BURNS McDONNELL

Engineering Consultant's Report

on the
Operation and Maintenance
of the Electric System
Fiscal Year 2018

City of Dover, Delaware

Project No. 112624

3/27/2019

Engineering Consultant's Report

prepared for

City of Dover, Delaware
Dover, Delaware

Project No. 112624

3/27/2019

prepared by

Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri

March 27, 2019

Ms. Lori Peddicord
Controller/Treasurer
City of Dover
5 East Reed Street
Weyandt Hall, Suite 300
Dover, Delaware 19901

Re: Engineering Consultant's Report
Project No. 112624

Dear Ms. Peddicord:

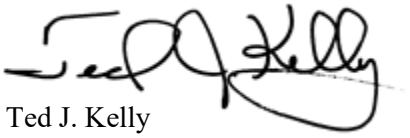
In compliance with the requirements of Section 705 and Section 504 of the City of Dover, Delaware Resolution Authorizing and Securing Electric Revenue Bonds, adopted December 23, 1985 (Resolution), Burns & McDonnell presents this Annual Engineering Consultant's Report on the Operation and Maintenance of the Electric System for the fiscal year ended 2018. This report summarizes our review and assessment of the City of Dover's (City) Electric System, its existing retail electric rates, its insurance coverage in effect, and its reserve funds. Financial, statistical, and operating data used in preparing the report were initially reported in the City's annual financial statements and accounting records. Additional information was furnished by City and Electric Division staff.

In the preparation of this Engineering Consultant's Report, Burns & McDonnell completed assessments of the electric generating stations and the transmission and distribution system of the City's Electric Division. Assessments involved interviews, observations, and review of fiscal year 2018 expenditures and fiscal year 2018 and 2019 budgets. In addition, an analysis of the balances of the Improvement and Extension Fund as well as other funds supporting the Electric Division was performed. Burns & McDonnell also reviewed the adequacy of revenues provided by current retail rates in relation to the requirements of the Resolution. Finally, a high-level assessment of the City's insurance coverage related to the Electric Division was completed.

Based on these reviews and assessments, it is the opinion of Burns & McDonnell that the Electric System is being operated and maintained, including replacements and upgrades as appropriate, in a manner that is consistent with current electric utility practices. In addition, the current retail rates have provided sufficient revenues to satisfy the debt service coverage requirement in the Resolution. Further, it is the opinion of Burns & McDonnell that the balances in the various reserve funds maintained by the City for the Electric Division are sufficient for their intended purposes.

We appreciate the cooperation and assistance provided by the City and the Electric Division staff in the preparation of this report. We will be happy to discuss the report with you at your convenience.

Sincerely,
Burns & McDonnell



Ted J. Kelly
Principal & Senior Project Manager

TJK/apc

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LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
Act	Securities Exchange Act of 1934
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
City	City of Dover, Delaware
DCS	distributed control system
EDQP	Employee Development and Qualification Program
EIA	U.S. Energy Information Administration
FY	Fiscal Year
GWh	gigawatt-hour
I&E Fund	Electric Improvement & Extension Fund
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hour
LAN	local area network
McKee Run	McKee Run Generating Station
MW	megawatt
MWh	megawatt-hour
NAES	North American Energy Services Corporation
NERC	North American Electric Reliability Corporation
NRG	NRG Energy Center
Ohm	standard unit of electrical resistance
PJM	Pennsylvania New Jersey Maryland Interconnection
Report	2018 Engineering Consultant's Report on the Operation and Maintenance of the Electric System

Resolution	Resolution Authorizing and Securing Electric Revenue Bonds, adopted December 23, 1985
VanSant	VanSant Generating Station
TEA	The Energy Authority, Inc.

STATEMENT OF LIMITATIONS

In preparation of the Annual Engineering Consultant's Report on the Operation and Maintenance of the Electric System for the fiscal year (FY) ended 2018 (the Report), Burns & McDonnell relied upon information provided by the City of Dover, Delaware (the City). The information included various analyses, computer-generated information and reports, audited financial reports, and other financial and statistical information, as well as other documents such as operating budgets and current retail electric rate schedules. While Burns & McDonnell has no reason to believe that the information provided, and upon which Burns & McDonnell has relied, is inaccurate or incomplete in any material respect, Burns & McDonnell has not independently verified such information and cannot guarantee its accuracy or completeness. In addition, Burns & McDonnell has used the information provided to make certain assumptions with respect to conditions that may exist in the future. While Burns & McDonnell believes the assumptions made are reasonable for the purposes of the Report, it makes no representation that the conditions assumed will occur.

Burns & McDonnell Engineering Co., Inc. is not acting as a "municipal advisor" for the City of Dover, Delaware within the meaning of Section 15B of the Securities Exchange Act of 1934, as amended (the "Act") and do not owe a fiduciary duty to the City pursuant to the Act with respect to the information and material contained in this Study and our communications.

1.0 – EXECUTIVE SUMMARY

1.0 EXECUTIVE SUMMARY

1.1 Introduction

The Fiscal Year 2018 Engineering Consultant's Report on the Operation and Maintenance of the Electric System (Report) has been prepared in compliance with the requirements of the City of Dover, Delaware Resolution Authorizing and Securing Electric Revenue Bonds, adopted December 23, 1985 (Resolution). Burns & McDonnell was retained as the Engineering Consultant by the City of Dover, Delaware (City) to complete an inspection of the Electric System and prepare a report on findings. The Resolution requires that the Engineering Consultant complete the following:

"The City covenants that it will cause the Engineering Consultants employed under the provisions of Section 705 of this Resolution . . . to make an inspection of the Electric System at least once each fiscal year and . . . to submit to the City Manager a report setting forth (a) their findings whether the properties of the Electric System have been maintained in good repair, working order and condition and whether they have been operated efficiently and economically and (b) their recommendation as to

(i) the proper maintenance, repair and condition of the Electric System during the ensuing fiscal year and an estimate of the appropriations which should be made for such purposes,

(ii) the insurance to be carried under the provisions of Article VII of this Resolution,

(iii) the amount that should be deposited during the ensuing fiscal year to the credit of the Improvement and Extension Fund for the purposes set forth in Section 510 of this Article,

(iv) the extensions, improvements, renewals and replacements which should be made during the ensuing fiscal year, and

(v) any necessary or advisable revisions of the electric rates."

This is the fourteenth annual Engineering Consultant's Report prepared for the City by Burns & McDonnell.

1.2 Electric System Overview and Assessment

The City of Dover Electric Division served a monthly average of 25,011 accounts in fiscal year 2018, approximately 20,545 of which were residential customers. Five Electric Division customers take service from the 69-kV transmission system. These customers include the Dover Air Force Base, Kraft, Proctor

& Gamble, White Oak Solar and NRG Energy Center (NRG). NRG is an exempt wholesale generator that sells power that must be transmitted through the City's transmission system to third party purchasers. When the NRG plant is not operational, the Electric Division provides power for the plant site.

1.2.1 General Plant

General plant facilities consist primarily of Electric Division administrative and operations facilities and pollution control related equipment on McKee Run Generating Station (McKee Run) and VanSant Generating Station (VanSant). Other types of general plant include office furniture and equipment, transportation and power-operated equipment, and communication equipment.

Effective July 1, 2011, the City entered into an Energy Management Agreement with The Energy Authority, Inc. (TEA) to assist the City with its energy procurement, energy sale, purchase of fuels, establishment and management of risk policies, and the development and management of hedging protocols and related energy procurement challenges. Headquartered in Jacksonville, Florida, TEA is a public power-owned, non-profit corporation that serves as an energy manager. As a national portfolio management company, TEA evaluates challenges, manages risks and executes solution for client systems.

1.2.2 Production Plant

The City owns two generating plants, the McKee Run and VanSant generating stations. McKee Run consists of one steam turbine generating units with a total capacity of 102 megawatts (MW). VanSant is a 39 MW simple-cycle combustion turbine unit. NAES Corporation operates the generating plants. The agreement between the City and NAES Corporation has been in effect since July 1, 2006. The various systems and components of the generating plants reviewed by the Engineering Consultant are listed below:

Major Equipment

- Steam turbines/generators
- Boilers and auxiliaries
- Station cooling water systems
- Fuel handling systems
- Water treatment systems
- Station electrical systems
- Station control systems
- General facilities

Management and Organization

- Safety
- Training
- Staffing

Based on statements and information provided by the City, as well as the observations and reviews performed, it is the Engineering Consultant's opinion that the City's power generation facilities are being operated and maintained consistent with generally accepted electric utility practice in the United States. In general, the performance, operation, maintenance, staff, planning, and training aspects for the McKee Run and VanSant were found to be above average. Specifically, the generation facilities have demonstrated an appropriate level of availability despite the dispatching of the units primarily for peak demand.

1.2.3 Transmission and Distribution Plant

The transmission and distribution network includes 43.07 miles of overhead transmission lines, 0.12 miles of underground transmission lines, 179.14 miles of overhead distribution lines and 291.40 miles of underground distribution lines. Five Electric Division customers take primary service from the 69-kV transmission system. The following list includes areas of the transmission and distribution system that were considered and reviewed.

- System reliability
- Power quality
- Operations and maintenance
- Design standards and specifications
- Transmission and distribution improvements

It is the Engineering Consultant's opinion that the design, construction, operation, and maintenance of the City's electric transmission and distribution system and the associated facilities are consistent with current generally accepted electric utility standards. In recent years, the City has made several appropriate upgrades and improvements which the Engineering Consultant has observed while conducting the reviews and assessments to complete the annual reports.

