

Quarterly Report to the State Building Commission

Metro Nashville District Energy System

Advisory Board Meetings

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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 November 19, 2015 held at the Energy Generation Facility at 90 Peabody Street in Nashville. Below are key issues that were stated at this meeting:

November 19, 2015 meeting

- The Board recognized former Madam Chair, Karen Bennett with a plaque of appreciation for her many years of service to the Board.
- The floor was opened for the nomination of the Chair. Mr Brian Taylor stated that historically, the position has been filled by an elected official and further made a motion to nominate Councilman, Freddie O'Connell. There being no further nominations, the Board voted in favor of Mr. O'Connell as Chairman.
- Mr. Lackey opened the floor for the nomination of Vice Chair. Mr. O'Connell made a motion to nominate Mr. Brian Taylor. This motion was seconded and the Board voted and approved another term for Mr. Taylor.
- At the request of the Chair, Mr. Taylor continued to preside over the remainder of the Board meeting.
- The Vice Chair made a motion to approve the previous Board meeting minutes, which was seconded. The Board voted and approved the meeting minutes of August 20, 2015.
- Mr. Ragsdale reviewed for the new Board members how DES categorizes the customer base. Mr. Ragsdale stated that DES has three types of customers in each of two groups; Initial System Customers (those who renewed their contract or signed up when the new DES facility was developed) which are then identified as Private, State, and Metro and additional system customers then identified as Private or Metro. Mr. Ragsdale stated that the Energy Generating Facility (EGF) provides steam and chilled water service as a way to heat and cool 41 buildings downtown. This district energy system started in the 1970's when the Waste Energy Plant

utilized the trash to generate the heat to create the steam. This facility now continues to serve those buildings in that capacity.

- Mr. Ragsdale reviewed the Customer Cost Comparison table for the previous 12 month period which includes a cost for energy and a cost for capacity of service. Mr. Ragsdale stated that the table indicates that usage has gone up in the private sector and gone down in the State and Metro sectors. Mr. Ragsdale stated that when usage goes up because a great portion of the cost is fixed; the unit price will go down; on the aggregate the total usage has gone down.
- Mr. Jacobs stated that there is a fixed cost component for all the customers, regardless of energy being used, it is measured in pounds per hour of steam (pph) or tons for chilled water and it's based on customer's building demand. Mr. Jacobs stated that the other component is the variable cost which is made mostly of the utilities and that cost depends on how much energy is being used. Mr. Jacobs stated that this variation is based on the changes in the cost and the changes in the consumption, which is weather related. Mr. Jacobs stated that the change in the consumption is directly related to weather conditions. Consumption is measured in pounds of steam (lbs) and in ton-hours for chilled water (ton-hrs).
- Mr. O'Connell asked if the Convention Center is Metro. Mr. Jacobs said yes, and stated that they are the single largest customer that they have now. Mr. Jacobs referred to the customer map which indicated color codes identifying blue being Metro buildings, green being private customers and yellow being State buildings. Mr. Jacobs stated that the lines in the street connecting the buildings are distribution lines.
- Mr. Jacobs reported that each year there is an escalation of the unit cost; it will be between zero and three percent. For most customers, the fixed cost increases each year relative to an escalator; however, the variable costs are actual costs relative to other utility costs for the production of the steam and chilled water.
- Mr. Jacobs also stated that chilled water cost has gone up due to the fact that electricity cost has gone up. The steam cost has gone down 40.8%, the main reason being natural gas cost dropping. In FY09, natural gas cost was \$13 per mmBTU for steam and now it's \$3 per mmBTU.
- Mr. Ragsdale stated for the new Board members how they identify the contractor's performance criteria in the Power Point Presentation with a visual rating indicator stating how a green dot is for excellent; a yellow dot satisfactory; and a red dot is poor performance. Mr. Jacobs stated that if Constellation is operating the plant well and efficiently, they get a portion of the savings they generate which equates to about \$250,000 per year in bonuses above their base fee.
- Mr. Jacobs reviewed the significance of water treatment at the plant. The contractor's performance is excellent in all the areas of water treatment.
- Vice Chair noted and inquired about a spike in the last quarter actual "Fuel to Steam" efficiency. Mr. Jacobs stated that there were some peculiarities that they have observed and have gone over with Constellation. Mr. Jacobs stated that they have investigated and at this point they do not have an explanation and will continue to monitor.
- Mr. Jacobs stated that the majority of the water that is used at the EGF is evaporated in the cooling towers. There is also a "blow down" from the towers; when that water evaporates it leaves minerals in the tower. The other source of water usage associated with the chilled water is make-up water to the underground energy distribution system (EDS). Mr. Jacobs stated that

they do have a number of leaks which he believes Constellation is close to finding where those sources are.

