

Answers to Wards Island RFEI Questions
Updated - Posted 01/18/11

1. Is there any current sense as to what other loads may be added to the new District Energy System (DES) outside of what is in the current DES?

On the heat side, customers from the NYC Parks Department, RISA, and TBTA have expressed interest.

2. In response to the RFEI question, “Would aggregating multiple facilities into one energy project increase the attractiveness of developing each? If so, why?” what, if any, other energy projects might there be planned?

The City has set a broad goal of significantly increasing clean distributed generation in PlaNYC, and there are other facilities in the City, including DEP’s, where waste-to-energy concepts are being looked at.

3. Can you confirm the planned shutdown date of the MPC boiler plant?

The planned shutdown date is November 1, 2012.

4. Can you confirm that all existing thermal energy supply contracts between the MPC and additional facilities (other than the WWTP) on Wards Island will be terminated upon closing of the MPC boiler plant?

Yes, all existing thermal energy supply contracts will be terminated.

5. Will current DES system users be contractually obliged to participate in the new DES, if an economically viable solution is brought to the table?

No, the system users are not contractually obliged to participate in the new DES. However, if the overall project is desirable, then the City could consider being an anchor customer for the heat.

6. The Feasibility Study does not recommend CHP, while the RFEI is looking for CHP as the desired solution. Has something changed in between the issuing of the FS and the RFEI?

The feasibility study only looked at CHP in terms of the WWTP and its operation by in-house staff. The feasibility study did not consider a model that involved other off-takers or third party operators.

7. Is it possible to obtain the scope from the recent electrical upgrade to the WWTP?

The scope of the recent electrical upgrade to the WWTP included installation of a new fifth feeder to WI. Other primary substation upgrades include: 12 new breakers, a new transformer for one breaker, a new bus duct from transformer, three new breakers for emergency generator switchgear, modifying emergency feeders and connections, and providing new breaker interlock scheme.

8. Is it possible to verify the loads for the two oil-fired boilers at the WWTP?

There are no fuel oil-fired boilers at the WWTP.

9. Is there any current intention to grant an extension to the Jan 14, 2011 RFEI deadline?

Yes, the deadline is extended until Friday, February 4, 2011, 4:00pm.

10. How much has the WWTP paid for its power by month?

The monthly costs vary with the level of consumption. For Fiscal Year 2010, approximately 8.5 million kWh were used each month (14,516 kW). The average monthly energy cost during the same period was \$728,800.

11. Does NYPA charge differently for peak and non-peak usage?

Yes, NYPA has different rates for on-peak and off-peak hours. The DEP WWTPs are subject to the NYPA Service Tariff 100, Service Classification 98.

12. Does the \$0.09/kwh NYPA fee get adjusted for inflation?

No, the fee does not get adjusted for inflation, but there are yearly adjustments based on fixed and variable costs associated with power supply procurement. NYPA is also in the process of decoupling cross subsidization between NYC Governmental customers. This will result in an increased cost per kWh for the DEP that is closer to what other city agencies pay.

13. When does the NYPA contract expire?

The contract expires in 2017.

14. Are the current DES buildings all hydronic buildings (heating and DHW via steam to HW Heat Exchanger)? If the answer is "yes," what is the peak supply temperature on the secondary side of the HX? If the answer is "no," what is the max steam pressure required to the inlet side of the PRV's?

For the DHS building, 30 psi of steam is supplied to the building, which is then dropped to 5 to 10 psi at their exchangers to provide 180 degree Fahrenheit heating and 115 degree Fahrenheit domestic hot water.

15. Is there any direct steam humidification in these buildings?

There is no steam humidification in the buildings.

16. Per the provided documentation, OMH has already installed (or is in the process of installing) independent facilities to replace the MPC plant. Can the OMH be considered a potential end user of the proposed district heating plant? What is the current construction status of the OMH independent heating facilities?

OMH has plans to install independent facilities. They have not yet been constructed. For the purpose of the RFEI, OMH may be considered a potential client. However, please indicate in your submission whether or not OMH as a client is critical to the development.

17. What is the monthly biosolids production (wet/dry tons) for 2009 and 2010?

Wards Island WWTP only produces wet cake for biosolids and the volume varies throughout the year. For Fiscal Year 2010, approximately 10,096 wet tons of biosolids were produced each month.

18. What is the percent solids achieved post biosolids dewatering for the same period?

After the dewatering process, 27% of the remaining volume is solid.

19. Cost for biosolids disposition (total and unit - per wet or dry ton) and method (Synagro drying facility)?

At Wards Island WWTP, DEP has contractors who receive, transport, and dispose the material. Some contractors use lime stabilization and then send the treated biosolids for use on farmland, mine reclamation projects, and/or landfill coverage, while other contractors use pelletization and often send the material to farmlands afterward. The total cost for Fiscal Year 2010 for this contracted work was about \$18.2 million and the unit cost per wet ton was \$150.64. For Fiscal Year 2011, DEP began landfilling a portion of the biosolids, instead of pelletization, reducing the unit cost for wet ton to about \$114.