1.3 Financial Overview and Assessment

The level of revenues required from the retail electric rates for the Electric Division were determined through the analysis of the financial results and net income or net margins for FY 2018. The Resolution requires that the Electric Division maintain a debt service coverage ratio of 1.25.

Customers of the Electric Division of the City were charged for the electric service received based on the City's rate schedules and contracts that were in place in FY 2018. A comprehensive cost-of-service and rate design study was completed in 2018 to examine revenue requirements and revenue generation. Specifically, the 2018 rate study was conducted to address the total cost of providing electric services, the allocation of the various customer classes, and design rates to safeguard the financial integrity of the utility. The findings of the study recommended a system wide decrease in user charge revenues of 5.3 percent.

Total energy sales increased from 745 GWh in FY 2017 to 750 GWh in FY 2018. Total revenue from sales to electric customers in FY 2018 was $82.7 million, representing an increase of $650,000 from FY 2017. In FY 2018, the average revenue per kWh for residential customers was 12.89 cents and the system-wide average price was 11.01 cents per kWh.

The Electric Division's largest cost in providing electric service to its customers is the wholesale cost of power purchased from the Pennsylvania New Jersey Maryland Interconnection (PJM) marketplace through its energy manager, TEA. From FY 2017 to FY 2018, the cost of power increased from $43.6 million to $47.2 million. Net income was a positive $11.2 million in FY 2017 and decreased to a net income of $1.5 million in FY 2018. The net income decrease in FY 2018 was due to an increase in total operating and non-operating expenses such as higher power supply costs, retiree health care, and distribution to customers.

Following is an excerpt from Section 502(c) of the Resolution.

> *"(c) The total amount of the Revenues of the Electric System during the preceding fiscal year shall have been not less than the total of the following:*
>
> *The Current Expenses of the Electric System during the current fiscal years shown by the Annual Budget . . . for such fiscal year, and*
>
> *One hundred twenty-five percent (125%) of the maximum amount of the Principal and Interest Requirements for any fiscal year thereafter on account of all bonds then Outstanding under the provisions of this Resolution."*

The Resolution requires that annual revenues of the Electric Division be no less than the total current expenses plus 125 percent of the greatest remaining annual debt service. The Electric Division achieved debt service coverage ratios for FY 2016, FY 2017, and FY 2018 of 8.04, 17.46, and 10.97 respectively.

Therefore, the revenues generated by the current electric rates have been sufficient to meet the applicable covenant of the Resolution.

The City maintains a comprehensive insurance program to cover varying types of liabilities, as well as significant losses related to various Electric Division properties. It is the opinion of Burns & McDonnell as Engineering Consultant, and not as insurance counselor, the insurance in full force and affect appears to satisfy the requirements of Section 706 of the Resolution.

The City established the Electric Revenue Fund and the Electric Improvement & Extension (I&E) Fund to make money available for specific purposes when they are needed. The following is a list of these funds' respective cash accounts:

Electric Revenue Fund

- Insurance Reserve Account
- Contingency Reserve Account
- Electric Rate Stabilization Reserve Account
- Interest and Sinking Account

Electric Improvement and Extension Fund

- Depreciation Reserve Account
- Future Capacity Reserve Account

The Engineering Consultant reviewed activity information on the accounts listed above and found that the balances in those accounts as of June 30, 2018, were consistent with the required or target balances.

1.4 Conclusions

Based on the reviews and assessments completed, it is the opinion of Burns & McDonnell that:

1. The City's power generation facilities are being operated and maintained consistent with accepted electric utility practice in the United States.
2. The design, construction, operation, and maintenance of the City's electric transmission and distribution system and associated facilities are consistent with generally accepted electric utility standards. The system has been upgraded to improve operation, reliability, and service quality to customers.

3. The Electric Division capital projects included in the City's Capital Investment Plan and the FY 2019 Operating Budget are necessary and should provide improved reliability and power quality for the Electric System.
4. The balances as of June 30, 2018, for the various reserve funds maintained by the City for the Electric Division appear to be sufficient for their defined purposes.
5. The insurance coverage in full force and affect as maintained by the City related to the various assets of the Electric Division appears to satisfy the requirements of Section 706 of the Resolution.
6. The electric revenues generated by the City's current retail rates are more than sufficient to fulfill the debt service coverage requirement defined in Section 502(c) of the Resolution.

2.0 – INTRODUCTION

2.0 INTRODUCTION

The City of Dover, Delaware (City) operates a municipally-owned electric utility system that served 25,011 customers, excluding lighting, within the City and surrounding areas at the end of FY 2018. The 68 square-mile service area of the electric utility is in central Delaware; with the City, itself located approximately 70 miles south of Philadelphia, Pennsylvania.

2.1 Purpose of Report

This FY 2018 Annual Engineering Consultant's Report (Report) has been prepared in compliance with the requirements adopted December 23, 1985 of the City of Dover Electric Bond Resolution (Resolution). Burns & McDonnell was retained by the City as the Engineering Consultant defined in Section 705 of the Resolution, as follows.

> *"The City covenants that it will, for the purpose of performing and carrying out the duties imposed on the Engineering Consultants under the provisions of this Resolution, employ an independent engineer or engineering firm or corporation having a nationwide and favorable repute for skill and experience in such work."*

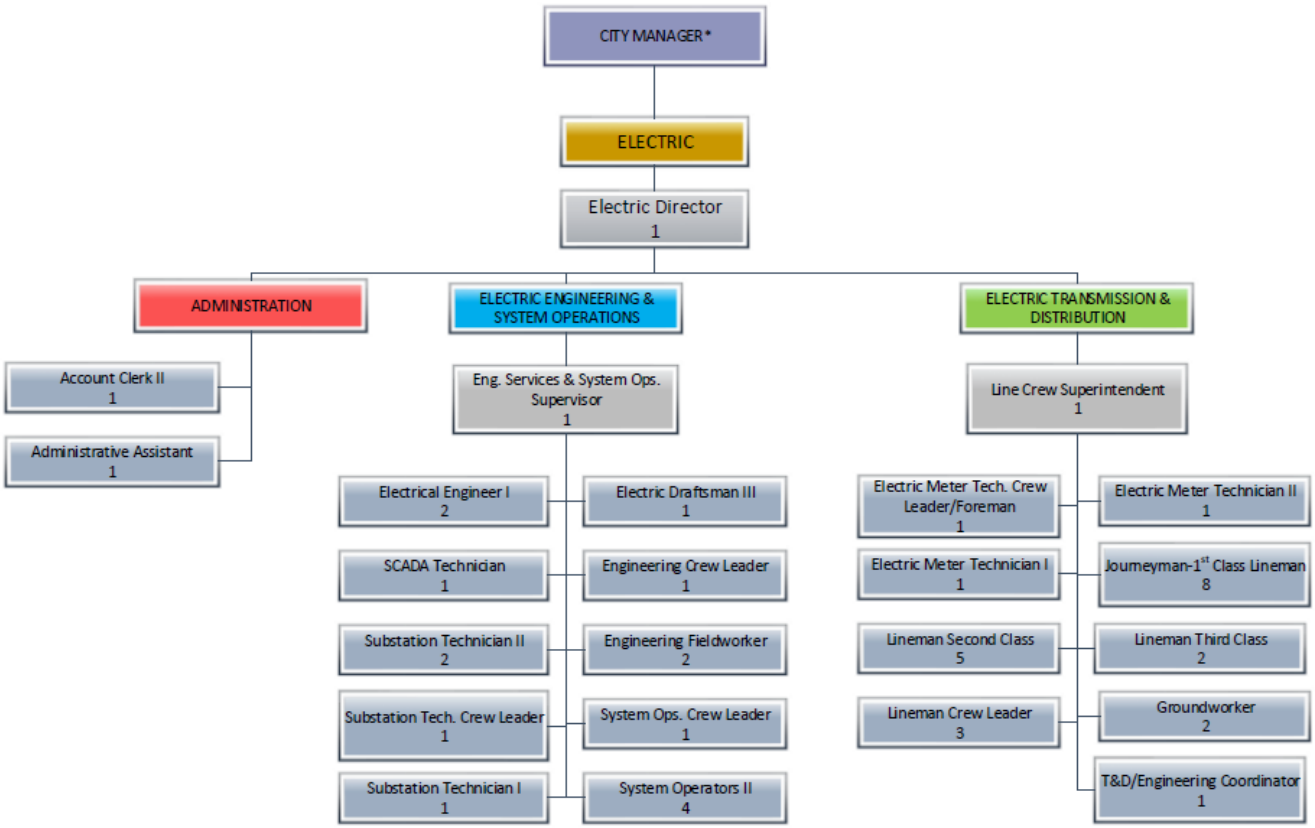
The required scope of the Report is described in Section 504 of the Resolution, as follows.

