

Quarterly Report to the State Building Commission

Metro Nashville District Energy System

Advisory Board Meetings

By Alan Robertson, Assistant State Architect
Advisory Board Representative of the Government of the State of Tennessee

The following section of the State Building Commission Policy and Procedures sets the reporting requirements:

13.01 METRO NASHVILLE DISTRICT ENERGY SYSTEM

The Commission, in accordance with the Metropolitan Government of Nashville and Davidson County requirements relating to the Metro Nashville District Energy System, will appoint for a term of two years, by name and State title, an individual to serve as the Representative of the government of the State of Tennessee on the Advisory Board for the Metro Nashville District Energy System, and the Representative shall report on the meetings of the Advisory Board to the Commission on a quarterly basis, or at any other such times the Commission requests.

This report addresses the Advisory Board meeting held on February 18, 2016 held at the Energy Generation Facility at 90 Peabody Street in Nashville. Below are key issues that were stated at this meeting:

February 18, 2016 meeting

- The Board voted and approved the November 19, 2015 meeting minutes.
- Mr. Ragsdale discussed Cost Comparison table for energy consumption and cost for the previous 12 months. Mr. Ragsdale stated there has been a significant decrease in the consumption of steam. Steam consumption had a reduction of 8 % in the private sector, 17% in State sector, and 25% in the Metro sector. As noted in previous meetings the change in the unit price/cost is primarily due to a decrease in consumption. For chilled water there was an increase in the private sector, the State sector was about the same and chilled water consumption was slightly less for the Metro sector. The overall consumption was about an 18% decrease for steam and about 1/2% increase for chilled water.
- Mr. Jacobs continued with Historic DES Expenses, Revenues and MFA. There was a 1.9% increase in expenses and a 3.2% increase in revenues. The revenue increase was largely due to the addition and sales to new customers Music City Center (MCC) and Nashville Hyatt. There has been a decrease of 27% for actual MFA between FY06 and FY15. Mr. Jacobs stated this is a good reduction; in the past the budget was as high as \$3 million. The MFA budget for FY16 is \$1.79 million and \$1.71 million for FY17.
- Mr. Jacobs continued with Historic DES Energy Costs. The chart is in utility cost per units used. Mr. Jacob started with water. The units are \$/kgal of water per year. There was a 7.9% unit cost increase between FY08 and FY15. Fuel had a 51.1% decrease for this same period representing

a large decrease of cost of steam to customers. Mr. Jacob reviewed electricity cost. There was an increase of 22.2% that includes a demand charge and an energy charge.

- Mr. Jacobs reviewed Contractor Performance. Mr. Jacobs started with the electric conversion to steam and reported the blue line is the guarantee and the red line is the actual with CNE continuing to beat their required performance. He pointed out that there is a much larger steam load during the summer largely because of the MCC.
- Mr. Jacobs continued with Fuel Efficiency of the boiler plant. With the exception of a burner tuning issue in December, it remains favorably below the guarantee point.
- Mr. Jacobs continued with Steam Water conversation. It is based upon the condensate returned from customers and temperature of the condensate. When condensate is returned there is less water and less chemicals used therefore; the plant efficiency is improved. An average of condensate returned is about 70-80%. Condensate returned also has improved due to the addition of MCC.
- Mr. Jacobs reviewed next the Chilled Water Electric conversation. It is measured in kWhr/tonhr. There were some issues that were experienced last winter but they were worked out. CNE continues to operate favorably below the guarantee point.
- Mr. Jacobs continued with Chilled Water conversation. Mr. Jacob stated customers return all of chilled water. There are a few leaks in the system which CNE is actively attempting to locate. When found, they are relatively easy to correct. Although important to eliminate, water is the least expensive utility.
- Mr. Jacobs continued to discuss Water Treatment. Mr. Jacob stated everything looks good with steam and condensate and that most iron and particles found in system is due to leaking heat exchangers in customer's buildings. When leaks are found they are corrected as soon as possible. Mr. Jacobs stated the chilled water system is okay except for the issue of the biologicals. Bacteria that was discovered last year was addressed with an additive of Biocide to the system that killed all of the bacteria. There has not been a measurable occurrence in the past few months. Mr. Ragsdale talked about pilot device that will be used to remove any remaining slime. The device will be tested in March or April of this year. The manufacturer has also provided a guarantee that if the device does not work a full refund will be given upon return of device.
- Mr. Jacobs continued with discussing the EGF (Energy Generating Facility) walkthrough. Walkthroughs are conducted quarterly and everything looks good and passes with a green dot (green dot = excellent performance – no improvement necessary).
- Mr. Jacobs continued with discussing the EDS (Energy Distribution System) walkthrough. These walkthroughs are quarterly; however, the total distribution system is reviewed only once a year because it is so massive. Mr. Jacobs noted that water infiltration issues remain a constant challenge and must continue to be addressed because of the corrosion of the metal components. Automatic pumping helps with this (are located where possible) but it is difficult to keep ground water from entering manholes.
- Mr. Jacobs continued with the Natural Gas Purchasing report; noting that this report is for the first two quarters of the fiscal year. Sales and fuel use are down from what was anticipated.

