Miramar Landfill Power Plant Projects (MP3) with Fortistar Methane, LLC, (Fortistar)

AND

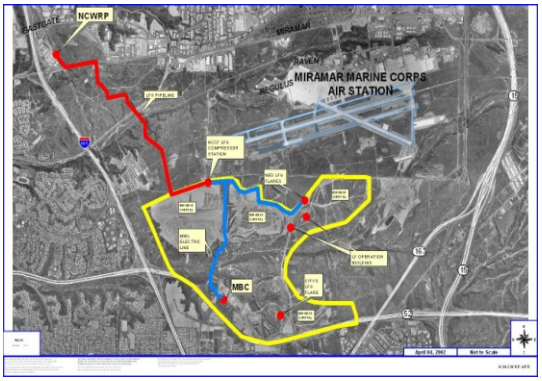
The Marine Corp Air Station Miramar (MCASM) and the City's Environmental Services Department (ESD)

The Public Utilities Department's Energy Section manages a group of privatized contracts, now owned and managed by Fortistar. This group of contracts are for the design, build, own, operate and maintain the Miramar landfill gas collection systems and the landfill and digester gas fueled 6.4 MW cogeneration system (MBC Cogen) at the Metro Biosolids Center (MBC) and the 3.8 MW North City Cogeneration Facility (NCCF) at the North City Water Reclamation Plant (NCWRP). Both of the power plants are owned by project specific company MM San Diego, LLC. The landfill gas system is owned by NEO San Diego, LLC. Both companies are owned and operated by Fortistar.

This second amendment to these agreements will expand all of these facilities.

The Existing Miramar Landfill Gas System

The Miramar Landfill is operated by the City of San Diego on land lease from the US Navy on the South end of the Marine Corp Air Station Miramar (MCASM). Under an existing privatized contract Fortistar Methane Group, LLC's (Fortistar) predecessor, NEO San Diego, installed landfill gas (LFG) systems in the North, West Phase I and West Phase II section of the Miramar Landfill. The City installed the LFG collection systems in the South section of the landfill. Fortistar operates and maintains all the LFG collection systems which provides fuel to their 6.4 MW MBC Cogeneration (MBC Cogen) system and their 3.8 MW North City Cogeneration Facility (NCCF). This system includes 273 LFG wells and two flair/blower stations. Most of the system was installed in 1996 and 1997. This LFG system and the MBC Cogen power plant won the 1998 San Diego Tax Payer's Golden Watch Dog Award.



New LFG Wells will provide fuel to the New Power Plants

The landfill gas collection and conveyance system will be expanded by Fortistar with the addition of approximately 80 new wells to be installed in the West Phase II landfill along with laterals headers and condensate lines. The new wells will provide fuel for the 1.6 MW North City Cogeneration Facility Expansion (NCCFE), which will require approximately 27 wells, and the MCASM Power Plant (MP2) which will require approximately 53 wells. Fortistar will operate and maintain this new LFG system. The power plants are explained later in this document.

The Existing MBC Cogeneration Facility

The MBC Cogeneration Facility (MBC Cogen) owned and operated by Fortistar consists of four 1600 kW tandem cogeneration units, each consisting of two 800 kW caterpillar 3516 engines connected to one 1600 kW generator, associated switch gear and heat recovery systems. The facility also includes two landfill gas blowers, waste heat exchangers, and engine cooling water radiators. The facility utilizes landfill gas and digester gas with natural gas as backup fuel.

The 6.4 MW of electrical energy provided by the project is delivered to MBC, the landfill and to SDG&E through utility grade interface equipment.

MBC Cogeneration (MBC Cogen) Facility Expansion for MCASM

Fortistar will be installing a 3200 kW of generation capacity at their MBC Cogen facility. The Marine Corp Air Station Miramar (MCASM) has a tentative agreement with Fortistar for the power.

