



From Coastal Risk to Resilient Water Reuse

Fort Pierce Utilities Authority's (FPUA) project addresses a decades-long convergence of environmental vulnerability, aging infrastructure, and growing water demand. The City's original wastewater treatment facility, located on South Hutchinson Island within a highly exposed coastal zone, faced escalating risks from sea level rise, storm surge, and extreme weather events. These threats not only jeopardized reliable operations but also posed potential effects to the Indian River Lagoon, a nationally significant and ecologically sensitive estuary. Meanwhile, increasing regional demand placed sustained pressure on the Floridan Aquifer, historically relied upon for industrial cooling water at the adjacent Treasure Coast Energy Center.

In response, FPUA relocated wastewater treatment inland and redesigned the system around reuse and resilience. The project reduces environmental risk, modernizes infrastructure, and transforms wastewater into a strategic water resource, protecting ecosystems, strengthening water security, and maintaining affordability for customers.

✓ **REDUCE**

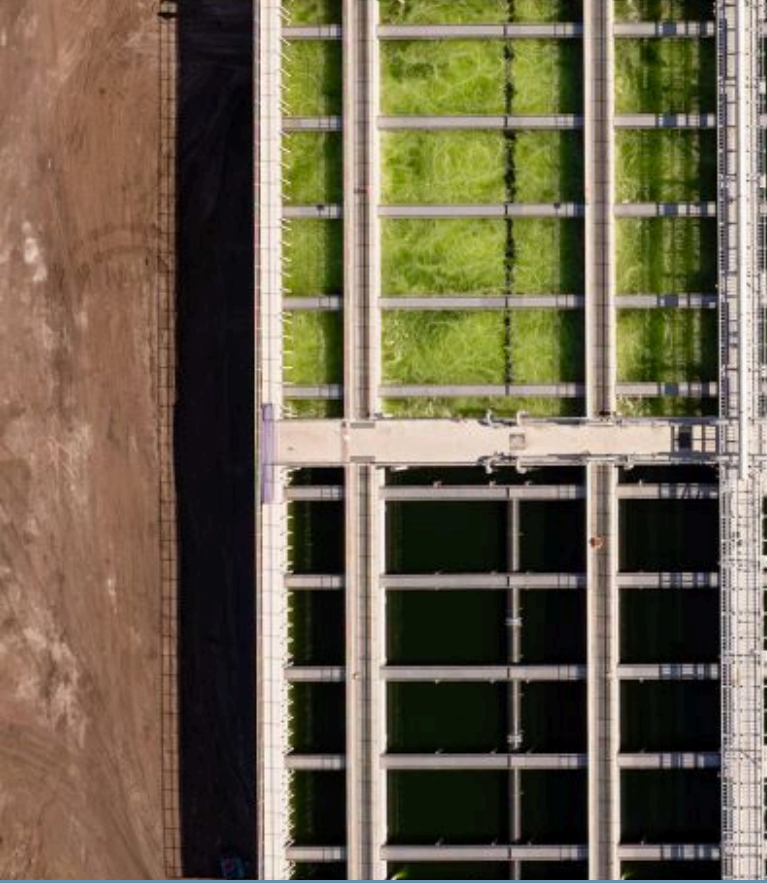
✓ **REGENERATE**



FORT PIERCE, FL, USA



WASTEWATER



CHALLENGES FACED

The primary challenge was financial. For more than two decades, relocation was delayed because the required investment exceeded what customer rates could support. The project demanded a disciplined funding strategy and careful risk management. By securing more than US \$75 million in state and federal grants, the utility significantly reduced rate effects while aligning the project with broader resilience and water quality priorities. Successful delivery also required strong coordination among internal teams, regulators, consultants, and elected officials.

TECHNOLOGIES & SOLUTIONS USED

The project uses AquaNereda aerobic granular sludge technology, which produces high-quality effluent with a smaller footprint, lower energy demand, and simplified operations compared to conventional systems. Real-time monitoring and automated controls enhance process stability and performance. The facility is integrated with the Treasure Coast Energy Center to supply reclaimed water for industrial cooling, eliminating groundwater withdrawals.

IMPACT & INSIGHTS



- The project will replace approximately 1.5 million gallons (~5.68 million liters) per day of groundwater withdrawals from the Floridan Aquifer, eliminating 100% of aquifer use for industrial cooling at the Treasure Coast Energy Center.
- The facility is designed for an average treatment capacity of 8 MGD, with 24 MGD peak capacity and future expansion potential to 30 MGD.
- AquaNereda technology is expected to reduce energy consumption by up to 50% and lower construction costs by ~15%.
- Relocating treatment inland eliminates storm surge discharge risks to coastal waters.

LESSONS LEARNED



- FPUA secured diversified state and federal funding early to protect ratepayers and maintain affordability.
- The utility balanced long-term infrastructure investment with customer cost stability.
- FPUA clearly explained not only what was being built, but why it mattered to the community.
- The project was approached as a long-term partnership with residents and stakeholders.
- Public trust was built alongside physical infrastructure to support lasting success.

“The project reinforces Fort Pierce’s identity as a steward of the Indian River Lagoon and a forward-thinking coastal city. Protecting the lagoon, conserving freshwater resources, and investing in resilient infrastructure signal a commitment to environmental responsibility.”