



**VIRGIN ISLANDS  
WATER & POWER  
AUTHORITY**



# **INVESTMENTS IN FACILITIES, SYSTEMS, AND PEOPLE**

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# EXECUTIVE SUMMARY

## WAPA IS ADDRESSING CHALLENGES WITH SOLUTIONS

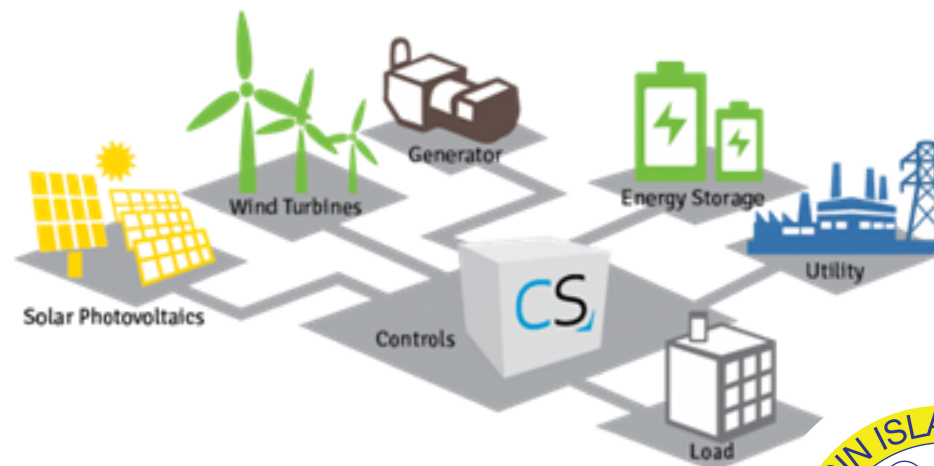
Federal Agency	Program	Obligated Amount	Expended	Available
FEMA	406	\$1,681,913,650.18	\$1,174,463,347.49	\$507,450,302.69
FEMA	404	\$261,410,904.39	0	\$261,410,904.39
HUD	CDBG-DR	\$87,031,477.93	\$63,577,051.67	\$23,454,426.26
HUD	Local Match	\$87,949,292.05	\$16,847,982.10	\$71,101,309.95
DOI		\$5,403,749.00	\$1,502,105.00	\$3,901,644.00
EPA/DPNR	Drinking Water Grants	\$15,049,037.00	\$7,378,543.00	\$7,670,494.00
Total:		\$2,138,758,110.55	\$1,263,769,029.26	\$874,989,081.29

*Noted: WAPA is awaiting approval on a funding request from HUD CDBG-Mitigation in the amount of \$145,000,000.00*

# ELECTRICAL MITIGATION PROJECT METHODOLOGY

## MICROGRIDS

- Install renewable energy
- Integrate existing and new solar & wind
- Install battery energy storage systems (BESS)

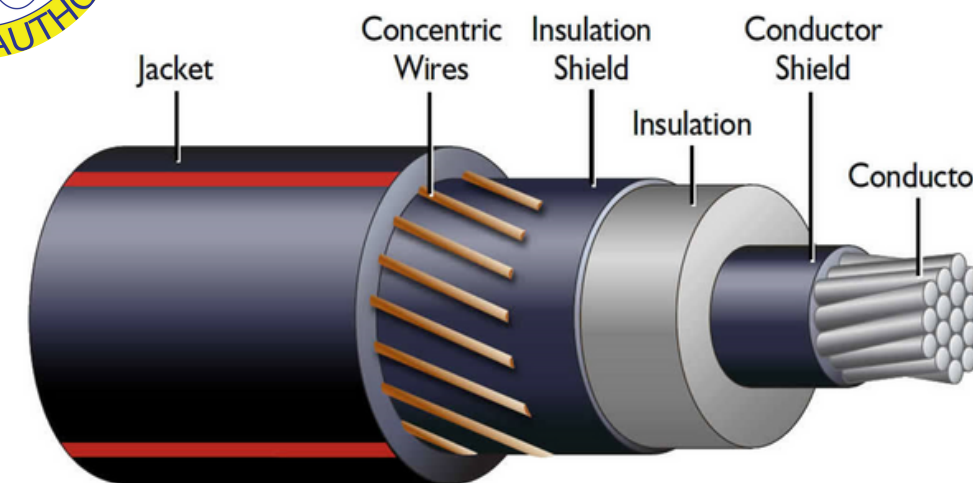


## NEW GENERATION

- Replace aging units with smaller more efficient generators
- Install Battery storage at Generation Site