Plant Efficiency, because of issues in December, is slightly higher but will come back down. Most fuel used was in December through February so once into March and the end of third/fourth quarter usage will look better. Total gas cost for the year is \$942,000 while the budget was for \$1.2 million and does not include any contingency. Mr. Jacobs stated \$70,000 worth of propane gas was pre-purchased and is in a storage tank in Kentucky. The purpose of the stored propane is in case of a gas curtailment. There has not been a curtailment this year but there was one last year and the year before.

- Mr. Jacobs continued with the Actual and Projected Gas Cost Comparison History report; stating DES is paying slightly more than market but is staying in budget. This is mainly due to hedging. Mr. Jacobs stated we are staying around \$3 per mmbtu and the budget is about \$3.25 per mmbtu without contingency. Market prices are anticipated to be about the same next year.
- Mr. Jacobs continued with the FY16 Operating Cost to Date report; stating we are half way through the year and about at 50% of budget. Mr. Jacobs reported that by March, most of budget for gas will be spent. There is \$550,000 in contingency for gas and it has not been used as of yet. Total expenses are about 46% and total revenue is about 47% of budget through the first half. Mr. Jacobs compared the budget to FY15 and FY16 Budget stating they are anticipating a 3% reduction in the Metro funding amount next year. FY15 was \$1.7 million and FY16 was \$1.79 million; total expenses and revenues were about the same. Mr. Jacobs stated there is a decrease in the gas cost but it is very small. FY16 and FY17 look to be very good.
- Mr. Jacobs continued with a discussion on the Capital Expenditure Update report stating the report is to the end of December. Mr. Jacobs explained that the R&I account is an account that all Customer except the State contribute to each month. It is used for repair and improvements for the distribution system. They are usually smaller projects. Mr. Jacobs stated \$165,000 was spent this year and there is a balance of \$31,000 as of December 31st. Mr. Jacobs stated that self-funded bonds 49109, 49116, and 49107 are the only bonds that have a remaining balance. Between bonds 49107 and 49109 there is about \$1.9 million left to spend. Mr. Jacob continued with the DES CHP project which was funded by Metro Council last year and stated approximately \$81,000 has been spent for project development. Mr. Jacobs stated they expect the project to start soon. Mr. Jacobs clarified that CHP was Combined Heat and Power.
- Mr. Jacobs continued with the Active Capital Projects Review report stating DES 061 is for cleaning up steel and corrosion in vaults and also doing some repairs. DES 104 is TOU (time of use) project which is a change in the billing system. Mr. Jacobs stated that since we are paying NES for time of use of electricity we need to be able to more accurately pass on those charges to customers for time of use of chilled water system.
- Mr. Jacob continued with DES 110 Alternate Fuels Evaluation stating their first consideration was diesel fuel and whether or not it could be used on the boilers. It was found in the evaluation it was cost prohibited. It would cost upwards of half million dollars to change burners and controls on boilers. Mr. Jacobs stated next was to have a Propane Acquisition Plan, and that Constellation has worked on it and have prepared a plan that was approved. Mr. Jacobs stated that plan included the pre-purchase of 100,000 gallons of propane. Mr. Jacobs

stated they also looked at the addition of a second propane tank in the parking lot of the plant. Mr. Jacobs stated that with the pre-purchase and off-site storage of propane the second tank was not needed.

- Mr. Jacob continued with DES 111 Combined Heat Power stating the engineer has been selected and anticipates construction to start January 2017.
- Mr. Jacob continued with DES 119 Chilled water System Delta T noting that the equipment is installed at courthouse. They want to measure the performance and will wait for another month to get a baseline test.
- Mr. Jacob continued with DES 112. Mr. Jacobs stated there was leak on the condensate line at the Cordell Hull Building and the repairs have been finished and everything is working well.
- Mr. Jacobs continued with DES 117 noting that Manhole S5 repair is completed.
- The next Board Meeting will be held Thursday, May 19, 2016 at 10:00 A.M.

* * * * *