



Metro Nashville
DISTRICT ENERGY SYSTEM

**Metro District Energy System Advisory Board
Regularly Scheduled Meeting of
August 17, 2017**

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
Eric Swartz
Jim Thiltgen (*on behalf of James E Harbison*)
Tom Eddlemon (*on behalf of Talia Lomax-O'dneal*)
Alexandra Ewing (*on behalf of Nancy Whittemore*)

Others Present:

Tim Hestle, CNE
Kevin Jacobs, TEG
Bob Lackey, DES Liaison
Dan Coyle, TEG
Randy Pomeroy,
Tom Robinson, Heery International
Jamie Hunter, DES Advisory Board Secretary

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

The Board and others in attendance paused silently for a moment of reflection and respect to honor the memory of Mr. Harry Ragsdale who passed away suddenly May 31, 2017. As a Board and System, we mourn the tragic loss Mr. Ragsdale, our friend, associate and long-time DES Project Contract Administrator. On behalf of the Advisory Board and System customers, we extend our deepest sympathies to Mr. Ragsdale's family and friends and recognize his life's work and achievements in District Energy and as the President of the Thermal Engineering Group for over 26 years. Mr. Ragsdale and will be deeply missed.

Mr. Dan Coyle with TEG introduced himself as Mr. Ragsdale's longtime business partner and shared with the Board he was assuming the role of DES Project Contract Administrator. The Board welcomed Mr. Coyle in this role. At this time the two (2) new private customer Board members were introduced, Mr. Nick Woollen with the Renaissance Hotel and Mr. Eric Swartz with the Schermerhorn Symphony Center. Mr. Woollen and Mr. Swartz described their backgrounds and the Board welcomed them. Mr. Lackey briefly provided background information on the process of adding the two new Board members.

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 May 18, 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 slightly increased between the two periods. The steam consumption was down and the chilled water consumption was higher. Mr. Jacobs explained the costs are largely driven by the electric demand and costs of electric and natural gas utilities.

Mr. Jacobs reviewed the historic chilled water revenues and usages performance table. The table covered information from July 2011 to June 2017. The historic average customer revenue increased only 3.2% over the period. More chilled water is consumed in the summer than the winter, thus the costs are higher in the summer.

Mr. Jacobs reviewed the historic steam revenues and usages performance table. The table covered information from July 2011 to June 2017. The historic average customer revenue for steam decreased 18.7%. Mr. Jacobs explained the spike in the year 2014 was due to the amount of propane used that year during the natural gas curtailment during the Polar Vortex. Overall, the decrease in total cost was largely due to a significant decline in the market price for natural gas. Propane averages about \$12 per mmBTU compared to the average cost of natural gas at \$3 to \$4 per mmBTU. A curtailment in natural gas, due to consistently low ambient temperatures, requires the significant purchase of propane.

Mr. Jacobs reviewed the DES Contractor Performance for FY17 which included the efficiency and performance tables for steam electric consumption, steam gas consumption, steam water consumption, CHW electric consumption, and CHW water consumption. Mr. Jacobs explained the contractor's performance monitoring criteria as identified on the Power Point presentation with the use of the green, yellow and red dots noted on the slides. The green dots indicate excellent performance, the yellow dots indicate satisfactory performance where some improvement may be necessary and the red dots are for poor performance. Constellation's performance continues to remain excellent in all areas.

Mr. Jacobs and Mr. Coyle continued with Water Treatment. Mr. Jacobs discussed the iron and hardness sometimes found in the condensate system is due to domestic water leaking through customer heat exchangers. Mr. Jacobs explained the process for chemical treatment for the hardness and biologicals for the chilled water and the make-up water to the cooling towers.

Mr. Robertson asked about leakage in the chilled water system, and Mr. Coyle explained the system is monitored and maintained; when leaks are found they are corrected as soon as possible.

Mr. Jacobs reviewed the EGF (Energy Generating Facility) walkthrough. 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 and addressing the corrosion of metal components. Board members and Mr. Coyle discussed options to mitigate water infiltration and the corrosion of metal components in the vaults and tunnels.

Mr. Jacobs continued with Natural Gas Purchasing review. FY17 Gas Spending & Budget was under budget by 10% not including contingency. Mr. Jacobs explained the five year averages of usage for all customers are taken as the basis for estimating the natural gas consumption for the budget and then a contingency is added for potential variations in weather and price. The price contingencies are included if there are any unanticipated fluctuations in the market.

Mr. Jacobs continued with the Actual and Projected Gas Cost Comparison History. Mr. Jacobs 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. The post-contingency cost in



FY17 was approximately \$4.00 per mmBTU (million BTU's) and is approximately \$5.00 per mmBTU for FY18. Current prices are in the \$3.00 range delivered and the expectation is to be below budget for FY18.