> *"The City covenants that it will cause the Engineering Consultants employed under the provisions of Section 705 of this Resolution . . . to make an inspection of the Electric System at least once each fiscal year and . . . to submit to the City Manager a report setting forth (a) their findings whether the properties of the Electric System have been maintained in good repair, working order and condition and whether they have been operated efficiently and economically and (b) their recommendation as to*
>
> *(vi) the proper maintenance, repair and condition of the Electric System during the ensuing fiscal year and an estimate of the appropriations which should be made for such purposes,*
>
> *(vii) the insurance to be carried under the provisions of Article VII of this Resolution,*
>
> *(viii) the amount that should be deposited during the ensuing fiscal year to the credit of the Improvement and Extension Fund for the purposes set forth in Section 510 of this Article,*
>
> *(ix) the extensions, improvements, renewals and replacements which should be made during the ensuing fiscal year, and*
>
> *(x) any necessary or advisable revisions of the electric rates."*

2.2 Organization

The Electric Utility Director is responsible for the overall management of the Electric Utility Division. The Electric Utility Director position for the Electric Division was filled in 2018 as Jim Robinson was hired by the City. The Electric Director oversees the day-to-day operations of the Electric Division and manages the Division's staff. The Director also provides oversight of the production plant budget, monitors the contracts of the energy coordinator and the power generation operator/manager, and is responsible for North American Energy Services Corporation (NAES Corporation) contracts and oversight. The Electric Division is currently organized as shown in Figure 2.1.

Figure 2-1: Electric Division Overall Structure



Administration Section – Administration provides the overall management of the Electric Division's Engineering and Transmission & Distribution Sections. This section performs all planning and budgeting, monitors all construction projects, administers all power supply and generating station operations agreements, and coordinates with customer service and public relations for the Electric Division.

Electric Engineering Section – Electric Engineering provides design, specifications, construction management, and project inspection for all capital investment projects of the Electric Division. This

section also develops and maintains maps, plans, and specifications, as well as engineering standards for construction and maintenance of the Electric System.

The group formerly known as the System Operations Section has been reorganized as part of the Electric Engineering Section. This group is responsible for the operation of a 24/7 system operations control center and is comprised of the System Operators Crew Leader and the Operators.

Transmission & Distribution Section – Transmission & Distribution constructs, operates, and maintains the overhead and underground electric systems and fiber optic communication facilities. This section installs and maintains all electric metering, as well as street and security lighting. This section also investigates and resolves customers' power supply problems and oversees the work of tree trimming contractors.

Figures 2-2 through 2-4 provide organizational charts illustrating the staffing hierarchies of the various sections in the Electric Division. The number of individuals in each position is indicated as appropriate. Electric Division staff totaled 45 at the time this report was issued.

Figure 2-2: Administration Section

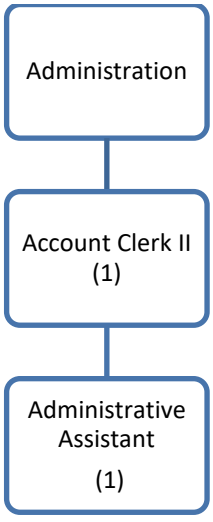


Figure 2-3: Electric Engineering Section

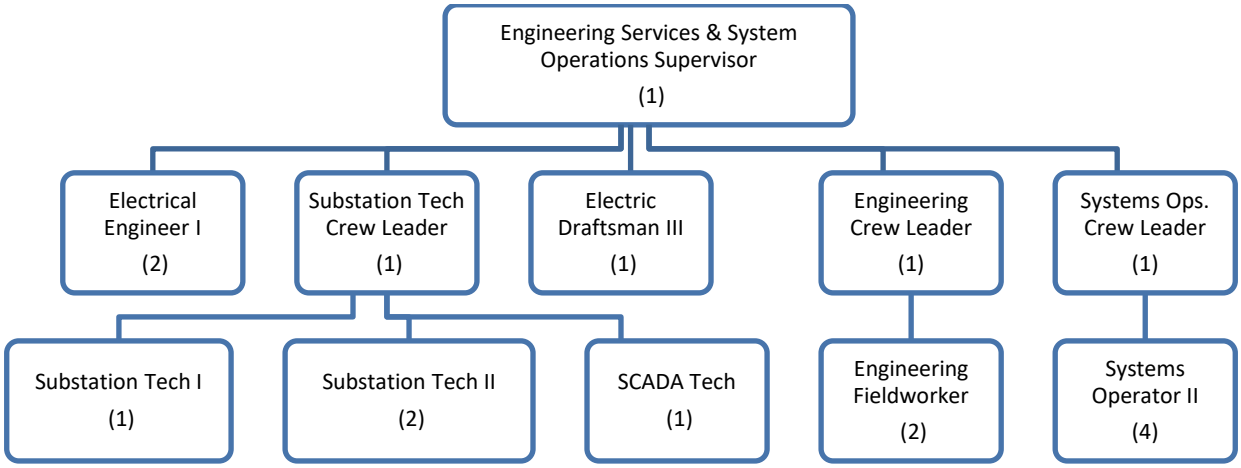
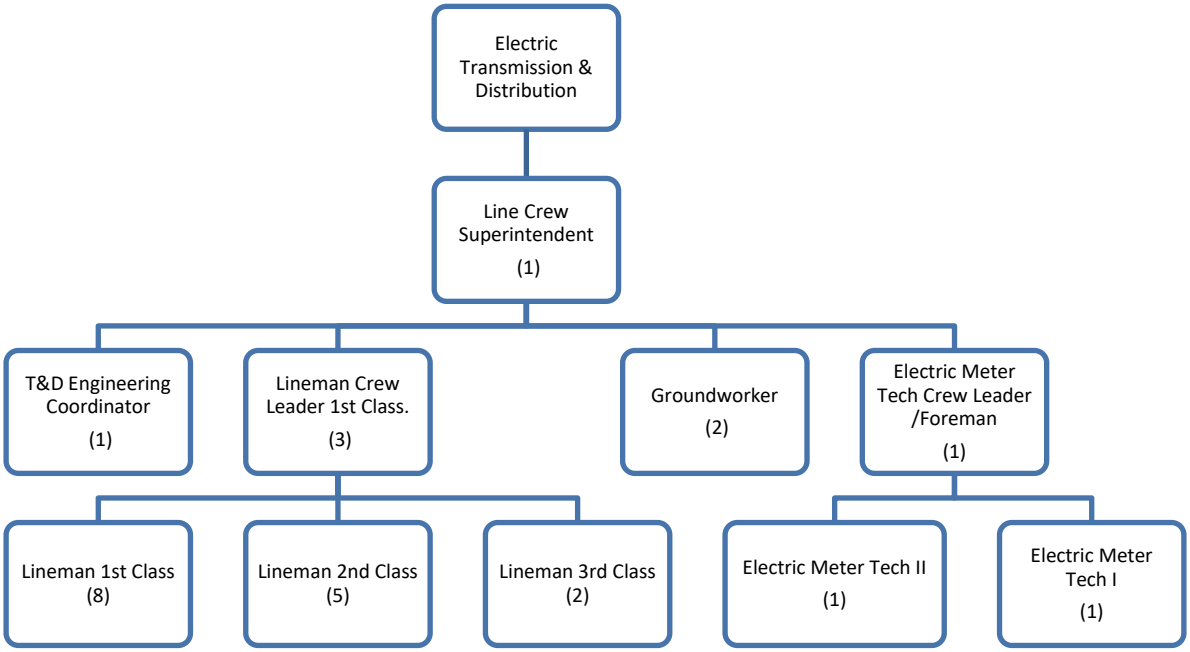


Figure 2-4: Electric Transmission & Distribution Section



The subsequent sections of the Report provide a discussion of the required reviews and inspections conducted pursuant to Section 504 of the Resolution. Section 3.0 describes the assessment of the Electric System and its condition. Section 4.0 presents the financial results for the Electric Division, including an analysis of the adequacy of revenues provided by the electric rates. Section 5.0 summarizes the conclusions of Burns & McDonnell regarding the operation and maintenance of the Dover Electric System.

Based on the system assessment completed last year, it is proposed that the Electric Division be organized into four separate operating sections. Descriptions of the proposed Electric Division sections are provided below.

Administration – This group provides the overall administration to the Electric Division. It oversees the electric generating plants' operation and maintenance contract and the power supply management agreement. The Administration group is taking point in preparation of the City for the pending small cell wireless telecommunications equipment on the Division's poles and leading the implementation of recommendations of the Electric Utility Benchmarking Assessment issued in June 2018.

Engineering – This group provides engineering expertise to design, map, oversee the proper installation and integrity of the City's electric infrastructure and to provide specifications to internal staff, contractors, and developers in a timely and professional manner. These are the "faces" of the Division as they serve as liaisons between developers, construction managers and tenants during the design and construction process. Engineering is presently leading a comprehensive assessment of the system's 15 electric substations, a multi-year program designed to maintain system reliability through equipment upgrades and a robust preventive maintenance program.

Transmission & Distribution – This group constructs, operates and maintains the electric transmission and distribution system of the City along with adjacent towns and Kent County areas. This is done in accordance with recognized prudent utility practices; which will result in the reduction of power interruptions and ensure the safe and reliable operation of the electric system. The coming years will bring a conversion of the City's roadway lights to LED and installing advanced metering infrastructure (AMI) which will enhance customer billing and provide an outage management system to assist in more timely identification and efficient restoration of power.

System Operations – This group monitors the operations of the Division's transmission and distribution system on a 24/7 basis, utilizing an up-to-date SCADA (supervisory control and data acquisition) system. It coordinates the Division's response to unplanned electric power outages, facilitates planned outages and records the activity. It also monitors the City's key water and wastewater pumping stations and dispatches Public Works crews as needed.