## COMPOSITE POLES

- Harden Overhead System
- Lightly Populated Areas
- Terrain Prohibitive Areas



## UNDERGROUND INFRASTRUCTURE

- Focus on primary backbones
- Critical facilities
- Densely populated areas

# TERRITORIAL MITIGATION PROJECTS - ELECTRICAL



## ST. JOHN

- Emergency generation with Battery Storage (BESS)
- Solar and BESS for microgrid
- Gas Insulated Switchgear
- Underground
- Composite Poles
- Replacement of existing AMI system



## ST. THOMAS

- New generation at the Randolph Harley Power Plant with BESS
- Substation, microgrid controls and BESS at Bovoni
- Underground
- Composite Poles
- Gas Insulated Switchgear and emergency generators at substations
- Replacement of existing AMI system



## ST. CROIX

- New generation at Richmond Power Plant with BESS
- Solar and BESS for microgrid
- Underground
- Composite Poles
- Replacement of existing AMI system

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# **FEMA MITIGATION PROJECTS**

# COMPOSITE POLE PROJECT

Hardening of Overhead System 90% Completed

	St. Thomas	St. John	Water Island	St. Croix
CONTRACTOR	Haugland	BBC	Haugland	Haugland
TOTAL POLES	2,334	1,960	200	4,116
POLES INSTALLED	2,305	1,711	200	3,333
STATUS	99%	87%	100%	81%
TARGET END DATE	January 2024	Pending NPS Assessment	Completed	March 2024

*Data as of August 2023*

# SUBSTATION PROJECTS OVERVIEW

AS THE CORE OF THE ELECTRIC SYSTEM, THESE SUBSTATION PROJECTS WILL IMPROVE THE RELIABILITY OF SERVICES TO CUSTOMERS AND THE SAFETY OF THE T&D EMPLOYEES WHO OPERATE AND MAINTAIN THESE SYSTEMS.



## EAST END SUBSTATION

Project Start Date: 8/17/2018  
Target End Date: 11/31/2023  
Areas Affected: Eastern  
Portion of St. John  
Project Status: 99%



## DONALD C. FRANCOIS SUBSTATION

Project Start Date:  
2/15/2023  
Target End Date: 12/24/2024  
Areas Affected : Central  
Charlotte Amalie  
Project Status: 25%



## TUTU SUBSTATION

Project Design &  
Engineering RFP start  
date: 12/31/2023  
Target End Date: 1/31/2026  
Areas Affected: Eastern  
Portion of St. Thomas  
Project Status: Design RFP

# TERRITORY- WIDE UNDERGROUND SNAPSHOT

The transition to underground will reduce outages and improve the reliability of electrical service to customers.



COMPLETED

## **St. Croix**

- Midland Project
- Golden Grove Project
- Container Port Project



UNDERGROUNDING

## **St. John**

- Feeder 7E Cruz Bay Project

UPCOMING

## **St. Thomas**

- Feeders: 5A
- Feeder 9A
- Feeder 10B
- Feeder 9D
- Ridge Road
- Transmission Lines OD0E2 and 0COD



UNDERGROUNDING

## **St. John**

- Feeder 7E Secondary
- Feeder 8E
- Feeder 9E

## **St. Croix**

- Feeder 1A
- Feeder 2A
- Feeder 8B
- Feeder 9B





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# **NEW GENERATION PROJECTS**

# BENEFITS OF GENERATION PROJECTS

**Chavanté Marsh**  
**Project Management Director**  
**Virgin Islands Water and Power Authority**

For more information, follow this QR Code  
to view full video:



