

## Green Jobs in the Field

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### Jennifer McDonnell, Resource Recovery Program Manager NYC Department of Environmental Protection (DEP)



Jennifer McDonnell works to strategize DEP's transition to a Utility of the Future focused on resource recovery. By taking a systems thinking approach, Jennifer looks at DEP's operations and wastewater resource recovery facilities for opportunities to save valuable materials, rather than produce additional unused waste.

Jennifer highlights key components of DEP's resource recovery strategy, "The largest resource available for recovery are the energy, nutrients and organic matter from wastewater treatment, commonly known as biosolids." During the wastewater treatment process, our solid organic waste, called sludge, is separated from wastewater and then digested; afterwards, the material is dewatered to make a more solid material. Biosolids are the final product of this process. It is important to note the scale of this work, "New York City makes 1,400 tons of biosolids every day, which is about a half a million tons a year."

Currently, NYC's biosolids are primarily discarded to landfills, which is what Jennifer is working to change, "We are developing a beneficial use program for recovery of 100% of the biosolids produced by DEP. We are looking at some exciting ideas for recovering biosolids, including making fuel or even bricks." In the past, DEP fully recovered these resources, for land application in agriculture, as compost, or for mine reclamation. Clearly, there are many exciting possibilities for the use of biosolids that mix traditional strategies with emerging innovations.

Beyond wastewater, Jennifer sees opportunities for resource recovery in food waste collected from homes, schools, and businesses, "We are working on a project that uses food waste for co-digestion – adding it to DEP's digesters." This project captures the gases that are created during the breakdown of food in digesters as an energy source. "Right now, we are only doing co-digestion at one of our wastewater resource recovery facilities, Newtown Creek in Greenpoint, Brooklyn."

First, the food waste is turned into a liquid, referred to as a "slurry." Then, this slurry is combined with the sludge inside the wastewater treatment machinery, or the "digester eggs," where a biogas (composed of mostly methane) is created. In partnership with National Grid, the gas will then be

purified to create renewable natural gas and used to heat and cool homes in NYC. “We are exploring ways to expand the project by adding the co-digestion function to other facilities throughout the City,” Jennifer says.

When discussing why she chose to work in New York City, Jennifer notes the diversity, “Diversity in every sense of the word, the people, the landscape, the buildings, diversity is everywhere. Diversity of perspective, solutions, and approaches. I think that diversity equals resiliency, which is what cities need in order to address issues like climate change.” Jennifer enjoys learning about new technologies and thinking about how NYC can be a leader in resiliency and sustainability for other utilities across the country.

Jennifer first became interested in climate change when she saw Al Gore’s film, “An Inconvenient Truth.” Although films, books and podcasts about climate change can sometimes be scary, Jennifer tries to remember the fact that “as individuals, we have a choice and we have a chance.” She works to instill this in her two children every day.

Jennifer’s advice for young people interested in entering the field is “**never stop asking questions.**” “It’s amazing what you’ll learn! Be curious and take the time to truly understand things. It’s really important in a time where it’s easy to ignore the facts and focus on emotion or rhetoric. Asking why gives you the power of fact.”