



**Metro District Energy System Advisory Board  
Regularly Scheduled Meeting of**

**February 15, 2018**

**Minutes of Meeting**

**The meeting was held at the Energy Generation Facility at 90 Peabody Street Nashville, TN 37210**

**Facilitators: Dan Coyle, DES Project Contract Administrator and Kevin Jacobs, Thermal Engineering Group (TEG)**

**Board Members Present:**

Freddie O'Connell  
Brian Taylor  
Alan Robertson  
Nicholas Woollen  
Tom Eddlemon (*on behalf of Talia Lomax-O'dneal*)  
Jim Thiltgen (*on behalf of James E Harbison*)

**Others Present:**

Tim Hestle, CNE  
Dan Coyle, TEG  
Kevin Jacobs, TEG  
Bob Lackey, DES Liaison

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The meeting was called to order by the Chair and began at 10:00 A.M.

With no additions, comments or edits to the previous meeting's minutes, a motion was made to approve the minutes and seconded. The Board voted and approved the minutes for the November 16, 2017 meeting.

At the request of the Chair, Mr. Jacobs proceeded with the presentation to the Board.

Mr. Jacobs reviewed the Customer Cost Comparison table for the previous twelve-month period. On an aggregate basis for the previous twelve (12) months, the steam and chilled water total costs remained nearly constant between the two periods. The steam and chilled water consumptions were down over the periods. The past year has been milder for both heating and cooling.

Mr. Jacobs reviewed Historic and Daily Chilled Water EDS Make-up. The review was presented in the form of two graphs showing the chilled water EDS Make-up for each year as of January 2005 to present and a daily graph illustrating 2nd quarter FY18 and January 2018. Mr. Jacobs noted that a leak in the system had been located at Third Avenue and Charlotte Avenue and was repaired in January 2018. Mr. Jacobs explained the other spikes on the graph were due to refilling the CHW system after Nashville Electric Service (NES) made repairs to the electric service at the EGF during October 2017 and after a partial shutdown of the system to make the repairs on the leaking pipe. The average make-up water in the system had been as high as 83 gallons per minute (gpm). The average after the repair of the leak was approximately 27gpm.

Mr. Jacobs alerted the Board of two other leaks: one is believed to be on Third Avenue near the CJC and another on Fifth Avenue near Union Street. The leak on Fifth and Union is believed to be the most severe. Chair O'Connell asked what the ideal gpm would be once the leaks are repaired. Mr. Jacobs answered with



3 or 5 gpm is idyllic. Mr. Coyle and Board members discussed the cost of injecting dye into the system to find leaks. Mr. Coyle explained once leaks are found and repaired the cost is reduced due to the lower cost of city make-up water and the use of the costly dye to locate leaks goes away.

Mr. Jacobs reviewed the DES Contractor Performance for FY18, which included the efficiency and performance tables for steam electric consumption, steam gas consumption, steam water consumption, CHW electric consumption, and CHW water consumption. Constellation's performance continues to remain excellent in all areas.

Mr. Jacobs reviewed the Water Treatment and noted the improvement in the chilled water system bacterial count. The biologicals in the chilled water system have been approximately 99% eliminated. The remote sampling for biologicals at customer sites has revealed extremely low bacterial counts. 80% of the condensate has been returned.

Mr. Jacobs and Mr. Coyle reviewed the EGF (Energy Generating Facility) walkthrough and all areas are good. Mr. Jacobs and Mr. Coyle reviewed the EDS (Energy Distribution System) walkthroughs. The quarterly physical walkthrough of the plant indicates it is very well maintained. The Energy Distribution System's vaults and tunnels are inspected once yearly by reviewing partial sections quarterly. The areas reviewed in the most recent quarter looked relatively good. There is room for improvement by reducing water infiltration into the vaults and addressing the corrosion of metal components within the vaults. Board members, Mr. Coyle and Mr. Jacobs discussed options to mitigate water infiltration and the corrosion of metal components in the vaults and tunnels. Progress is being made with new coating on the metal components and monitoring of the maintenance for the corrosion prevention.

Mr. Jacobs continued with Natural Gas Purchasing review. For the first 6 months of FY18 Gas Spending & Budget not including contingency the actual Steam sendout was over budget by 9%. The fuel usage was close to budget due to the plant operating at a high efficiency. The plant efficiency was at 1.366 dekatherms per one thousand pounds of steam and the unit cost of fuel was at \$3.571 per mMBTU, which is 9.9% below the budget (without contingency). The projected unit costs are down and are expected be lower than originally anticipated in FY19. The pre-contingency cost for FY18 was approximately \$3.90 per mMBTU and approximately \$3.50 per mMBTU is the current price range delivered. The expectation is to remain below budget for FY18. The price contingencies are included if there are any unanticipated fluctuations in the market.

Mr. Coyle continued with the Actual and Projected Gas Cost Comparison History. Mr. Jacobs explain although there has been some hedging in FY18 and some hedging is expected in the future; Gas prices have been decreasing. Current prices are expected to remain below budget for FY18 and decrease even more in FY19. Mr. Jacobs and Mr. Coyle explained the graph in the presentation included propane and transportation costs. The red line on the chart notes market unit prices; the blue line notes actual unit costs in previous months and the expected unit costs in future months. The green line notes the budgeted unit costs without contingencies. Board members discussed gas prices and supply.