# RHPP NEW GENERATION AND BESS PROJECT

Installation of 36 MW of new, dual-fueled,  
reciprocating internal combustion engines

9MW/18MWh of Battery Energy Storage Systems  
(BESS)

## PROJECT BENEFITS

- Efficiency and reliability
- Grid stability through voltage/frequency regulation
- Backup power to critical loads
- Faster Outage Restoration Times

## PROJECT STATUS

92% Complete

Completion Date:

November 2023



# ST. CROIX RICHMOND PLANT NEW GENERATION PROJECT

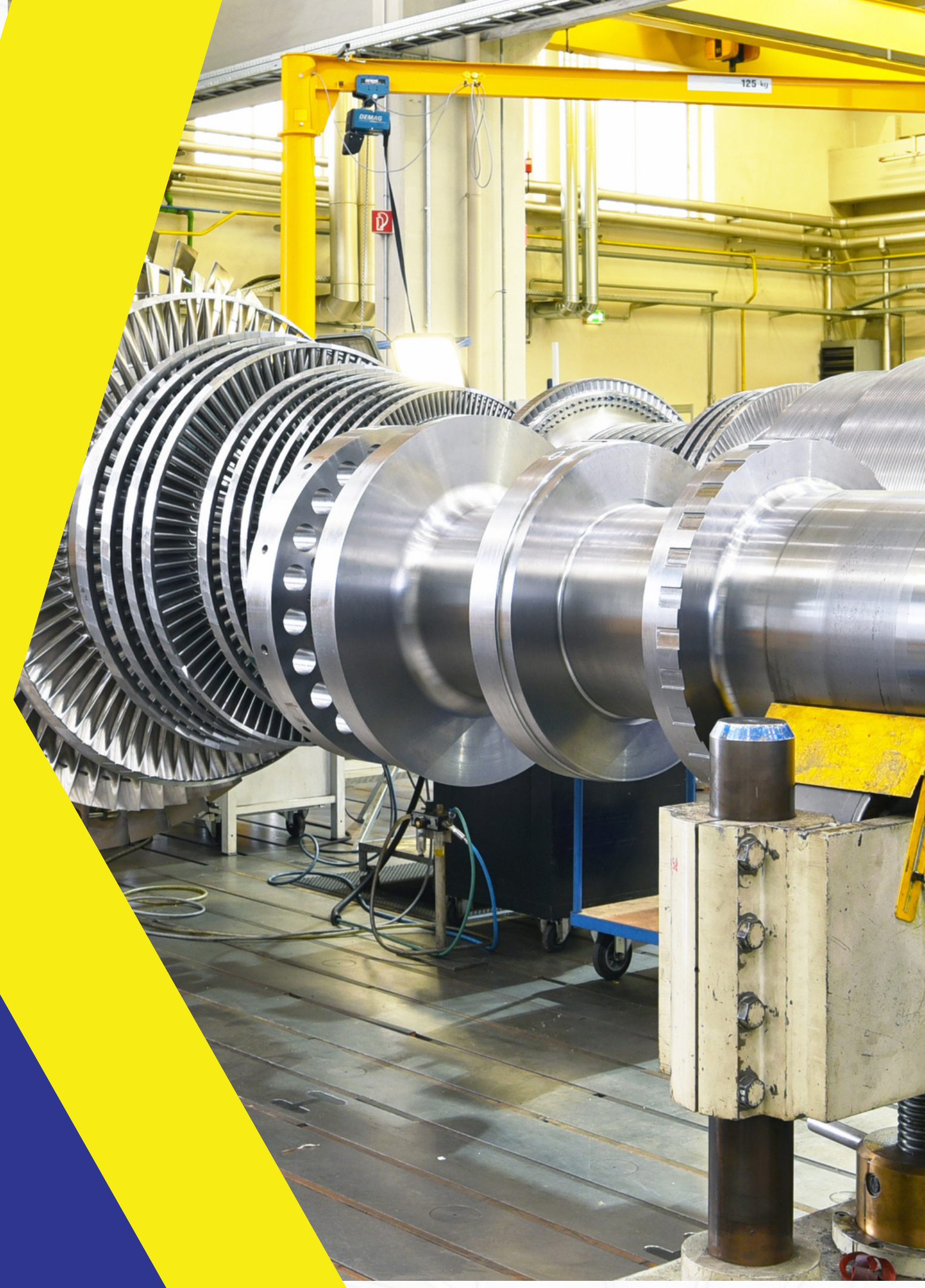
Installation of 20-40 MW of new,  
dual-fueled Gas Turbines