3.0 – ELECTRIC SYSTEM OVERVIEW AND ASSESSMENT

3.0 ELECTRIC SYSTEM OVERVIEW AND ASSESSMENT

3.1 Electric System Overview

The Electric System owned by the City primarily consists of a production plant, transmission plant, distribution plant, general plant facilities, and construction work in progress. Table 3-1 displays the year-end balances of the various plant components for FY 2016 through FY 2018.

Table 3-1: Year-End Plant in Service

	FY 2016	FY 2017	FY 2018
Capital assets, not being depreciated			
Land	$ 1,458,066	$ 1,458,066	$ 1,458,066
Construction in progress	2,265,262	1,926,837	3,003,311
Total capital assets, non-depreciable	$ 3,723,328	$ 3,384,903	$ 4,461,377
Capital assets, being depreciated: [1]			
Buildings		$ 14,480,088	$ 14,480,088
Vehicles and Equiptment		28,007,915	28,266,103
Transformers, Meters, T&D & Fiber Optic		63,034,454	63,908,180
SS, Switch Yards, Switchgears		36,140,486	36,550,989
Boiler, Turbo Generators, Cap Int - VS		37,325,396	39,122,189
Other (Streets, EST, Swr Lines, Wells, Eng &		7,662,501	7,662,501
Total capital assets, being depreciated	$ 188,320,777	$ 186,650,840	$ 189,990,050
Less accumulated depreciation for: [1]			
Buildings		$ (9,949,503)	$ (10,314,516)
Vehicles and Equiptment		(22,833,249)	(23,422,828)
Transformers, Meters, T&D & Fiber Optic		(33,735,766)	(35,499,747)
SS, Switch Yards, Switchgears		(13,659,290)	(14,627,704)
Boiler, Turbo Generators, Cap Int - VS		(23,352,034)	(24,204,794)
Other (Streets, EST, Swr Lines, Wells, Eng &		(5,936,915)	(6,108,865)
Total accumulated depreciation	$ (108,366,795)	$ (109,466,757)	$ (114,178,454)
Total capital assets, being depreciated, net	79,953,982	77,184,083	75,811,596
Total capital assets, net	$ 83,677,310	$ 80,568,986	$ 80,272,973

[1] In FY 2017 the City modified the details pertaining to Capital Assets. FY 2016 details are not available.

In FY 2018, the Electric System experienced an increase in the annual system peak demand and an increase in annual energy sales from the previous year. The Electric System experienced its peak at 4 p.m. on July 13, 2017 of 162.874 MW; an increase of approximately eight percent from the previous year. For the year 2018, 750 GWh of energy were sold; an increase of nearly 0.7 percent from the preceding year. The Electric Division projects energy sales in FY 2019 to total 754 GWh[1], which is a slight increase to energy sales from 2018. The Electric Division expects annual energy sales to remain at current levels for the near term.

[1] 754 GWh was the projected load forecasted in the Electric Rate Study completed by NewGen Strategies & Solutions in 2018

3.1.1 Production Plant

The City owns two plants, the McKee Run and VanSant generating stations. McKee Run currently consists of one steam turbine generating unit with a capacity of 39 megawatts (MW). Generating Unit 1 and Unit 2 from McKee Run stations were retired in June 2017. VanSant is a 39-MW simple-cycle combustion turbine unit.

NAES Corporation operates the generating plants. The organizational structure of NAES has changed based on the city's request and general operating requirements. The agreement between the City and NAES Corporation has been in effect since July 1, 2006. The Engineering Consultant's observations regarding the generating stations and units are described later in this section of the Report.

Effective July 1, 2011, the City entered into an Energy Management Agreement with The Energy Authority, Inc. (TEA) to manage the sales associated with the production plants; the Electric Division's first contract with TEA. TEA also assists the City with its energy procurement, energy sales, purchase of fuels, establishment and management of risk policies, the development and management of hedging protocols and related energy procurement challenges.

3.1.2 Transmission and Distribution Plant

The transmission and distribution network includes 43.07 miles of overhead transmission lines, 0.12 miles of underground transmission lines, 179.14 miles of overhead distribution lines and 291.40 miles of underground distribution lines. The Electric Division provides primary service to several customers directly from the 69-kV transmission system. These customers include the Dover Air Force Base, Kraft, Proctor & Gamble, White Oak Solar and NRG Energy Center (NRG). NRG is an exempt wholesale generator that sells power that must be transmitted through the City's transmission system to third party purchasers. When the NRG plant is not operating, the Electric Division provides power for the plant site.

The Electric Division has two contracts for providing transmission service through the Electric System. The Electric Division provides transmission service to NRG for the output of its 16 MW electric generator. The Electric Division also has a point-to-point contract for the output of an NRG Combustion Turbine which ties directly to the Kent Substation and is not part of the Dover transmission system.

3.1.3 General Plant

The general plant category consists primarily of Electric Division administrative and operations facilities, and pollution control-related equipment at McKee Run and VanSant. The agreement with NAES Corporation stipulates NAES Corporation manage the operation and maintenance of the facilities while the City funds all replacements and upgrades required for maintaining the capability of the two generating

stations. The City is also responsible for the costs of compliance with new regulations promulgated. Other types of items included in the general plant category include office furniture and equipment, computer-related equipment, transportation and power-operated equipment, and communication equipment. Burns & McDonnell did not specifically assess the items in the general plant category for this Report.

3.2 Production Plant Assessment

Burns & McDonnell made observations and conducted assessments of the Electric System assets in support of the development of this annual Engineering Consultant's Report. On February 8, 2019, Mr. Ted Kelly of Burns & McDonnell met with representatives of NAES Corporation to discuss the condition of the McKee Run and VanSant generating stations. Mr. Stacy Johnson, Plant Manager, coordinated the visit. The findings of Burns & McDonnell from the assessment of the City's production plant assets are documented herein.

3.2.1 Production Plant Operations

McKee Run consists of three units. Units 1 and 2 were originally coal-fired units, which began operations in 1961 and 1962, respectively. In 1972, these units were converted to burn No. 6 fuel oil. Units 1 and 2 were retired in June 2017. Unit 3 began operations in 1975 and was designed to fire No. 6 fuel oil and natural gas. Unit 3 has a rated capacity of 102 MW. Work was completed in previous years that allowed all three units at McKee Run to burn No. 2 fuel oil to reduce pollution from the plant. The necessary upgrades and new equipment were installed allowing each of the units to burn both natural gas and No. 2 fuel oil.

VanSant consists of a simple cycle combustion turbine with a rated capacity of 39 MW. This unit commenced operation in 1991. An inlet fogging system was installed in the spring of 2015 and capacity testing performed in June 2015 proved a 4 MW increase in unit capacity. VanSant remains unmanned, except when it is dispatched into service. On the occasions when the unit is dispatched, it can be started remotely then personnel from McKee Run travel to VanSant to check on the unit and operate until the unit dispatch is released by PJM. The restore remote start capability allows the unit start time to be reduced to 15 minutes, whereas when personnel are required to get to the unit execute the start, 1 hour is required for starting time.

3.2.1.1 Management and Organization

Station management is well organized and knowledgeable. Personnel take a logical approach to the operation and maintenance of the generation facilities. Mr. Stacy Johnson is the plant manager. The management/leadership team consists of eight positions including Mr. Johnson's position. The

Maintenance Manager, Plant Administrator, Operations Manager, Business Manager, and Compliance Coordinator, all report directly to Mr. Johnson.

The Plant Engineer oversees and assists with plant operations and engineering compliance. He works closely with the Maintenance Manager and Operations Managers to ensure all plant parameters are observed and equipment can be operated per the OEM operating procedures. He provides engineering review for plant modifications and the management of change program. When fully staffed, each operations team consists of an operations supervisor and three operators working 12-hour rotating shifts. The maintenance team consists of a supervisor and five employees per shift, working eight-hour shifts. The operations and maintenance hourly personnel are all union employees. The relationship between the union and management was reported to be excellent. McKee Run is currently at a staff level of 23 employees.

3.2.1.2 Major Equipment Operations and Maintenance

In general, the generation facilities appear to have been properly operated and maintained, and in good condition as evidenced by the high availability of the units. The generation facilities are dispatched sparingly and operate primarily as peaking units. As such, the individual units incur a low annual capacity factor. Table 3-2 summarizes the major FY 2018 operating statistics.

Table 3-2: FY 2018 Generating Plant Operating Statistics

Unit	Rated Capacity - MW	Net Production - kWh	Net Capacity Factor	Net Heat Rate Btu/kWh	Number of Starts
VanSant	39	4,513,616	1.32%	15.368	48
McKee Run					
Unit 1	-	-	-	-	-
Unit 2	-	-	-	-	-
Unit 3	102	22,242,029	2.49%	11.620	30
Total	141	26,755,645	2.17%	14.114	78

Unit	Forced Outage Hours	Operating Hours	Service Factor	Availability Factor
VanSant	52.5	130.0	1.48%	96.25%
McKee Run				
Unit 1	-	-	-	-
Unit 2	-	-	-	-
Unit 3	-	354.7	4.05%	86.14%
Total	52.5	484.6	5.53%	91.2%

The large amount of time that units are not operating allows for maintenance and repair of the units. Thus, the FY 2018 overall equivalent availability factor for the generation facilities averaged 91.2 percent. Low net capacity factors are offset by PJM capacity credits and spot market energy. In FY 2018, $10.1 million of PJM capacity credits and spot market energy helped to partially cover the purchased capacity costs. PJM capacity credits to offset portions of system capacity costs in FY 2019 and beyond are expected but will likely decline. If the credits decline significantly or go away, strong consideration should be given to retiring Unit 3 at McKee Run. This is subject to change in the future.