20. Are there currently long term contracts in place for the customers on the loop (specifically WWTP, DHS, and OHM owed properties)? If so, what are the expirations dates for these contacts?

All agreements with the OHM will end in November of 2012 when the OHM will discontinue the service of providing steam. In addition, the WWTP and DHS properties receive electricity under a Long-term Agreement with the New York Power Authority, which will expire at the end of 2017.

21. What are the rate structures for these contracts?

See Attachment 1 for electric rate structures

22. Do the rate structures vary by location?

See Attachment 1 for electric rate structures.

23. What is the potential for “new” customers on the island? Have potential customers been identified?

Some preliminary discussions have indicated that the Parks Department, the TBTA, the DHS, the DEP and the FDNY may be potential customers.

24. Why is chilled water not mentioned as a potential option for a new owner? According to the Aramark decommissioning study, there are chillers at the MPC that provide chilled water to several customers.

The OMH steam plant contains a 3,350-ton chiller plant consisting of (2) 1300-ton units and a 750-ton unit. This chiller plant provides chilled water primarily to the No. 102 Dunlap Building. The chillers were installed 16 years ago and operate on 4,160 volts. No other buildings at the MPC are provided with chilled water from the plant.

25. What are the current production costs for the MPC plant?

See Attachment 2 for production costs.

26. What are the annual staffing costs for the MPC plant?

See Attachment 2 for staffing costs.

27. The OHM organized a study that potentially recommends constructing and installing their own utility infrastructure. How far along are they in this process?

They are in design.

28. What electricity tariff rate are the various customer currently billed under?

See Attachment 1.

29. What is the current gas purchase agreement for digester gas and fuel oil? Are they long term agreements? If so, what are the expiration dates?

Digester gas is supplied to the OHM steam plant in exchange for steam. OHM supplements supply fuel with fuel oil when the digester gas is insufficient. The DEP reimburses the fuel oil component attributable to supplying heat to the WWTP. This agreement ends in November of 2012.

30. The RFI states that the “primary” source of fuel for the MPC is the digester gas from the WWTP. In table 3 it seems that over the past (3) years only 20% of the digester gas produced was sent to the MPC. Please explain why the majority of digester gas was classified as wasted.

There were several distribution problems within the fence line of the WWTP and a leak in the digester gas line from the WWTP to the OMH steam plant. These disruptions have all been repaired.

31. What is the fuel mix for digester gas and oil? How does it vary on a monthly basis?

Two of the four boilers at the OMH steam plant can run on digester gas. Digester gas is the primary fuel used which is then supplemented with fuel oil. Due to weather variations, interruptions in supply of digester gas, and lack of meter data there is not robust data to provide an accurate monthly trend analysis.

32. What is the process and cost associated with treating the digester gas prior to usage?

The digester gas is not treated prior to usage.

33. What is the size and efficiency of the current boilers?

The Manhattan Psychiatric Center Power Plant consists of (4) 1,035-HP high pressure Titusville Iron Works water tube steam boilers. All four boilers are capable of operation on No. 6 oil with boilers No. 2 and 3 capable of dual-fuel operation, burning a combination of either fuel oil or digester gas. Originally rated for higher pressures, the boilers are now operated at 110 psig to preserve their integrity and to ensure their longevity. The generated steam pressure is then reduced inside the plant for distribution. The boilers are capable of operation to a maximum capacity of approximately 40,000 lbs per hour, but are de-rated to 33,000 lbs per hour to meet the Title V air permit. The current operating capacity equates to about 1,100 HP for each boiler based on a conversion factor of 33,446 Btu/lb-bhp. Each boiler is fitted with COEN burners.

34. Are there any other efforts by potential steam customers on Ward’s Island to install their own steam/thermal facility?

Because the sole source of heat will be terminated in November of 2012 all customer’s on the steam loop are in the process of evaluating alternative sources. This mostly consists of either small package boilers to supply individual buildings or becoming customers of a new District Energy plant.

35. Why is the existing OMH boiler plant shutting down? If it is a portion of the system that is driving the decommissioning, specifically what is it? If it is an administrative issue, specifically, what is it?

As part of its long-term planning for the MPC, the NYS-OMH is in the process of consolidating its activities at the site and will relocate its functions to only a handful of buildings. Also included in this plan is the construction of a new power plant to serve only the requirements of the MPC long-term buildings.

36. What is the outage history of the steam distribution system? Is there an available determination as to how much steam is being lost during distribution?

Unknown to DEP at this time.