## PROJECT BENEFITS

- Efficiency and reliability
- Dual-fueled
- Replace aging units with more efficient generators

## PROJECT STATUS

Funding Application Process



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# **MICROGRID PROJECTS**

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# TERRITORY- WIDE MICROGRID SNAPSHOT



**Marquis McGregor**  
Electrical Engineer III  
System and Planning Department  
VI Water and Power Authority

For more information, follow this QR  
Code to view full video:



## EMERGENCY GENERATION

5-8MW Generators with  
~4MW/8MWh of BESS

## GRID STUDY

Completion Date: Sept. 30,  
2023

## SOLAR INSTALLATION

~4MW of solar

## Project Status:

Engineering, Land Acquisition &  
Grid Study



## BOVONI MICROGRID

Substation, controls, &  
15MW/30MWh of BESS at  
Bovoni Landfill

## Project Status

- Grid Study
- Define Scope of Work



18 MW of solar  
at Adventure Hill with  
10MW/20MWh BESS at  
Gregory Willocks  
Substation

## Project Status

Engineering & Land  
Acquisition Phase



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# **WATER PROJECTS**

# ST. CROIX ACTIVE WATER PROJECT OVERVIEW



**CAMPO RICO**  
EPA/ DPNR Drinking Water Capital Improvement Grant  
Total Funding: \$ 7.3 Million  
Size: 21,000 LF ~ 300 customers  
Status: 65% complete- linear foot basis

**CLIFTON HILL**  
EPA/ DPNR Drinking Water Capital Improvement Grant  
Total Funding: \$ 4.44 Million  
Size: 15,000 LF ~175 customers  
Status: Final paving completed week of August 21, 2023

Utility Coordination and Priority of One Dig  
Across Projects in Collaboration with:



For more information, follow this QR Code to view full video:

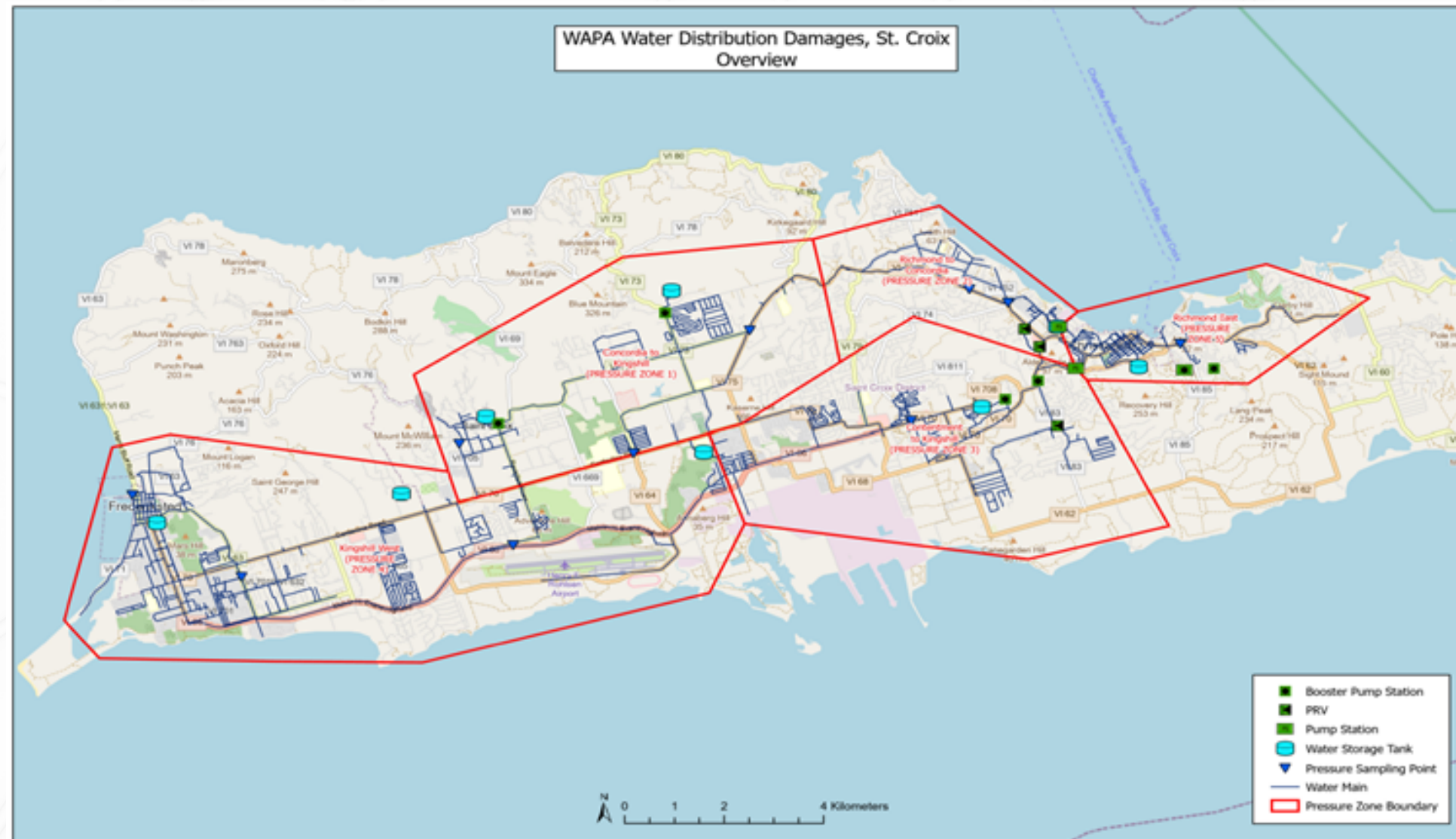


Approximately \$1 Billion is being invested towards improving the St. Croix water infrastructure. This huge undertaking will replace over 168 miles (887,040 linear footage).