3.2.1.3 O&M Management System

Maintenance activities are organized, planned, and managed by the Maintenance Manager. Using MP2[tm] by CMMS Data Group, a computer-based management system. All three major categories of maintenance activities (corrective, preventative, and predictive) are electronically managed by MP2[tm]. The City is getting better use of the system and is improving on their outstanding work orders, reducing from approximately 400 to close to 100 open work orders during 2017. The improvement has continued into FY 2019, with 49 outstanding work orders in December of 2018.

For corrective maintenance activities, any station operator or mechanic can enter a work order into the system at any terminal on the Station local area network (LAN). A supervisor reviews the request, turns it into a work order, and assigns a priority per a predetermined categorization. The work order is planned, parts are ordered, and then the work order is assigned to an operator or maintenance technician for completion once the material has been received.

This system is also used to manage and track preventative maintenance activities that follow a schedule. Changing filters and turning on and off heat tracing are examples of preventative maintenance. Predictive maintenance activities practiced include oil analyses, vibration testing, and infrared surveys. Portable vibration testing equipment is used at the Stations to improve the frequency of and capabilities to trouble-shoot rotating equipment. This technology allows personnel to identify problems and take corrective actions before equipment failure can occur.

In FY 2016, the City started or planned several general upkeep items at the plants as well as initiated several larger items. Since FY 2016, the plant was winterized to keep the temperature above 40 degrees Fahrenheit to shorten the time to reach full capacity. The power plant also reinstated the remote start capability of the VanSant unit to allow quicker dispatch time, improve PJM's dispatch of the combustion turbine and earn better revenue ultimately to comply with market requirements and the PJM Capacity Performance program.

3.2.1.4 Safety

"Safety First" is an overall theme and attitude of the Electric Division. Near-miss incidents are documented, reviewed, and corrective follow-up actions are taken as required with an employee-run safety committee actively in place. This committee conducts monthly safety meetings, completes safety equipment inspections, and defines and implements tasks to improve safety in all areas. Members of the safety committee complete periodic visual inspections of employee work activities utilizing an observation checklist to detail their findings. Recorded observations are discussed, and infractions corrected. Safety is the first topic discussed at all meetings at the generating plant, prior to the start of each meeting a "safety moment" is discussed, before the morning management meeting and at the beginning of each shift turnover. An indoctrination video emphasizing safety is shown to all visitors when entering the Station.

For FY 2018 there were no lost time accidents so the updated lost time accident rate for the City of Dover generation plant is zero. The Plant Manager has made a strong commitment to improving the safety

culture to reduce or eliminate recordable accidents at the sites through a NAES Safe approach and focus of all employees. The last recordable incident at the plant was on April 16, 2015.

3.2.1.5 Training

The required annual OSHA compliance training is completed and documented for each employee. A formal two-day employee orientation program is required for all new employees. This orientation covers a multitude of subjects from employee benefits to a review of the various Station operating manuals.

For operator training, the Employee Development and Qualification Program (EDQP) was established prior to 2002. EDQP is a formal program for training operators to progressively advance to positions with additional responsibilities. The training program is a combination of a self-paced and instructor-led learning. In addition to the above programs, cross training of various disciplines also occurs. An example of cross training would be plant operators training with maintenance staff. NAES has replaced the EDQP program with the standard NAES Training Manual, it is made up of qualification levels more applicable to the specific technology operated at the City of Dover utility. NAES implemented the current training manual qualifications procedure in 2015 an all new employees are being trained per this training program. As current employees complete their existing EDQP qualification level they are shifted in to the NAES TMP Manual program.

Plant staff receive environmental and safety training online via the GPi Learning website. The training includes tutorials and exams to ensure comprehension of the subject matter. Plant manuals, meetings, and lessons learned offer additional safety training topics. The plant staff also performs safety stand downs based on industry events, lessons learned and best practices that occur in other NAES operated facilities and the industry at large.

Plant staff continues to receive appropriate operator certification training for the Pennsylvania New Jersey Maryland Interconnection (PJM) market. This training will continue in the future and is funded by the City to ensure their operators are knowledgeable and conform to the PJM required operator directions when required. The plant also performs, plans, and schedules continuing education training on a regular basis for certified PJM plant operators. Non-certified operators are also encouraged to attend this training to help them prepare for operator certification which is an expectation of all operators by their 18 months' anniversary at the generation plants.

3.2.1.6 Capital Improvements

The following table describes 2018 fiscal year on-going and planned Capital Expenditures for the system. The table is organized into three categories, completed and on-going planned improvements to the City's assets:

Table 3-3: Fiscal Year 2018 On-going/Planned Capital Expenditures

Transmission & Distribution		
Switchgear Replacements	$	56,135
Transformer Replacement		22,396
Replacing Underground Cable		21,257
Meter Tests		58,214
UG Transformers		224,637
UG Conductors		321,576
Switchgear Replacement		373,835
Subtotal Electric Transmission Division	$	1,078,050
Production		
VanSant Remote Start	$	44,440
ID Fan Inlet Expansion		14,859
Boiler Clip Installation		68,562
Replacements		116,020
VanSant Unit 11 Major Overhaul		1,796,793
Subtotal Electric Generation Division	$	2,040,674
Electric Engineering		
Lighting Project	$	25,066
Distribution Upgrades		223,686
Installation of Distribution Capacitors & Controls		16,039
Subtotal Electric Engineering Division	$	264,791
Total Planned Capital Investment Projects	**$**	**3,383,515**

[1] Data from "Electric Capital Improvments 2018.xls" provided by City of Dover Finance Department.

3.2.2 McKee Run Condition Assessment

The following is a summary of the condition assessment of major equipment at McKee Run as presented by the NAES corporation staff. Units 1 and 2 were decommissioned in 2017; therefore, major maintenance and capital projects are no longer occurring for these units.

XL Insurance completes inspections of the Electric Division production facilities on an annual basis. After each inspection, the insurance provider issues a report detailing its risk reduction recommendations.

3.2.2.1 Steam Turbines/Generators

The steam turbines and generators for VanSant was reported to be in satisfactory condition with no major problems. Unit 3 had a routine scheduled outage which was completed during September and October of 2018. During this scheduled outage the Unit's vacuum pumps were replaced.

During the spring 2014 outage, Unit 3 was dismantled and inspected. Erosion was detected in some places and steps were taken to mitigate. The unit experienced the same vibration issues that were historical on the unit during the startup process after the spring outage. The contractor was dissatisfied with the unit operation and the unit had a rub. The decision was made to go back into the unit and found that the turbine end packing housing was misaligned 0.05-inch in the turbine casing and corrected the problem by having the gland box machined for proper alignment and proper gland packing operation without the "rub". The rotor growth was causing the packing to "rub" and wear. Post work testing of the unit after the gland packing box machining revealed that the vibration issue was resolved. The rotor would grow without rubbing and the vibration issue was resolved. Unit 3 goes through routine annual outages, and in 2019 will have a valve inspection done on the turbine. Scheduled outages in 2018 have occurred on Unit 3 and on VanSant; one being in the spring and one in the fall.

3.2.2.2 Boilers and Auxiliaries

Boiler inspections are conducted every year on each of the boilers. The annual inspections typically include the inspection and cleaning of the major boiler components, including the mud and steam drums, the forced draft and induced draft fans, the wind box, condenser water box, condenser tubes, hot well, air preheater components, and safety valves.

No adverse conditions, controls, or operational concerns were reported during the last outage at Unit 3. During that outage the neutralization pit liner was replaced, new insulation and lagging was installed on the high-energy piping, and leaking tubes were replaced all on Unit 3. Additionally, a grating and cover were added.

An ultrasonic examination of the Unit 3 boiler tubes has been planned and budgeted for during a scheduled outage in 2019.

3.2.2.3 Station Cooling Water Systems

The Station has cooling water system serving Unit 3. A significant Unit 3 cooling tower project was completed in CY 2014. This project included the change out of several columns in the tower, work on the hot deck, and balancing of water flow. The cooling water systems are reported to be sufficiently sized and

in satisfactory condition. Work was completed at the end of April 2017 to reroute where the water is flowing in from to improve existing water mix.

3.2.2.4 Fuel Handling Systems

Natural gas is delivered to the Station for Unit 3 via a 10-inch pipeline. The 4-inch pipeline that delivered natural gas for Unit 1 and Unit 2 is still in place. No. 2 fuel oil is delivered to the Station by truck and unloaded into tanks. Forwarding pumps deliver the fuel oil to each of the units. No major fuel projects were reported to be completed in FY 2018, but they inspect and replaced fuel hoses as needed.