- Mr. Jacobs stated Constellation has discovered biological contamination in the chilled water system. Constellation discovered about a year ago there are formations of bacteria in the chilled water and they are taking steps to kill it. Mr. Jacobs also noted that this has an impact on the Delta-T issue; Mr. Jacobs stated that this is an issue because the slime, which is a result of the bacteria formation, insulates the system and heat cannot be transmitted efficiently from the customer into the water. As a result of this issue, “Water Treatment” for the chilled water system has received a yellow dot. The effort that is currently under way to correct this problem is hoped to enable a green dot to be awarded next quarter.
- Mr. Jacobs explained and reported to the Board on this quarter’s EGF (Energy Generating Facility) walkthrough, and stated that the facility is in very good condition and Constellation does a very good job therefore getting all green marks. The EDS (Energy Distribution System) walkthrough is made 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. Overall, the EDS is one of the best maintained systems nationally.
- Mr. Jacobs reported the Natural Gas Purchasing practices, stating that they can reduce the amount of hedging because of natural gas prices falling. In order to achieve favorable gas pricing, DES has the ability to use propane and is considered an “Interruptible Customer” by the natural gas supplier. Due to an extreme cold spell and the natural gas delivery system limitations, Mr. Ragsdale stated that DES was put on curtailment for the first time in 2014 and again in 2015. Mr. Ragsdale stated that Constellation has a propane delivery plan. Mr. Hestle stated that they have bought propane this year while the cost is low and they have stored 100,000 gal. off-site which equates to two days’ fuel supply during extremely cold weather. Mr. Ragsdale also stated that they are looking in the near future for other sites to store more propane.
- Chair asked what would be the worst case scenario if steam is lost. Mr. Hestle stated that gas remains an option during curtailment but it becomes extremely costly and the supplier still has the ability to shut the service down. Chair inquired about the risk factor associated with cold weather possibilities. Mr. Ragsdale stated that the conditions are favorable for this area in January and February and the propane acquisition plan prepared by CNE is viable and greatly reduces the risk. Chair inquired about the shelf life of the propane stored. Mr. Jacobs stated that it has to be used by March, 2016.
- Mr. Jacobs continued with the Actual and Projected Gas Cost Comparison History report stating that he is comfortable with what the market is doing. Chair inquired what the percent of hedging was. Mr. Jacobs stated that it varies each month. Mr. Lackey stated that they have curtailed hedging at this point. Chair asked how did the purchase process for the natural gas work. Mr. Jacobs stated DES currently purchases at “spot market” pricing all natural gas that is not hedged. Due to the large volume of gas, gas is purchased at a low price from Twin Eagle, and DES pays Piedmont for the transportation cost.
- Mr. Jacobs then proceeded to review the FY16 Operating Cost to Date report; stating they are within budget; noting that electricity cost seems to go up every year. Chair asked where the debt component of the operating budget originated. Mr. Jacobs stated that originally there was a \$63 million bond issued for the new facility. Mr. Jacobs stated that the Initial System

Customers pay 85% of that original debt. The majority of remaining debt is from additional funding that Metro has provided to maintain the EDS and it is not a reimbursable cost to the Customers. Mr. Jacobs confirmed that MFA cost comes down when new customers are added.

- Mr. Jacobs reported on the Capital Expenditure Update stating that the fund represents remaining un-spent capital funds and is currently at approximately \$2 million.
- The next item on the agenda involved discussion on the Capital Projects Review. Mr. Jacobs stated that some of the projects are funded out of an R&I (Repairs & Improvement) account which is funded through the customers.
- Without further discussion, and upon a motion, the meeting was adjourned at 11:26 A.M.
- The next Board Meeting will be held Thursday, February 18, 2016 at 10:00 A.M.

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