

1. Resilience Planning

Along with other cities in Florida, Miami is at an increased risk of exposure to the effects of climate change, from flooding driven by rising sea levels to increasingly frequent storms. Local officials are taking steps to strengthen the city's assets and operations to become more resilient to climate and weather threats. The Miami-Dade Water and Sewer Department (WASD) has worked with stakeholders at the regional, county, and utility level to develop goals and strategies for increasing resilience. Miami-Dade County is a participant in the Southeast Florida Regional Climate Change Compact and helped develop the [Regional Climate Action Plan \(RCAP\)](#) for the region. As a member of the Rockefeller 100 Resilient Cities initiative, the Greater Miami and the Beaches (GM&B) region is developing a broad [resilience plan](#). Internally, the WASD is preparing a Roadmap to Resilience to streamline resilient operations within the utility, and has been collaborating with regional utility partners and industry and academia through the Resilient Utilities Coalition and the Water Research Foundation. The WASD has conducted preliminary vulnerability assessments of critical infrastructure and is refining these to develop designs that incorporate climate change impacts on a project by project basis.

The WASD is developing comprehensive energy and resilience strategies at the plant and process levels for water production and wastewater treatment. They have conducted an energy assessment of a 113 million gallons per day (MGD) wastewater facility and are now looking to implement recommendations and perform assessments at all water and wastewater plants within their jurisdiction. The organization is raising awareness and conducting training for staff on resilience and sustainability. The department is also applying the Envision Rating System to infrastructure projects and is developing a resilience scorecard.

2. Program or Project Implementation

WASD has taken both a project and program approach for the implementation of CHP technologies. To promote energy security, the WASD is increasing the capacity of co-generation units at two wastewater facilities and is evaluating legacy engines and equipment for replacement. CHP projects at individual facilities have been primarily financed through grant opportunities. The WASD will continue to move new projects forward in this manner, but is also developing a comprehensive strategy at the plant and process levels. The key factors driving this approach are a focus on utility and county-wide emissions reductions, resilience improvements and sustainability commitments and goals. Additionally, WASD is shifting to an integrated utility management approach which includes effectively managing utility costs, reducing environmental impacts and performance-based decision making strategies which aim to improve operational efficiencies and reduce energy. These considerations make the deployment of CHP technology an attractive solution to meeting WASD's goals.

In order to encourage CHP solutions, the WASD may conduct a study of individual facilities to evaluate CHP options. A regulatory framework that supports energy production by water utilities in coordination with electric utilities, promotes incentives for CHP installations and streamlines the permitting and regulatory processes for onsite energy generation would also be beneficial. The WASD is also exploring the viability of the deployment of distributed energy resources such as battery storage and microgrids more broadly. In collaboration with Florida Power & Light (FP&L), the WASD is exploring the feasibility of a floating solar PV system.

3. Lessons Learned

CHP for Resiliency Accelerator Partner Profile

WASD has learned several important lessons through the resiliency planning process. It is important to consider the context of the facility and the surrounding stakeholders and potential partners. For example, sites may be able to utilize resources from adjacent locations, as in the case of utilizing methane gas from a neighboring landfill for a nearby CHP project. The WASD has found that it is critical to engage operations staff at the project planning phase to effectively design solutions and maximize operational benefits. In addition, the development of a persuasive cost-benefit analysis can help make the business case for a project and help convince stakeholders and decision-makers.

At the individual project level, the WASD realized that it's important to take the time to understand how a project ties into existing processes and the electrical distribution system. Further, it is important to remain cognizant of planned future projects and how these will impact overall energy demand on the individual plant level. In terms of regulations and permits, staying aware of project impacts on existing air and chemical permitting rules can guide project activities and costs.

Finally, the WASD is of the opinion that the academic sector is a valuable partner and resource for technical evaluation and analysis.

4. Additional Information

- ▶ [Southeast Florida Regional Climate Change Compact](#)
- ▶ [Miami-Dade County Green Print Plans](#)