Mr. Jacobs continued with the FY18 Costs to Date report. All expenditures appear to be consistent with expectations and within budget. The Fixed Operating Costs (FOC) paid to Constellation was approximately 50% of the budget through the 2nd quarter. The non-energy expenditure was approximately 53% of the budget. The water expenditure was approximately 59% of the budget. The natural gas base expenditure, including the FEA and gas consultant, was approximately 39% of the budget. None of the natural gas contingency budget has been used through the 2nd quarter FY18. The electric expenditure was approximately 49% of the budget. Total expenses were approximately 50% of the budget and total revenues were approximately 45% of the budget. The Metro funding amount was 50% of the budget. The Metro funding amount is an annual appropriation to DES that provides needed funds to pay debt service and operating expenses primarily resulting from unsold capacity.



Mr. Lackey gave an update on the report produced by FVB who was retained by Metro to review options for DES future goals. There has been much discussion with the consultants and the developments were still ongoing. Mr. Lackey expects a comprehensive draft to be given to the Finance Director. Chair O'Connell asked if the consultants or Metro Finance were to present the recommendations to the Board. Mr. Lackey understood that the Finance Director will present the recommendations to DES. Mr. Lackey noted a Draft Report is anticipated by the next DES Board Meeting.

Mr. Jacobs continued with the Capital Expenditure Update report with costs noted up through the end of the 2<sup>nd</sup> Quarter. Mr. Jacobs gave \$436,980 as the amount spent to date for FY18. Mr. Jacobs noted he expects some additional invoices to be submitted for payment. The blasting at 5<sup>th</sup> Avenue and Broadway has caused a number of significant issues. Funds for monitoring and repair were required for damages due to the blasting. Mr. Coyle reviewed Active Capital Projects 133, 133.1, 133.2, 133.3 to highlight some expenses expected to prevent any other damage. Chair O'Connell asked how severe damages were. Mr. Coyle explained they were minor but monitoring and prevention will avoid any future damages. Mr. Coyle also noted once all blasting is complete a report will be given to the city for all damages due to blasting.

The 49109 (2010 Bond Fund) remaining balance has \$22,583. Bond fund 49107 has \$835,880 remaining. Bond fund 49116, with a balance of \$25,831,294 approved for the DES CHP project, is on hold and not available for expenditure. A total of \$985,695 remains available for distribution system related projects.

Mr. Jacobs and Mr. Coyle reviewed the Active Capital Projects Review report.

DES 111 - EFG Combined Heat Power project is on hold

DES 124 - CJC Redevelopment - the building is under construction, but the AA Birch tunnel repairs will be needed. These repairs will be made once the building roof has been constructed on the new Criminal Justice Center building.

DES 124.4 - CJC Reconnection is near completion.

DES 130 - Manhole B3 Repair construction is completed, but DES is pursuing reimbursement from the contractor responsible for damage.

DES 133 - NCC Redevelopment project involves increased demands at the Renaissance Hotel. A new contract with the 5<sup>th</sup> and Broadway Development is currently being discussed but no agreement has been reached. There was additional discussion on options of changes to their operation.

DES 133.1 – The site is being excavated, including blasting. Some fallen rock has occurred in the Broadway Tunnel. A steam division valve was added in the Broadway Tunnel to facilitate the isolation of the Renaissance Hotel from the affected tunnel section if any issues were to occur.

DES 133.2 – Secured rented chillers and boiler on-site at the Bridgestone Arena if any issues were to occur with reinforcement of the Broadway Tunnel.

DES 133.3 – Reinforcement of sections of the Broadway Tunnel was completed December 2017.

DES135 - A leak believed to exist at 5<sup>th</sup> Ave and Union was discovered near Charlotte Ave and was repaired. There are two other leaks that have not been found.

DES 139 – DES Options Review - Draft report expected.

DES 141 - EGF Security Cameras – Project completed.

DES 143 – Manholes N1, N2 and S6 insulation and Repair is in design.

DES 144 – Manholes 6 repair- Piping structural steel cleaning, painting and replacement is in design.

DES 145 – Manholes 9, 11 and K repairs have been completed by Broadway Tunnel contractor to save mobilization costs.

DES 134- 401 Union/Fairlane Hotel – Closed-out and hotel is expected to open soon.

DES 138- Manhole D Repairs – Closed-out

DES 140- Manhole N2 Fence – Closed -out

DES 142- Bobby Hotel – Closed-out and hotel is expected to open soon.

Mr. Jacobs and Mr. Coyle reviewed briefly the FY19 Capital Budget Request. Item one was EDS Repair and Replacement Projects. Item two was General Tunnel Repairs and Improvement. Item three was Service



Connections and Renovations. Item four was Renovation for 5<sup>th</sup> and Broadway. Item five was Water Treatment Improvements.

Mr. Lackey asked the guest in attendance be introduced for the record. Mr. Jason Buyers with Mass Energy introduced himself.

Without further discussion, and upon a motion, the meeting was adjourned at 10:43 A.M.

The next Board Meeting will be held Thursday, May 17, 2018 at 10:00 A.M.

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Prepared by: Jamie Hunter  
Jamie Hunter, Board Recording Secretary

Date: 17 - May 2018

Approved: Bob Lackey  
Bob Lackey, DES Liaison

Date: 17 - May 2018

Approved: Freddie O'Connell  
Freddie O'Connell, Chair, DES Advisory Board

Date: 17 May 2018