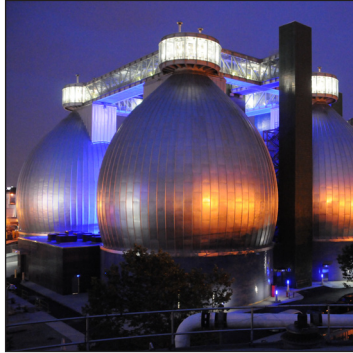


BWT Turns a Big Double Play: Treats More Wastewater While Reducing Demand for Energy

In 2011, the Bureau of Wastewater Treatment (BWT) released its first annual report on energy consumption and costs for the 14 in-city wastewater treatment plants, which highlighted that purchased energy consumption decreased by 1.5% at the same time that the amount of flow processed at the facilities increased by 6%. As the largest energy consumer within DEP, which is itself the second largest user of electrical power in the city, cutting even 1.5% is a lot of saved energy. The plants are trying to lower energy costs and use as part of *PlaNYC's* greenhouse gas reduction goals and DEP's *Strategy 2011-2014*, a plan to reduce energy usage and maintain high quality drinking water and wastewater treatment services.



Newtown Creek

ment process when microorganisms release methane as a result of breaking down the sludge, which reduces the need for fuel oil and natural gas. Relying more heavily on digester gas reduces the amount of energy DEP must purchase and finds a useful purpose for an otherwise wasted energy source. Some plants are changing operating parameters in order to thicken sludge even further so a smaller volume will need to be transported. Still others are simply trying to improve the efficiency of the existing processes and machinery. These efforts will result in annual savings of \$13 million and an emissions reduction of 233,000 metric tons.

Although overall the 14 plants did cut purchased energy use, some

(Continued on reverse side)

To reach these goals, projects totaling almost \$800 million are already underway or are in the works for the future. These projects include efforts to reduce purchased energy—made up of 74% electricity, 21% fuel, and 5% natural gas—even further.

One byproduct of the wastewater treatment process is sludge, partially treated dilute organic solids. Some plants are using digester gas, produced during the treat-

Commissioner's Corner

The most basic objective of the federal Clean Water Act is to prevent pollutants from entering waterways, and today the waters of New York Harbor are the cleanest they have been in more than 100 years. Much of the progress we have made in recent years has been due to an ongoing, productive partnership with our regulators, primarily the New York State Department of Environmental Conservation (DEC) but also the U.S. Environmental Protection Agency (EPA). Last Wednesday, I had the honor of testifying before the United States Congress on EPA's Draft Framework on Integrated Planning, a strategy to ensure that the federal government protects our waterways in ways that are fair, efficient, and cost-effective. The Framework is untested, but should support the local planning efforts that we have undertaken in the last few years to prioritize our investments, including *PlaNYC, Strategy 2011-2014*, the NYC Green Infrastructure Plan, and of course our capital budget.

In Washington, DEP testified in support of an approach that helps cities prioritize infrastructure investments to maximize water quality benefits while encouraging innovative and sustainable approaches from local governments who are stewards of the environment. Since 2002, New York City has invested over \$10 billion to reduce combined sewer overflows (CSO), upgrade wastewater treatment plants, and other water quality improvements. DEP has also adopted innovative operating practices, such as lowering wet wells in anticipation of heavy storms. While the EPA addressed a number of our concerns and recommendations, we addressed our remaining questions in our testimony, including the methodology for assessing the affordability of rates. DEP must ensure that water rates remain as low as possible for our 836,000 ratepayers, a consideration that must be included in any affordability study on water quality investments. For example, our own studies estimate that 25% of New York City households have wastewater and sewer costs totaling 2% or more of their household in-



come. With future rate increases projected, the financial burden on these customers will only increase. Each community is unique, and federal enforcement should consider all water obligations facing each community. In short, the Framework established by EPA is a good start, but we must continue to work together to ensure collaboration and consensus. Our full testimony is available here: [👉](#)

In an example of how DEP can work together with EPA to produce great results, last Tuesday I visited MCU Park in Coney Island—home of the Brooklyn Cyclones—to launch “Clean Streets = Clean Beaches,” a public information campaign and beach clean-up program aimed at improving our beaches by preventing littering. [👉](#) When it rains, litter washes down storm drains and can end up on City beaches. “Clean Streets = Clean Beaches” posters will be displayed at beaches and on approximately 2,000 Department of Sanitation vehicles this summer, and we will be at beaches to offer visitors reusable tote bags in exchange for plastic or paper ones. In addition, beach clean-up events are planned next month at six New York City beaches. I thank EPA Region 2 Deputy Administrator **George Pavlou**, Department of Sanitation Commissioner **John Doherty**, Department of Parks and Recreation Brooklyn Borough Commissioner **Kevin Jeffrey**, and New York Aquarium Director **Jon Forrest Dohlin** for collaborating on this terrific program. We also threw out the ceremonial first pitch of the game, and DEP handed out “Clean Streets = Clean Beaches” frisbee toys to children in attendance from area day camps. For one day, at least, cleaning our waterways was a walk in the park.

Spotlight on Safety

What's the Point? - 2012 EHS Survey

The EHS Employee Survey provides managers and supervisors with valuable information that can improve the environment at DEP as well as the health and safety of our employees. By completing the survey, you can contribute to making DEP a world-class public utility at the forefront of safety compliance.