The existing power poles that run from MBC north to the junction with the north landfill access road will need to be replaced with taller poles, or modified to accommodate a second power line for the delivery of the MCASM power to the North boundary of the Miramar Landfill lease.

Existing space in the MBC Cogen facility will be utilized to install the two 1600 kW Caterpillar generator sets for the MCASM Power Plant (MP2). A separate Navy construction contract will install an electric line across the air station to the electrical point of connection on the North side of the base.

The Existing North City Cogeneration Facility

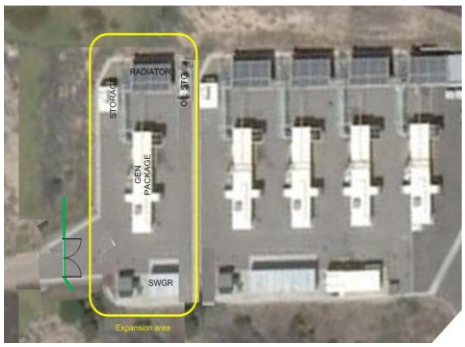
The North City Cogeneration Facility (NCCF) consists of four 950 kW single cogeneration package units, each consisting of one 950 kW Caterpillar 3516 engine connected to one 950 kW generator along with engine cooling water radiators, switch gear, and a landfill gas compressor station that is located remotely at the Miramar Landfill. The 3.8 MW facility located on the North City Water Reclamation Plant (NCWRP) site is owned and operated by Fortistar. It has also includes provisions to connect to future heat recovery heat exchanger(s) to the jacket water systems. It has sound attenuation mounds, gates and other devices designed to coordinate with the landscaping theme of the North City Water Reclamation Plant. It also has the facility utilize landfill gas as the primary fuel, which is compressed and dried at the West Phase II Miramar Landfill. Natural gas can be used as backup fuel.

On average approximately 3.0 MW of electrical energy is provided by the project to the North City Water Reclamation Plant (NCWRP) any excess power is sold to the utility through utility grade interface equipment. However, there are weekly maintenance conditions and summer peak production conditions that require the NCWRP to purchase electricity from SDG&E.

North City Cogeneration Facility Expansion (City Owned)

Fortistar will be installing enough wells in West Phase II Miramar Landfill to fuel its 3.2 MW MCASM Power Plant and to sell Public Utilities Department landfill gas for City owned 1.6 MW expansion of the Fortistar 3.8 MW NCCF. These construction projects will not be connected contractually.

This City owned expansion of the Fortistar owned NCCF is to provide NCWRP with approximately 1600 kW of electrical capacity. The expansion will significantly reduce the need for NCWRP to purchase power from the Utility during power plant equipment weekly maintenance periods and summer peak conditions. This is very expensive to the City with demand and standby utility charges currently averaging $50,000 per month. This expansion will be accomplished by moving the existing north mound of the NCCF berm approximately 50 ft north, providing a gated access in the north corner of the berm similar to the existing south west access. The new access gage would utilize a pre-existing road that ends at the current berm location. The expanded construction area would be excavated to the level of the current facility. New concrete pads will be poured for the generating unit, control system enclosure, transformer and switchgear enclosure. A fence with gate will be provided across the north border of the existing NCCF to separate the City owned facility from the Fortistar owned facility. Pending a final financial analysis one of the three follow generating unit options is expected to be installed on the concrete pads with the associated ancillary equipment,



1. An approximately one megawatt (1 MW) facility consisting of one 950 kW Caterpillar 3516 engine and one 950 kW generator
    a. This size unit may allow Public Utilities to wheel the excess power to other facilities
2. An approximately one and one half megawatt (1. 5 MW) facility consisting of one 1600 kW Caterpillar G3520 engine and one 1600 kW generator
    a. This size unit is expected to sell the renewable energy to SDG&E at a special rate
3. One 1.4 MW fuel cell package
    a. Fuel cells are much more costly to install and operate but they produce almost no air pollutants. There may be grant money available to adequately offset the higher costs.