3.2.2.5 Water Treatment/Steam Purity

Quality control parameters for boiler feed-water, internal boiler water, cooling tower water, and steam purity are checked at a minimum of twice per day when systems are operating. Results are recorded and graphically compared to control limits. Adjustments are then made as required. Boiler feed water is treated city water (well water from the City) using a regenerative ion resin demineralizer system, along with deaeration for oxygen control. Boiler 3 uses a balanced trisodium phosphate and disodium phosphate within a narrow pH range. A deep-bored water well was installed to provide water in addition to the City supplied water. City water has a high chlorine level which may exceed the Station permitted limits. By combining City water with the well water, the chlorine levels can be maintained at the permitted limits. Water for cooling tower makeup is also obtained from City water. The primary control parameter is silica concentration. Blow down is adjusted as required to maintain control. The City received an industrial waste water permit from Kent County to be able to discharge cooling water to the sewer system. No major water treatment issues were reported at the time of this Report.

Steam purity is not continuously monitored. Samples are taken at least twice daily and tested for pH, conductivity, and silica. There have not been any problems with steam purity. Annual inspections of the boiler drums and separation internals have verified that these systems are intact and operating properly.

In FY 2018, the station did not experience any internal corrosion related failures, steam path deposits, or excessive condenser fouling. Condor Technologies provides water treatment consulting services and chemicals. Representatives visit the Station periodically to review test data and check chemical usage rates. No major issues were reported at the time of this Report.

3.2.2.6 Station Electrical Systems

Overall, Station electrical systems and transformers are in satisfactory condition. A condition assessment of the generation facilities' transformers was conducted in 2014 by TJ/H2b Analytical Services. Oil inspections and analyses were conducted. The inspector recommended that normal operation continue for

all the transformers at the plant; however, heating was indicated at two of the transformers. The City has a contract with an environmental consultant to check each substation for oil leaks and to provide instruction on cleaning up in the event of an oil spill.

Oil sampling is now completed twice per year on the generator step-up transformers (GSUs). Based on the 2012 XL Insurance annual inspection, there are still no sprinkler protection or blast walls for GSU's 1-3. All plant transformers are examined annually, and an oil analysis was completed in early 2018 on these transformers.

3.2.2.7 Station Control Systems

Unit 3 controls are a distributed control system (DCS). In general, the station control systems are in satisfactory condition. All relays have recently been inspected at both McKee Run and VanSant for North American Electric Reliability Corporation, PJM Interconnection and Mid-Atlantic Area Council compliance. The electro hydraulic control system was modified to become a primary/primary system in 2013. No additional control upgrades or issues to report for FY 2018.

3.2.2.8 General Facilities

No major projects or improvements were completed to the General Facilities in FY 2018. Similarly, no major improvements were made to the General Facilities in 2018 other than installing building heaters and routine maintenance and repairs. In FY 2016, the Unit 3 stack was completely relined. A nitrogen generator was installed on Unit 3 to keep nitrogen on the boiler at all times; this eliminated the need to buy bottled nitrogen. The plant is also getting ready to add a conditioner to the system. In general, the station facilities appeared clean and well maintained during the site visit.

3.2.3 VanSant Condition Assessment

The following is a summary of the condition assessment of major equipment at VanSant as presented by the NAES corporation staff. Burns & McDonnell made no internal assessments of equipment during the facility tour.

In general, the unit is operated infrequently, but is well maintained. The VanSant unit has the capability of black starts. The unit does have remote start capability as the upgrade was completed in FY 2017. The Title V permit requires that the station be manned within 15 minutes of starting the unit and when the unit is operating. An operator travels to the site and performs a twice daily walk down of the unit with a checklist of items to review and the walk down results are logged. In FY 2016 sections of the plenum were changed out, stack repairs were completed, and preparations were started for the major outage overhaul which occurred in 2018.

The hanger inspection program is being implemented to lower the likelihood of major unexpected issues. The plant is also installing an accelerated unit startup (AUS) system to allow turbines to start up in a lower temperature and pressure environment to reduce hot and cold startup times. During the time of Mr. Kelly's site visit in 2018, VanSant's CO2 fire suppression system was being replaced with a water mist suppression system.

XL Insurance completes inspections of the Electric Division production facilities on an annual basis. After each inspection, the insurance provider issues a report detailing its risk reduction recommendations. The lone recommendation for VanSant following the FY 2012 inspection addressed safety. XL Insurance recommended the installation of gas detection equipment at the plant. A gas detection system has been installed. The gas detectors will activate the fire suppression system and alarm to the central control system. No other major repairs or upgrades were made at VanSant in FY 2013. No new recommendations were made in 2015. However, 2015 oil sample analysis of VanSant turbine was rated marginal due to high particle count. During the spring outage in 2016 the unit is scheduled to have the lube oil sump cleaned and inspected by Total Lubrication and inspected which resolved the high particulate count. Inlet fogging was added in FY 2015 and is enclosed by the shed on site.

A capital project was completed on the exhaust stack and the D1 water tank was cleaned in FY 2014. NAES Instrument, Control and Electrical (IC&E) Technicians completed four recommended General Electric Technical Information Letters (TIL) projects for VanSant Unit 11 in the spring 2014 outage as shown below:

1. Annual TIL 1004-2R1 (IGV's and first stage corrosion/pitting inspection)
2. Annual TIL 1068-2R1 (IGV's bushing inspection)
3. Annual TIL 1132-2 (IGV thrust washer corrosion inspection)

Spring 2014 inspections indicated normal wear on the unit and minor maintenance was completed. During the fall 2014 outage, several minor projects were identified and will be completed at the time of the next major project on the unit. No issues were reported.

Every five years, the fuel tanks are inspected for rust and corrosion for leak prevention. The scheduled inspection was completed in June 2015. PM Tasks were developed in the CMMS to perform 5-year inspection next due in 2020 and a 15-year API 653 Ultrasonic shell inspection in 2030.

The exhaust plenum work was completed in FY 2016. A weekly diesel start is performed at the site to improve starting reliability of the diesel starting engine. A unit full speed 30-minute no-load test is

performed once a month for starting reliability improvements and training purposes, and 26 hours per year has been allocated for the testing of the unit which have little impact on the allowable operating hours (432) under the VanSant Title V diesel engine annual operation.

3.2.4 Production Plant Conclusion

Based on statements and information provided, as well as the observations and reviews performed, it is the opinion of Burns & McDonnell that the City's power generation facilities are being operated and maintained consistent with accepted electric utility practice in the United States. In general, the performance, operation, maintenance, staff, planning, and training aspects for the McKee Run and VanSant stations were found to be above average. Specifically, the generation facilities have demonstrated necessary availability despite the dispatching of the units primarily for peak demand.

3.3 Transmission and Distribution Plant Assessment

On February 7, 2019, Mr. Ted Kelly visited the City to collect information and to observe the City transmission and distribution system, as operated and maintained by the Electric Division. Mr. Paul Waddell provided information related to the transmission and distribution system. Mr. Waddell also assisted with a tour of the electric transmission and distribution system. Pictures taken of the substations during the inspections are provided separate from this report.

3.3.1 Transmission and Distribution Plant Operations

The Electric Division distributes power to its customers by a network of transmission lines, distribution substations, and distribution lines. The transmission lines are rated at 69 kV and are connected to fourteen distribution substations located throughout the service area. The distribution substations reduce the power from transmission voltages to the primary distribution voltages of 12 kV to facilitate distribution of electric power to customers.

3.3.1.1 Operations and Maintenance

The Electric Division has a SCADA system that is monitored continuously for any problems that may arise in the Electric System. The main control room has two system operator desks and a large screen where system operating information is displayed. System operators can monitor the Electric System operation, such as voltage levels, current flows, etc. and make necessary adjustments as problems arise. The systems operators have received some PJM training, but are not required to be certified as Delmarva Power is the controlling agency.

Loading on substation transformers used for an emergency, a switching operation, or maintenance is limited to 120 percent of the rated capacity, followed by a twelve-hour cool-down period. The Electric Division has eight-line crews and two ground workers to work on the system. Four crews are responsible for overhead lines, four crews are responsible for underground lines, and one crew is responsible for maintenance. The primary responsibilities of the eight-line crews are installation of new service connections and construction of new lines. The trouble crew maintains the street lights, repairs underground services and is the first responder to outages. Tree trimming is contracted out and is no longer performed by the Electrical Division; however, performance of the contractor is monitored by the Line Crew Superintendent.

The Substation/Relay Maintenance Division is responsible for operation and maintenance of the substations and associated equipment. Visual inspections of substations, associated equipment, trip counter checks and battery systems checks are performed regularly. The Substation/Relay Maintenance Division is also responsible for contractor oversight during annual transformer condition assessments including annual oil testing.

TJ/H2b Analytical Services completed the annual transformer condition assessments in February 2011. No abnormal gas was indicated and since the oil condition was within acceptable parameters, TJ/H2b recommended the continuation of normal operation. The City has a contract with an environmental consultant to check each substation for oil leaks and to provide instruction on cleaning up in the event of an oil spill.

The City contracts with an outside firm to inspect and chemically treat each wood pole in the Electric System every ten years. This is accomplished by awarding a five-year contract to spread out the expenses. Pole treatments were completed in May of 2013. Dover treated and inspected over 760 poles during 2013, of which, only one pole was rejected resulting in a 99.9 percent pass rate.

3.3.1.2 Design Standards and Specifications

The Electric Division designs the transmission and distribution circuits and some substation upgrades in conformance with national safety standards. Other substation and transmission design is contracted to Pike Electric, Inc.