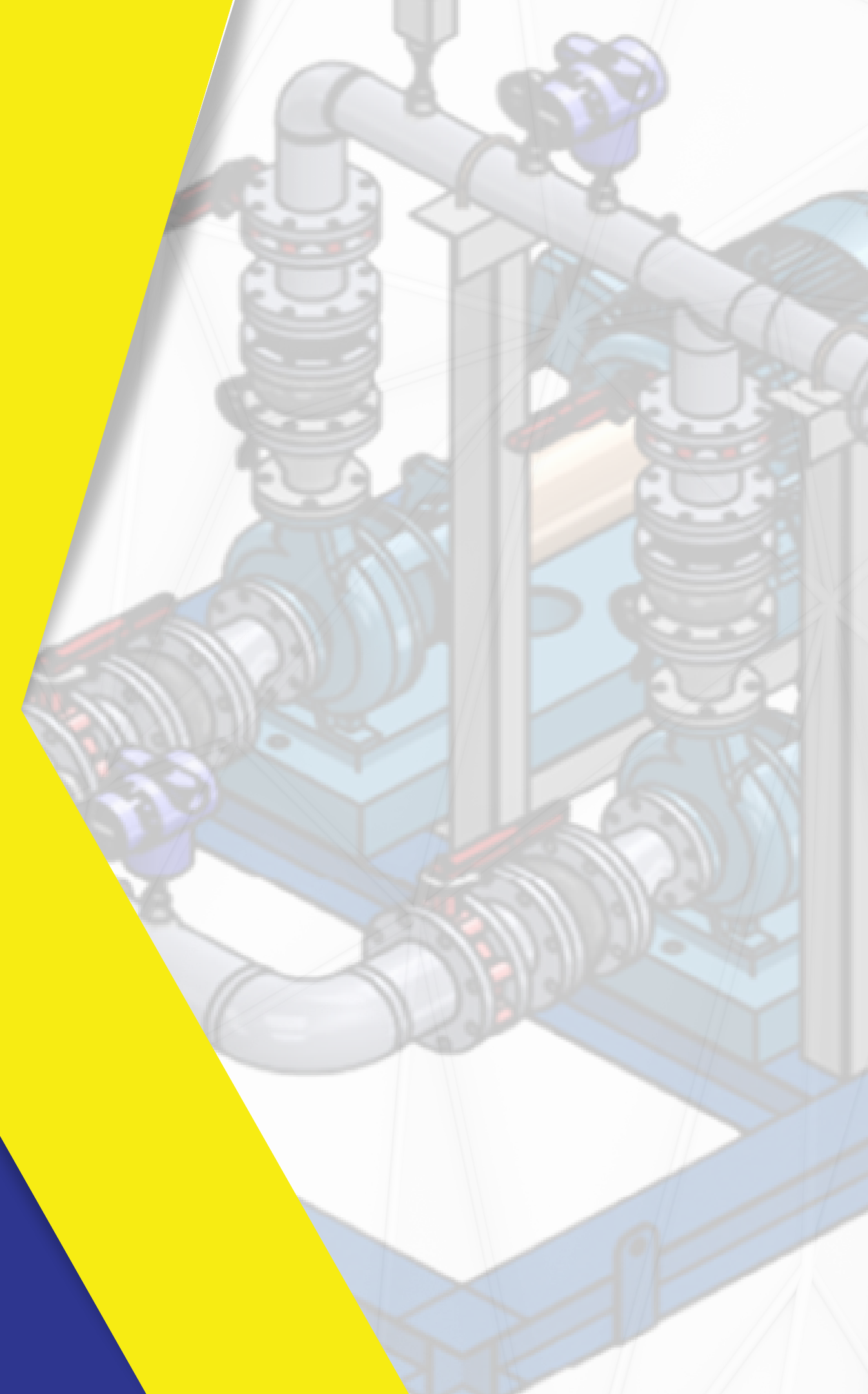


# PRUDENT REPLACEMENT ST. CROIX WATER INFRASTRUCTURE

Replacement to industry standards will address the discolored water and pressure issues while improving control of system operations.



Replace Ductile Iron Piping Installed in the 1950s.



# ST. THOMAS TANK PROJECTS

Meeting System capacity needs and reducing tank failure hazards.



## STT EAST END TANK (Storage, Fireflow & Resiliency)

Cost: \$10,000,000- ARPA  
funding possible  
Project Period: Jan 2024-  
Jul 2026; 2.5 yrs  
Description: purchase tank  
land for 5MG Tank,  
permitting, design and  
construct access road and  
tank foundation



## TANK 3 & 4 SLOPE STABILIZATION

HUD- CDBG Disaster Recovery-  
Tranche 2  
Project Location: Subbase  
Total Funding: \$ 1.65 Million-  
estimated  
Size: Two- 10.5MG tanks,  
serves entire district ~6900  
accounts and all truck sales  
Status: Preliminary  
environmental review with HFA



## DONOE TANK SLOPE STABILIZATION

HUD- CDBG Disaster  
Recovery- Tranche 2  
Total Funding: \$ 1.22 Million-  
estimated  
Project Period: No Executed  
Subaward- Funding  
Expiration in 2026  
Status: Preliminary  
environmental review with  
HFA

# WHAT'S NEXT IN WATER?

## MAHOGANY ESTATE

EPA/ DPNR DRINKING WATER CAPITAL IMPROVEMENT GRANT

## BLACKBEARD HILL

EPA/ DPNR DRINKING WATER CAPITAL IMPROVEMENT GRANT

## NAZARETH

ARPA- AMERICAN RESCUE PLAN ACT (CONSTRUCTION)

## ESTATE ROSS

ARPA- AMERICAN RESCUE PLAN ACT (DESIGN & CONSTRUCTION)