Mr. Jacobs continued with FY17 Costs to Date report. All expenditures appear to be consistent with expectations and within budget except the water cost. The Fixed Operating Costs (FOC) paid to Constellation was 97% of the budget through the 4th quarter. The non-energy expenditure was approximately 85% of the budget. The water expenditure was approximately 107% of the budget. The natural gas base expenditure, including the FEA and gas consultant, was approximately 97% of the budget. None of the natural gas contingency budget was used for FY17. The electric expenditure was approximately 90% of the budget. Total expenses were approximately 93% of the budget and total revenues were approximately 93% 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 provided additional comment on unsold capacity and efforts to sell the unsold capacity in the downtown area.

Mr. Jacobs continued with the FY17 Cost and Budget comparison. Water was over budget by \$45,300, electric was under budget by \$558,830, fuel was under budget by \$633,946, thus net utilities were under budget by \$1,147,476. CHW sales were 1.3% above the five-year average and steam sales were 14.6% below the five year average. Costs include the FEA, the EDS electric cost (electricity used in the tunnels), and EDS water costs. EDS water costs are due to the condensate tempering stations at two customer buildings. The tempering stations quench the condensate with city water so it may be dumped into the sewer. Condensate is not returned to the EDS at these locations since the buried condensate mains have deteriorated and have not yet been replaced.

Mr. Jacobs continued with the FY18 Budget discussion. The budget includes a cost escalator on various items at 3% since this is the maximum rate permitted by contract on a number of fixed costs. The FOC escalated 0.60%, an increase of 3% over FY17 actual cost. Total FY18 system expenses are budgeted to increase 2.56% over the FY17 budget. Total FY18 customer revenues are budgeted to increase 2.96% over the FY17 budget. The FY18 Metro Funding Amount is budgeted to decrease \$31,500, or 1.83%. A full budget discussion continued including total revenues, Metro funding impacts, and the various line items within the budget that contribute to the MFA.

Mr. Coyle continued with a discussion on project DES 139 DES Options Review. Mr. Coyle stated an update meeting with FVB and Metro Finance was scheduled for later in the month to discuss the options review. In summary, the options include status quo, system expansion, privatization, public/private partnerships. Mr. Coyle expects FVB to provide a report and recommendation in October 2017. Mr. Coyle noted the contract with Constellation to operate the System ends in December 2018 unless an extension is exercised, thus the process to determine future options should proceed as quickly as possible.

Mr. Jacobs continued with the Capital Expenditure Update report; the R&I fund has a remaining balance of \$26,261. The 49109 (2010 Bond Fund) has \$114,626 remaining and bond fund 49107 has \$1,121,198 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 \$1,262,084 remains available for distribution system related projects. Mr. Coyle noted that DES CHP will be a considered as an option for the future of DES. Mr. Coyle, Mr. Lackey and the Board further discussed the possible pros and cons of DES CHP.

Mr. Jacobs reviewed the Active Capital Projects Review report.

DES 061 - MH & Tunnel Steel Corrosion Repair and Prevention project is ongoing.

DES 111 - EFG Combined Heat Power project is on hold

DES 124 - CJC Redevelopment project is on hold while 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 130 - Manhole B3 Repair construction is completed, but DES is pursuing reimbursement from the contractor responsible for damage.



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DES 133 - NCC Redevelopment project involves the demolition of services to the old Nashville Convention Center and the potential re-connection of the new buildings to be constructed on the old site. As of the date of the Board meeting, the Renaissance Hotel has assumed control and operation of the conference center located on Commerce Street and has increased their steam and chilled water demands. A new contract with the 5th and Broadway Development is currently being discussed but no agreement has been reached.

DES 134 - 401 Union Reconnection distribution piping work closed Q4 FY17 and a review of the in-building connection is in process.

DES135 - A leak is believed to exist at 5th Ave and Union (at JPK/ TPAC) but has not been found to date. CNE and TEG are continuing to monitor the area to determine the next action. A hold on excavation and testing in the area was made in May due to entering the peak cooling season. Once the cooling season is over, excavations will resume in the area until the leak is found.

DES 138 - Manhole D Repairs - the project was bid and awarded Q4 FY17 with the work beginning in Q1 FY2018.

DES 139 - FBV selected by Metro to perform future options study and presently reviewing data.

DES 140 - Manhole N2 Fence- CNE received bids and construction is anticipated to start Q1 FY18.

DES 141 - EGF Security Cameras - bids received and CNE's proposal under review.

Mr. Jacobs continued with a review of Capital Projects in Close-out/Closed.

DES 134 - 401 Union St Steam and Chilled Water service distribution piping

DES 137- Cordell Hull CHW Valves are closed.

Without further discussion, and upon a motion, the meeting was adjourned at 11:20 A.M.

The next Board Meeting will be held Thursday, November 16, 2017 at 10:00 A.M.

Prepared by: Jamie Hunter Approved: Freddie O'Connell

Jamie Hunter, Board Recording Secretary

Freddie O'Connell, Chair, DES Advisory Board

Date: Jamie Hunter ^{16-Nov-17}

Date: 16 Nov 2017

Approved: Bob Lackey

Bob Lackey, DES Liaison

Date: 16 Nov 2017