Madison County Landfill Solar Cap Project

Project Description:

Madison County, owners of the Madison County landfill, is planning to cop Cells I through 4 of the West Side Landfill. The total capping project will include approximately 8 acres with approximately 1 acre of south facing side slope. The County is proposing to install thin-film flexible photovoltaic modules on a portion of the 1 acre south facing slope of the West side Landfill capping project at the Madison County Landfill to generate 50kW of renewable PV electric power within the next three weeks. The system will be grid-tied through a utility interconnect and a meter at the MRF on the landfill site. Power will be used at the ARC Recycling Facility with excess provided to the grid.

Project Approach:

As mentioned, the County plans to install a geo-membrane cap on part of the landfill. While most of the side slope cap will be a combination geo-membrane and vegetated cap, the south facing slope is being reserved for a PV array that will be affixed directly to the exposed cap geo-membrane material. Geo-membrane on the south facing slope will be a scrim reinforced thermo plastic olefin (TPO) material that is often used on large flat top building roofs. The 144W thin-film flexible PV modules will be glued to the TPO either at the factory, or on site.

This type of PV integrated capping system has been installed on another large landfill cap in Texas, and has been installed on numerous large building roofs. Manufacturers are currently making systems that are modular and utilize “plug-and-play” components to more quickly connect the system. In this case, PV modules will be wired to invertors that will be connected to generate three phase AC power, and a step up transformer will bring the voltage up to 480 volts as it is transmitted to the MRF eclectic meter.

Project Measures:

The County is proposing to install PV modules on a portion of the capping area. The County will be able to utilize the energy generated through the solar array to offset the power requirements of the equipment located within the Recycling Facility. Any excess-electricity generated through the solar modules will be net-metered to the grid. It is estimated that the 50kW system will generate approximately 50,000 kWh power year; offsetting existing electric demand at the MRF./ The current electric usage of the MRF facility is approximately 49,000 KWh/year, which is approximately equal to the proposed output.

The total estimate project cost is about $380,000, most of which, will be funded by a New York State Energy Resource Development Association (NYSERDA) Grant.

R-L: James A. Zecca, Director of the Madison County Dept, of Solid Waste and Sanitation, Doug Johnstone, Business Development Manager for Carlisle Energy Services of Carlisle, PA, Russell Hammond, Landfill Operations Manager, Chad Hutton Vice President of Barton and Loguidice Engineers of Syracuse, NY, and Arthur Mohr Jr., Director of Landfill Business for Carlisle check the solar panel delivery for the upcoming project.

Eleven solar panels will be place on the southern facing slope, shown above, of the closed west side landfill at the Buyea Rd Landfill site in the Town of Lincoln.