## ANNA'S RETREAT PHASE 2 - EXPANSION

ARPA FUNDED DESIGN | HUD MIT TRANCHE 3 FUNDED CONSTRUCTION

## VETERAN'S DRIVE

EPA/ DPNR DRINKING WATER CAPITAL IMPROVEMENT GRANT

## SMITH BAY EXPANSION

ARPA FOR DESIGN, HUD MIT TRANCHE 3 FOR CONSTRUCTION

## NORTHSIDE ROAD

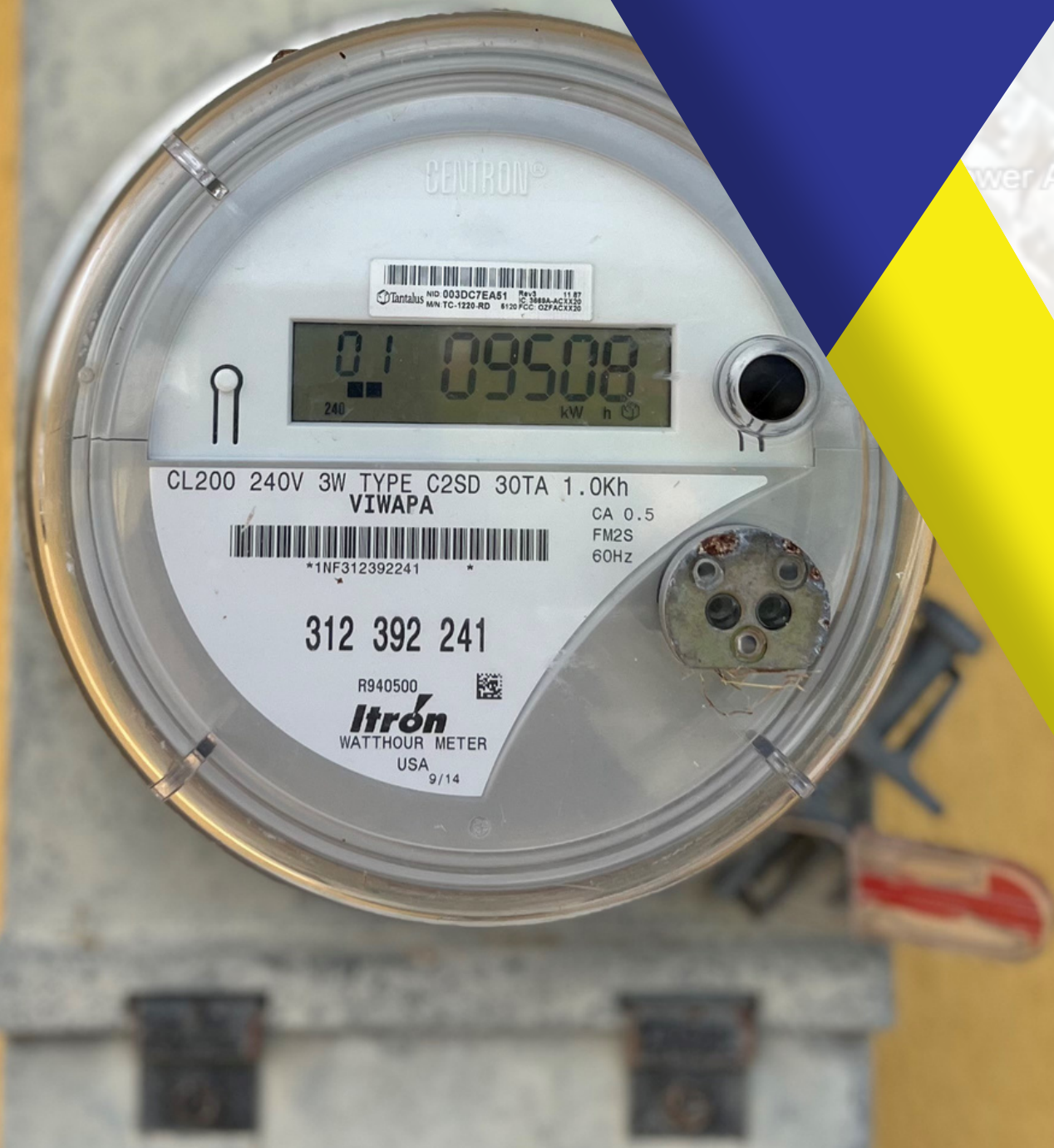
ARPA- American Rescue Plan Act (Design)