The underground distribution design utilizes road or alley front access construction. This design means the electrical equipment, such as transformers and underground cable, are installed beside the road instead of behind houses or buildings. The advantage of front access construction is the accessibility for maintenance and repairs to cable and electric equipment. The underground cables are installed in

polymerized vinyl chloride pipe for added protection and for easy cable replacement. The Electric Division installs jacketed, concentric cable that is rated at 15 kV, with 133 percent ethylene propylene rubber insulation.

The standard overhead distribution design utilizes a flat construction with a single cross-arm and insulators on 45-foot class 2 poles. Typically, all electrical equipment locations have ground rods installed with measured readings of 25 ohms or less.

The substation design is generally a low-profile rigid bus design. The circuit breakers are SF6 gas-filled and the relays are microprocessor based with SCADA control and monitoring.

3.3.1.3 System Reliability

The Electric Division provides for reliability of its distribution system by configuring most its distribution circuits in primary open loop arrangements, improving existing circuits, and installing adequate substation transformer capacity. Normal transformer and line loading are limited to provide enough margin to convey firm power requirements during an emergency or a switching operation, or for maintenance.

3.3.1.4 Power Quality

The Electric Division does not have any significant power quality problems. The overall power factor for the Electric System is 99.9 percent. Power transformers are equipped with load tap changers that regulate bus voltages at the distribution substations. Distribution transformers are equipped with no-load taps to make voltage adjustments. There are capacitors and voltage regulators on the Electric System that control voltage and vars on the portion of the system furthest away from the current source and generation. The system operators monitor the power factor closely and turn on capacitors or adjust the generation to compensate for low power factors.

3.3.1.5 Safety

Mr. Waddell reported to Burns & McDonnell the Electric Division had no lost time in FY 2018. No incidents or details were provided for this report.

3.3.1.6 Capital Improvements

The following describes planned improvements to the City's transmission and distribution assets:

Planned (through FY 2024)

- Town Point Development / Distribution Feeders

- Distribution Capacitors and Controls
- Lighting Project and Rehabilitation
- Advanced Metering Infrastructure (AMI)
- College Road Substation Consolidation
- DAFB/ Lebanon/ Danner Substation Consolidation
- Clearview Meadows Tie Point
- Substation Component Upgrade
- Transmission Line Maintenance Program
- New Developments
- Crossarm / Cutout Replacement
- Substation Battery Replacement
- Fault Indicators
- 2008 Dodge Avenger
- 2008 Ford Escape
- Freightliner Bucket 85'
- Chevrolet Dump Truck
- International Bucket 40'
- International Bucket Material Handler 37'
- Terex Backhoe
- International Bucket Material Handler 50'
- Mini Excavator

3.3.2 Transmission and Distribution Plant Condition Assessment

The transmission and distribution system assessment included drive-by observations of a sample of the transmission circuits and distribution circuits. Each of the fourteen substations listed below physically observed during the tour.

- Cartanza Substation
- College Road Substation
- Danner Farm Substation
- Division Street Substation – Plan to expand in the future
- Dover Downs Substation
- Frazier Substation

- General Scott Substation (North Street)
- Horsepond Substation
- Lebanon Substation
- Mayfair Substation
- McKee Substation
- Mid-City Substation
- St. Joan's Substation
- VanSant Substation

In general, the substations appeared to be in acceptable operating conditions. All battery sets in the system substations are less than ten years of age. The City has replaced switchgear throughout the system and now has all SEL equipment. Mr. Paul Waddell provided a tour of the substations with Ted Kelly on February 7th, 2019. Mr. Kelly also toured portions of the system on his own on February 7th. The General Scott Substation has relatively new breakers, and the 12-kV switchgear and controls were upgraded in FY 2016. Horsepond Substation was rebuilt and included a three breaker 69-kV system for the 69-kV bus and the substation logic was reprogrammed. At the Cartanza Substation, Delmarva has expanded their side of the substation. In the Lebanon Substation work on the capacitor bank has been completed. Maintenance requirement for battery testing has been completed for NERC requirements.

The City has recently completed the process of replacing conductor throughout the entire 69-kV system. In addition, the City has invested heavily in its undergrounding program to increase system reliability. Moving forward, the system will continue to be converted from overhead to underground distribution, but this process has slowed to allow for further evaluation.

3.3.3 Transmission and Distribution Plant Conclusion

It is the opinion of Burns & McDonnell that the design, construction, operation and maintenance of the City's electric transmission and distribution system and the associated facilities are consistent with current generally accepted electric utility standards. In completing Annual Engineering Consultant's Reports over the past several years, Burns & McDonnell has observed that the City has made appropriate system upgrades and improvements. The City and the Electric Division are proactive in preventative maintenance and expansion of the Electric System before problems arise.

4.0 – FINANCIAL OVERVIEW AND ASSESSMENT

4.0 FINANCIAL OVERVIEW AND ASSESSMENT

A review of the financial results of the Electric System for the fiscal year ended June 30, 2018, is provided herein.

4.1 Required Revenue

The level of revenues required from the retail electric rates for the Electric Division was determined through the analysis of the financial results and net income or net margins for the most recent fiscal year. The City of Dover, Delaware Resolution Authorizing and Securing Electric Revenue Bonds, adopted December 23, 1985 requires that the Electric Division maintain a debt service coverage ratio of 1.25. The following is an excerpt from Section 502(c) of the resolution.

> *"(c) The total amount of the Revenues of the Electric System during the preceding fiscal year shall have been not less than the total of the following:*
>
> *(3) The Current Expenses of the Electric System during the current fiscal years shown by the Annual Budget . . . for such fiscal year, and*
>
> *(4) One hundred twenty-five percent (125%) of the maximum amount of the Principal and Interest Requirements for any fiscal year thereafter on account of all bonds then Outstanding under the provisions of this Resolution.*
>
> *The City further covenants that, from time to time and as often as it shall appear necessary, it will adjust the electric rates as may be necessary or proper so that the revenues of the Electric System in each fiscal year will not be less than the total of the amounts set forth in subdivision (c) of this section."*

4.2 Electric Rates

Customers of the Electric Division are charged for the electric service based on rate schedules, tariffs, or contracts that reflect the costs to the Electric Division of providing that service. For purposes of setting electric rates, customers with similar load and service characteristics should be placed in the same rate classification.

A comprehensive cost-of-service and rate design study was completed in early 2018. The City retained NewGen Strategies and Solutions, LLC (NewGen) to develop the cost of service (COS) and proposed rate design study. This study was completed in April 2018. Specifically, the 2018 rate study was conducted to

address the total cost of providing electric services, the allocation of the various customer classes, and design rates to safeguard the financial integrity of the utility

Electric rates are approved by Council on an annual basis. The current rate classes are listed below.

- Residential
- Small Commercial (1 Phase, 3 Phase, 1 Phase Heating, Church, and Municipal)
- Medium Commercial (1 Phase & 3 Phase)
- Large Commercial (3 Phase with Reactive Metering)
- Primary
- Transmission
- Outdoor Development Lighting
- Private Outdoor Lighting

4.3 Operating Results

Table 4-1 presents a summary of the annual energy sales, the average monthly number of customer accounts, and the annual average kilowatt-hour (kWh) energy per customer of the Electric Division for FY 2016 through FY 2018. Annual energy sales were 750 GWh in FY 2018, an increase of nearly 1 percent from FY 2017. Energy sales amounted to 745 GWh in FY 2017, a 4.45 percent increase from FY 2016.

Table 4-1: Annual Sales and Customer Accounts

	FY 2016	FY 2017	FY 2018
Energy Sales (kWh)			
Residential	196,547,288	204,891,414	206,940,393
Commercial	229,661,253	231,591,209	233,604,248
Primary	163,450,257	186,453,387	182,840,006
Transmission	115,555,834	114,078,319	118,621,027
Outdoor Lighting	8,190,700	8,119,000	8,200,200
Total Energy Sales	713,405,332	745,133,329	750,205,874
Average Number of Monthly Customers (accounts)			
Residential	20,060	20,155	20,545
Commercial	3,282	3,424	3,577
Primary	37	37	36
Transmission	5	5	5
Outdoor Lighting	823	836	848
Total Customers Accounts	24,207	24,457	25,011
Energy Usage Per Customer (kWh/cust./yr.)			
Residential	9,798	10,166	10,073
Commercial	69,976	67,638	65,307
Primary	4,417,575	5,039,281	5,078,889
Transmission	23,111,167	22,815,664	23,724,205
Outdoor Lighting	9,950	9,717	9,670
Average Usage Per Customer	29,471	30,468	29,995

Table 4-2 presents revenues from sales, revenue per kWh ratios, and average revenue per customer ratios for each revenue classification. Total revenue from sales to electric customers in FY 2018 was $82.7 million, representing an increase of $650,000, or 0.8 percent from FY 2017. Total revenue from sales to electric customers includes utility tax revenue.