37. What is the outage history of the gas distribution system?

Over the past several years there have been a number of problems with the digester gas distribution system including the supply line from the WWTP to the OHM steam plant. Capital work has repaired / replaced most of the digester gas distribution system and most of the supply line to the OHM steam plant was lined.

38. What are the limitations of the existing boiler plant on why it does not use all of the digester gas provided?

Only two of four boilers are capable of running on digester gas.

39. What is the detailed load / electrical demand of the WWTP facility (hourly)?

Hourly loads are not available at this time. Request can be made to Con Ed to obtain this data.

40. What is the detailed gas production of the digester plant?

| | <i>DIGESTER GAS</i> |
|---------------|---------------------|
| | <i>PRODUCED</i> |
| <i>MONTH</i> | <i>cuft x1000</i> |
| <i>Jul-09</i> | <i>54,975</i> |
| <i>Aug-09</i> | <i>39,966</i> |
| <i>Sep-09</i> | <i>49,586</i> |
| <i>Oct-09</i> | <i>55,065</i> |
| <i>Nov-09</i> | <i>45,032</i> |
| <i>Dec-09</i> | <i>49,170</i> |
| <i>Jan-10</i> | <i>47,960</i> |
| <i>Feb-10</i> | <i>38,435</i> |
| <i>Mar-10</i> | <i>39,858</i> |
| <i>Apr-10</i> | <i>40,061</i> |
| <i>May-10</i> | <i>32,517</i> |
| <i>Jun-10</i> | <i>20,514</i> |
| <i>AVG:</i> | <i>42,761</i> |
| <i>TOTAL:</i> | <i>513,137</i> |

41. What is the make-up of the digester gas?

Approximately 60 percent methane and 39 percent CO₂ and 1 percent of other minor constituents.

42. What is the siloxane content of the digester gas?

Data not available at this time.

43. What are the thermal needs of all steam customers – pressure/temperature. Any process steam needs?

The MPC plant supplies the WPCP with an average of 14,000 lbs per hour of steam in the winter. This amount drops to around 9,000 lbs per hour in the summer. Peak winter output steam load from the MPC plant is around 38,000 lbs per hour, while the average summer output is usually around the 9,000 lbs per hour range. The only process steam needs are those associated with the WWTP. DHS needs 30lbs to the building and then they drop the pressure to 5 to 10 lbs at their exchangers to provide 180 degree heating and 115 domestic hot water.

44. What are the chillers facilities, and where are they located?

The MPC chiller plant is located in the western portion of the boiler plant building and shares space with a utility garage. The chiller plant consists of (2) Carrier electric centrifugal chillers, model 17FA321-144-43, rated at 1,350 tons each and (1) McQuay 750-ton electric centrifugal chiller, model 02XR-382CPS64. The two Carrier units were installed in 1993 and operate on R-22 refrigerant, while the third unit operates on R-134A refrigerant. The units are powered via 4,160-V electrical service, and all appear to be in good condition. A 4-cell cooling tower located on the roof of the chiller plant is used to reject heat from the chillers. The chiller plant only supplies chilled water to the Dunlap building at the Manhattan Psychiatric Center site, with sets of primary and secondary chilled water pumps located at the opposite end of the mechanical room. In addition, the New Administration Building at the WWTP has a chiller, 176T capacity, adsorption unit.

45. Are the OMH facilities folks planning any sort of preservation of the existing steam system when they retire their plant?

Please refer to the Decommissioning report.

46. What are the current estimates for getting natural gas onto the island?

Preliminary cost estimates indicate approximately \$2 million.

47. What is the current ratio of fuel oil to digester gas that is being burned?

Unknown to DEP at this time. OMH plant staff can be consulted to obtain this data.

48. Is the DEP open to operating a plant on No₂ fuel oil instead if it is seen that natural gas cannot be economically obtained?

Yes.

49. What is the existing staff arrangement/organizational structure?

During the week, the MPC plant is manned around the clock with staff in attendance on a daily, three-shift rotation. On weekdays, there is a staff of (4) engineers and (1) fireman on shift. During all other shifts and on weekends, there is one (1) engineer and (1) fireman on duty.

50. What are the DEP expectations regarding the existing staff in the event that a CHP is built?

Either the developer would staff the plant or contract operations would be part of the RFP.

51. Would/Could the successful bidder take over digester operations as well as part of the gas supply to the newly developed CHP Plant?

Yes, this option should be considered.

Please provide a condition assessment of the steam distribution system:

52. 5-year leak repair history

Not available at this time.

53. 5-year maintenance costs

Not available at this time, but see Attachment 2.

54. Map delineating between old and recently installed

Not available at this time.

55. How many manholes

Not available at this time.

56. How are traps drained (gravity drains, pumped out, etc)

Not available at this time.

57. Please provide a copy of all existing air permits

See Attachment 3.

58. Please provide the building load peak usage estimates and steam pressure requirements (including the WWTP).

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