoint permanent PMO Director	July 1, 2021	PRASA
Rate Adjustments	Submit proposed revised rate structure for Board approval	July 31, 2021	PRASA
Emergency Response Plan and Climate Risk Preparedness	Submit key finding to Oversight Board	August 15, 2021	PRASA, FOMB
Rate Adjustments	Publicize information on proposed rate design changes	October 1, 2021	PRASA



<b>Initiative</b>	<b>Action items</b>	<b>Deadline</b>	<b>Owner</b>
Emergency Response Plan and Climate Risk Preparedness	Complete and submit Emergency Response Plan to EPA	December 30, 2021	PRASA
Pension Reform	Implement Pension Reform	January 1, 2022	CW
Emergency Response Plan and Climate Risk Preparedness	Submit key findings and proposed changes resulting from plan to Oversight Board	February 15, 2022	PRASA, FOMB
Rate Adjustments	Implement revised rate design	July 1, 2022	PRASA, CW
Master Plan	Submit key findings and proposed changes resulting from Master Plan to Oversight Board	TBD	PRASA, FOMB
Master Plan	Incorporate findings from Master Plan into CIP	TBD	PRASA
Master Plan	Complete 2020 Master Plan	TBD	PRASA
Metering and Customer Service Optimization	P3 Committee approval	TBD	PRASA
Metering and Customer Service Optimization	PRASA Governing Board approval	TBD	PRASA
Metering and Customer Service Optimization	AAFAF approval	TBD	AAFAF
Metering and Customer Service Optimization	Oversight Board approval	TBD	FOMB



## Additional Non-Financial Enabling Measures

Additional non-financial measures have been identified that are also important to further improving PRASA's operational performance.

### Strategic Plan Update

In addition to the Fiscal Plan, PRASA will develop a strategy plan that focuses on strategies and measures to achieve PRASA's strategic objectives. PRASA is improving its Strategic Plan by incorporating the Fiscal Plan measures and aligning the utility's vision, mission, and strategic objectives across both platforms.

PRASA has developed a framework of strategic objectives that will guide programming priorities in the upcoming year:

1. **Water quality:** Provide high-quality and safe drinking water for Puerto Rico.
2. **Environmental Responsibility:** Protect the environment through effective management and operation of our wastewater treatment and collection system, managing our resources in an environmentally responsible manner
3. **Water sustainability:** Efficient use of resources while promoting water conservation.
4. **Customer Satisfaction:** Improve customer service experience
5. **Service Reliability:** Ensure integrity of the system to guarantee reliable, affordable, and safe water and wastewater treatment services.
6. **Personnel Development:** Provide a safe and rewarding work environment which promotes employees' skills development, safety, and maintaining productivity levels.
7. **Operational Efficiency:** Promote efficiency, reliability, and resiliency that will allow a service of excellence to PRASA's customers and exceed their expectations.
8. **Financial Sustainability:** Promote financial efficiency to either reduce operating costs or increase revenue, while providing customers with affordable water services.
9. **Innovation:** Continually search for innovation opportunities throughout operations with support and active coordination of the Information Technology Department.
10. **Accountability:** Transparently communicate performance and results.



These objectives must be embedded through specific measures to be described in the Strategic Plan and accountability must be established through Key Performance Indicators (KPIs) designed to validate the implementation of the measures throughout the organization. KPIs must measure the execution of the strategies analyzing the corporation's performance when compared to the expected results.

### Increase Water Availability

Raw water is a natural resource essential for human life and maximize and preserve such resource is one of the key PRASA goals.



PRASA is evaluating options to increase and monitor its water availability based on its limited resources, including:

- **Reservoir Dredging:** Drinking water production process starts with the collection of raw water from the reservoirs around the Island. PRASA has included in its Resiliency projects around \$1 billion for reservoir dredging which must be subject to federal funds (FEMA/CDBG, others) availability.
- **Reservoirs levels monitoring:** After the Island's 2014 drought, PRASA developed a process to constantly monitor the level for most of the reservoirs. This allows PRASA to carry out the necessary operational adjustments to maintain the reservoir levels and mitigate the risk of a possible water rationing. PRASA must keep closely monitoring the reservoirs level to promptly activate its protocols.