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# **INVESTMENT IN SYSTEMS**



# IMPROVING OUR SYSTEMS TO INFORM OUR EMPLOYEES AND EMPOWER OUR CUSTOMERS



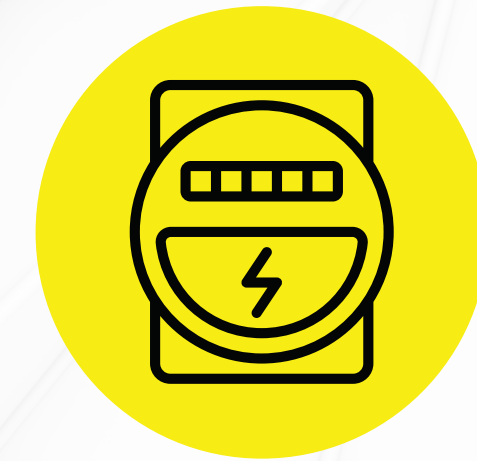
## AMI

The Automated Metering Infrastructure (AMI) is WAPA's lifeline to its customers. It includes smart meters and communication modules to meet industry standards.



## VEHICLE PROGRAM

The fleet provides an interactive connectivity between humans and systems, especially as the hybrid trucks reduce operational costs and meet energy roadmap requirements. The grant funds included purchasing eight (8) Tesla Model Y, one (1) Hybrid Bucket Truck, and Electric fleet vehicles.



## GIS

Geographic Information Systems (GIS) will aid in assessments for disaster recovery, accelerate response time to system problems, offer asset tracking, load monitoring, and system analysis.



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# **INVESTMENT IN PEOPLE**

# POWER LINEMAN TRAINING & DEVELOPMENT PROGRAM

- Ensuring the safe and reliable operation of the electric grid
- Ensure upward mobility for employees
- Qualifying employees according to industry best practices and safety standards

# TECHNICAL TRAINING & DEVELOPMENT PROGRAM

- Empower employees with technical, safety and leadership skills.
- Exceeds industry best practices, standards, and regulatory requirements.
- Hybrid Training program that will diversify learning approach.
- Partnership with the Northwest Lineman College.
- Elevates training and development standards for employees.

# PARTNERING ON TRAINING

- WAPA has partnered with Haugland Group to provide on-the-job training to our linemen.
- WAPA linemen will work alongside Haugland Group to gain hands-on experience installing composite poles.



LINEMAN.EDU



# WATER: OPERATOR TRAINING

30 persons in operations and maintenance received specialized training in collaboration with the Delaware Technical Community College.

- Funding amount from Department of the Interior: \$150,000

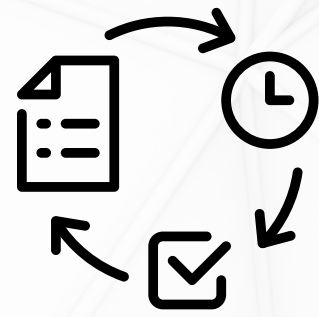
## COURSES

- Basic water system operator responsibilities
- Water sources and treatment
- Math
- Pumps
- Disinfection
- Lab procedures
- Treatment plant operations
- Safety
- Filtration systems
- Corrosion Control
- Phosphate Technology
- Chlorination
- System Security
- And More

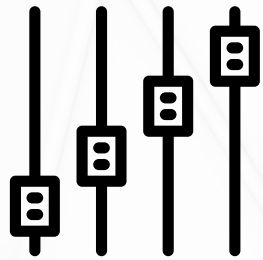




# THANK YOU FROM OUR TEAM



**Project Management**



**Electric Systems**



**Water**



**Disaster Recovery**



**Communications**



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