- Make your opinion count and [click here](#) to begin the survey

At DEP, everyone is responsible for safety. If you or anyone on your team is concerned about your working conditions, it's okay to ask your supervisor or your bureau's EHS liaison how they can help. If you've still got questions, you can call the EHS Employee Concerns Hotline. It's DEP's responsibility to acknowledge and fix unsafe situations, procedures, and practices. With your help, we'll not only get the job done, we'll make it safer for ourselves, our coworkers, our families, and our city. CALL (800) 897-9677 OR SEND A MESSAGE THROUGH PIPELINE. HELP IS ON THE WAY. [👉](#)

Focus on the Field



After earning a bachelor's degree in Chemical Engineering from Polytechnic University, **Juju Xia, P.E.** joined DEP in 2000 as an intern engineer and was assigned to the Bureau of Wastewater Treatment's (BWT) Process Engineering Section. Xia ensured that our 14 wastewater treatment plants complied with regulatory mandates by compiling and reviewing analytical data. In 2003, Xia became a Process Control Engineer at the Red Hook plant, where she was responsible for making sure that the physical, chemical and biological processes at the plant were operating in the most efficient manner. During that same year, Xia earned a master's degree in Environmental Engineering from Manhattan College.

Based on her success at Red Hook, in 2005 Xia moved to the larger Bowery Bay plant. There, a major capital upgrade to install biological nutrient removal (BNR) technology is underway, which reduces the amounts of nitrogen discharged into the East River. The complexity of BNR has made Xia's job more challenging, requiring her to modify process-control set points more frequently.

One of those set points is the amount of air that is fed to the nitrifying bacteria. BNR requires more aeration than normal treatment, but adding too much air wastes energy, so Xia has to find the proper balance. By determining multiple set points, she has been able to achieve all regulatory requirements while significantly reducing dissolved oxygen levels in the aeration basins. The result is that the Bowery Bay plant has achieved the lowest normalized energy usage of any of the City's wastewater treatment plants. These optimization problems are difficult, but Xia is up to the challenge. "It's an opportunity for me to learn new things," she says.

She actively participates in the New York Water Environment Association's Operations Challenge, and was a member of the DEP team that advanced to state and national competitions. In May, Xia contributed to the challenge as the judge for the process control and laboratory events.

Xia also likes to travel and read. So far she has visited 20 different countries out of her goal of 100.

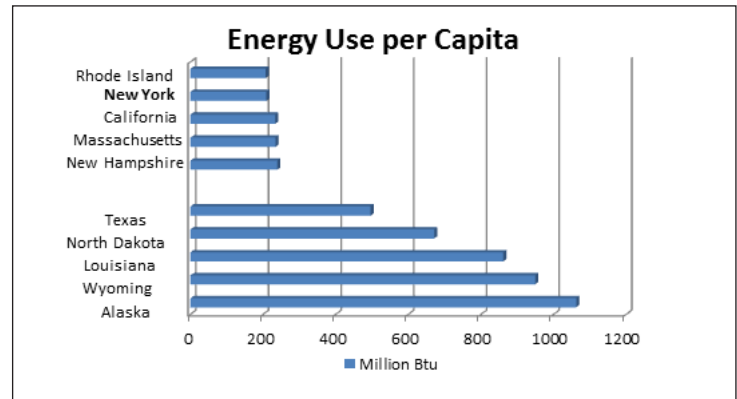
Press Box

SMART WAY TO BEAT THE HEAT — "Opening a fire hydrant to keep cool may be tempting, but before you do, there are a few things you should know. That's why a group of young people is hard at work making sure you remain refreshed, but out of trouble." — from CBS New York local news coverage on DEP's HEAT program to combat illegally opened fire hydrants

DEP Dragon Boat Dream Team

On August 4, come cheer your DEP colleagues on as they compete in the Dragon Boat Races in Flushing Meadows Park. For more information about this event [click here](#).

Did You Know



...New York ranks 2nd in the country for energy use per capita? Only Rhode Island uses less.

(BWT Turns a Big Double Play... continued)



Bowery Bay

plants reduced consumption more than others. Due to recent energy intensive upgrades, three plants saw the smallest cuts in energy. Hunts Point and 26th Ward now include Biological Nutrient Removal (BNR) technology to reduce the amount of nitrogen released into the surrounding waterways. In addition, the on-going upgrade at Newtown Creek continues to add more energy intensive systems, particularly thickening centrifuges and blowers for aeration, although during the course of 2011 the plant has managed to almost halve the number of centrifuges required for normal operations.

Even more impressive than net energy reductions is that in 2011, the quantity of flow the plants treated increased as well. This flow increase was due to more wet weather, resulting in a 6% increase in wastewater entering the plants. Like many older urban areas, New York City has a combined sewer system. When there are storms,

run-off moves into the sewers, through the sewer system, and ends up at a wastewater treatment plant. With more rain, these plants have to treat more, while still ensuring the quality of the final result. Suspended solids have to be 85% removed and meet concentration standards, while microorganism levels are also monitored. Rain or shine, these quality standards of clean water must be met, even with the jump in quantity last year.

Jim Mueller, Assistant Commissioner of Planning and Capital Projects, explained: "The wastewater treatment process is complex, with many variables at play in terms of plant performance and energy consumption. Through the concerted efforts of the plant superintendents, operations management, process, engineering and planning staff, changes are being made that have had positive impacts on energy consumption and reduction in associated emissions."



Newtown Creek

We welcome your feedback! To submit an announcement or suggestion, please email us at: newsletter@dep.nyc.gov