### Improve System Resiliency

The primary challenge to overcome in order to achieve a resilient future is the financial capacity to execute the required projects. But, at the same time, these projects must help to achieve and maintain financial sustainability, ensuring revenue stability and water quality.

The CIP must incorporate projects to improve resiliency such as:

- Improvements to infrastructure at water bodies (i.e. intakes)
- Continue structural safety of dams and reservoirs
- Optimize the metering system so that there's better knowledge of areas without service
- Water management measures to pursue water availability and reduce vulnerability to drought periods, providing for revenue stability

In addition to the critical projects that are necessary to build back PRASA's System to pre-hurricanes conditions, other projects are being considered as necessary to make the System resilient to potential future events. The *Build Back Better Plan for Puerto Rico (BBB Plan)* presented by the Government in the aftermath of the 2017 Hurricanes, included \$2.7B for water and sewer projects from which \$2.2B fall under PRASA's responsibility.

PRASA is also projecting an additional \$1.5B for other projects not included in the BBB Plan for a total of \$3.7B in resiliency projects.

The resiliency projects must be executed only if federal funding is obtained and as long there is enough contracting capacity in Puerto Rico to complete such projects. Therefore, no financial impact was included in the financial projections.

Table 8-1 provides a high-level overview of the resiliency projects.



TABLE 8-1: PROJECTED RESILIENCY PROJECTS

Priority	# of Projects	Estimated Cost (\$M)	Project Categories	Overall Resiliency
1	20	\$2,254	<ul style="list-style-type: none"> <li>Improvement of potable water transfer capabilities</li> </ul>	<ul style="list-style-type: none"> <li>Allows plants to impact more service areas</li> </ul>
			<ul style="list-style-type: none"> <li>Improvement of structural safety of dams/reservoirs</li> </ul>	<ul style="list-style-type: none"> <li>Extends service life of infrastructure difficult or impossible to replace</li> </ul>
			<ul style="list-style-type: none"> <li>Relocation of Infrastructure in Flood Zones</li> <li>Sanitary trunk sewer repairs</li> <li>Removal of key systems from PREPA grid</li> </ul>	<ul style="list-style-type: none"> <li>Reduces vulnerability and risk</li> <li>Reduces vulnerability and dependence on external factors not controlled by PRASA</li> </ul>
2	9	\$1,110	<ul style="list-style-type: none"> <li>Redesign of infrastructure in rivers</li> <li>Water availability increase</li> </ul>	<ul style="list-style-type: none"> <li>Reduces vulnerability and risk</li> </ul>
3	10	\$320	<ul style="list-style-type: none"> <li>Improvement of water treatment capabilities</li> </ul>	<ul style="list-style-type: none"> <li>Better preparedness for changes in raw water</li> </ul>
			<ul style="list-style-type: none"> <li>Remote operational capabilities</li> </ul>	<ul style="list-style-type: none"> <li>Improves responsiveness for decision making and implementation</li> </ul>

### Facilities Automation

PRASA partially implemented a plant monitoring platform (SCADA). After Hurricanes Irma and Maria, many of the facilities' sensors and controls were affected and the level of visualization was reduced. The Authority's first step is to achieve pre-Hurricane level of visualization throughout its network

The current automation system approved by the DOH is defined as an Interim Automation Program, which does not allow for actual remote operations of the facilities. For full automation implementation requirements, PRASA requires DOH approvals on a case-by-case evaluation and technology implementation basis.

If approved full automation and control capabilities at PRASA's facilities can reduce tank overflows and water losses, reduce the manpower required to monitor the System, and provide information to more efficiently manage the System and assign maintenance resources.

Under its Resiliency projects list, PRASA is expecting to invest \$150M for remote operational capabilities at its facilities, subject to the availability of resiliency federal funds.