In FY 2018, the average rate revenue per kWh for residential customers was 12.89 cents and the total average rate revenue was 11.01 cents per kWh. The 2018 national average retail prices of electricity to ultimate customers, as published by the US Energy Information Administration (EIA), were 12.47 and 10.27 cents per kWh for residential customers and across all sectors, respectively.[2] For a state-wide comparison, the EIA summarized the Delaware 2018 average monthly utility-level retail sales of

[2] US Energy Information Administration. Electric Power Monthly, Table 5.6.A. Average Price of Electricity to Ultimate Customers by End-Use Sector. Release Date: February 27, 2019. https://www.eia.gov/electricity/monthly/epm_table_grapher

electricity and associated revenue per kWh to be 12.27 cents per kWh for residential customers and 10.65 cents per kWh across all sectors.[3]

Table 4-2: Annual Revenues and Sales Ratios

	FY 2016	FY 2017	FY 2018
Revenue			
Residential	$ 25,383,163	$ 26,356,096	$ 26,664,707
Commercial	26,779,261	27,080,923	27,464,877
Primary	16,109,597	17,881,660	17,479,345
Transmission	9,695,272	9,416,429	9,885,427
Outdoor Lighting	1,187,345	1,211,087	1,255,094
Total Revenue	$ 79,154,638	$ 81,946,194	$ 82,749,450
Revenue/kWh			
Residential	$ 0.1291	$ 0.1286	$ 0.1289
Commercial	0.1166	0.1169	0.1176
Primary	0.0986	0.0959	0.0956
Transmission	0.0839	0.0825	0.0833
Outdoor Lighting	0.1450	0.1492	0.1531
Total Revenue/kWh	$ 0.1110	$ 0.1100	$ 0.1103
Revenue Per Customer			
Residential	$ 1,265	$ 1,308	$ 1,298
Commercial	8,159	7,909	7,678
Primary	435,395	483,288	485,537
Transmission	1,939,054	1,883,286	1,977,085
Outdoor Lighting	1,442	1,450	1,480
Average Revenue Per Customer	$ 3,270	$ 3,351	$ 3,309

The Electric Division's largest cost in providing electric service to its customers in FY 2018 was the wholesale cost of power. The Electric Division purchased power from the PJM Interconnection marketplace through its Energy Manager, TEA. The cost of non-generated power includes energy and demand costs, power supply management expense, PJM charges and credits, generation fuels cost, and capacity charges and credits.

The significance of power supply cost to the Electric Division is illustrated in Table 4-3. The top portion of the Table shows net operating revenue as the difference between total revenues generated by the rates and the cost of power supply.[4] The ratios of power supply cost to sales revenues were calculated for FY

[3] US Energy Information Administration. Electric Power Monthly, Table 5.6.A. Average Price of Electricity to Ultimate Customers by End-Use Sector. Release Date: March 24, 2017. https://www.eia.gov/electricity/monthly/epm_table_grapher

[4] For the purposes of this Report, the phrase "Power Supply" refers to the sum of the costs of power purchased and power generated. This includes plant costs and the cost of fuel. Power Supply also includes any expenses in the CIP. Fund that are not capital expenses. The phrase "Purchased Power" refers only to the cost of power purchased from the market and other directly associated costs.

2016 through FY 2018. As illustrated, the Electric Division's power supply cost as a percentage of rate revenue slightly increased from 53.2 percent in FY 2017 to 57.2 percent in FY 2018.

Table 4-3: Revenue Margins and Unaccounted for Energy

	FY 2016	FY 2017	FY 2018
Net Revenue Margins ($)			
Sales Revenues	$ 79,154,638	$ 81,946,194	$ 82,749,450
Power Supply	42,643,023	43,554,438	47,221,198
Net Revenue Margin	$ 36,511,615	$ 38,391,756	$ 35,528,252
Net Revenue Ratio	53.9%	53.2%	57.1%
Unaccounted for Energy (kWh)			
Power Supply	740,871,000	773,550,000	775,661,000
Energy Sales	713,405,332	745,133,329	750,205,874
Unaccounted for Energy (Losses)	27,465,668	28,416,671	25,455,126
Percentage	3.7%	3.7%	3.3%

Table 4-3 also illustrates the ratio of the amount of energy purchased and delivered to the electric system to total energy sales. This relationship identifies the level of unaccounted for energy in the Electric System. This unaccounted-for energy may include energy that was unmetered, metered inaccurately, stolen, lost, PJM transmission line losses, local system line/transformer losses, etc. The bottom portion of Table 4-3 presents these comparisons for the Electric Division for FY 2016 through FY 2018. As shown, the percentage ratio of the unaccounted-for energy to the total energy purchased for FY 2018 was 3.3 percent. This is a slight decrease from 3.7 percent in FY 2017. In previous Annual Engineering Consultant's Reports, Outdoor Lighting energy was recorded as losses. In this report, Outdoor Lighting customer accounts, energy sales, and revenues were recorded as a separate rate class. The impact this modification has on this Financial Overview and Assessment is most pronounced on the Table 4-3 Unaccounted for Energy analysis, as losses are shown to have increased from corresponding years in previous reports.

Table 4-4 presents a re-creation of the Electric Division's Statement of Revenues, Expenses, and Changes in Unreserved Retained Earnings for the Electric Revenue Fund for FY 2016 through FY 2018. Net income decreased in FY 2018 to $1.5 million from $11.2 million in FY 2017. Increased expenses such as power supply, large increase in retiree health care costs, and distributions to customers are main reasons for the large swing in net income between 2017 and 2018. In FY 2018, the Electric Division distributed approximately $6.3 million to customers through a Power Cost Adjustment Credit to reflect the reduction in power supply costs.

Table 4-4: Comparative Statement of Revenues, Expense, and Changes in Unreserved Retained Earnings

	FY 2016	FY 2017	FY 2018
Operating Revenues:			
Charges for Electric Service	$ 79,154,638	$ 81,946,194	$ 82,749,450
Miscellaneous Services/Incomes	1,535,071	1,668,084	1,131,942
Total Operating Revenues	$ 80,689,709	$ 83,614,278	$ 83,881,392
Operating Expenses:			
General Administration	$ 5,171,249	$ 4,646,177	$ 5,957,816
Power Supply	42,643,023	43,554,438	47,221,198
Transmission/Distribution	3,309,236	2,983,697	2,559,819
Engineering	993,856	797,438	1,034,690
Metering	353,956	300,738	204,400
System Operations	579,622	435,112	542,032
Utility Tax	1,309,701	1,322,015	1,255,094
Depreciation	5,713,104	5,513,295	4,772,651
Retirees Pension	-	-	-
Retiree Health Care	57,700	709,300	1,820,300
Total Operating Expenses	$ 60,131,447	$ 60,262,210	$ 65,368,000
Net Operating Income	$ 20,558,262	$ 23,352,068	$ 18,513,392
Non-operating Revenues (Expenses)			
Interest Earned			
Operating Fund	$ 156,949	$ 329,604	$ 353,782
Reserved Funds	500,140	476,090	650,956
Net Increase/(Decrease) in Fair Value of Investments	192,331	(505,069)	(832,456)
Interest and Fiscal Charges	(922,704)	(884,704)	(848,204)
Distribution to Customers	-	(1,845,936)	(6,337,115)
Gain/(Loss) on Sale of Assets	6,201	41,592	2,365
Total Non-operating Revenues(Expenses)	$ (67,083)	$ (2,388,423)	$ (7,010,672)
Net Income Before Operating Transfers	$ 20,491,179	$ 20,963,645	$ 11,502,720
Operating Transfers - In		231,200	
Operating Transfers - Out	(13,262,183)	(10,000,000)	(10,000,000)
Total Net Operating Transfers	$ (13,262,183)	$ (9,768,800)	$ (10,000,000)
Net Income	$ 7,228,996	$ 11,194,845	$ 1,502,720

4.3.1 Adequacy of Electric Rates

The City's Bond Resolution requires annual revenues of the Electric Division be no less than the total current expenses plus 125 percent of the greatest remaining annual debt service. "Current expenses", as defined in the Resolution, includes all expenses necessary to maintain and repair the Electric System, all administrative expenses, and engineering, legal or other consultant fees. Transfers to reserve accounts and special purpose funds, and allowances for depreciation are specifically excluded from "current expenses."

To determine if the City and the Electric Division have met this requirement, the net income shown in Table 4-4 was adjusted to include the interest on bonds, depreciation expense, and other non-cash income and expenses. Table 4-5 summarizes net income adjustments and the calculation of the revenues available for debt service for FY 2016 though FY 2018.

Table 4-5: Debt Service Coverage

	FY 2016	FY 2017	FY 2018
Net Income	$ 7,228,996	$ 11,194,845	$ 1,502,720
Plus Excluded Expenses:			
Operating Transfers - Out	$ 13,262,183	$ 10,000,000	$ 10,000,000
Depreciation	5,713,104	5,513,295	4,772,651
Interest and Fiscal Charges	922,704	884,704	848,204
Gain/(Loss) on Sale of Assets	(6,201)	(41,592)	(2,365)
Less Excluded Income:			
Net Increase/(Decrease) in Fair Value of Investments	(192,331)	505,069	832,456
Interest Earned - Reserve Funds	(500,140)	(476,090)	(650,956)
Revenues Available for Debt Service	$ 26,428,315	$ 27,580,231	$ 17,302,710
Maximum Principal and Interest in Any Year	$ 3,287,704	$ 1,579,704	$ 1,577,454
Debt Service Coverage	8.04	17.46	10.97
Minimum Required Debt Service Ratio	1.25	1.25	1.25

As Table 4-5 illustrates, the City and the Electric Division maintained a debt service coverage ratio each year that exceeded the required 125 percent plus current expenses. Therefore, the revenues generated by the current electric rates have been enough to meet the applicable covenants of the Resolution.

Section 502 of the Resolution requires that the annual debt service used in evaluating the revenues is to be the maximum amount for any fiscal year thereafter. Table 4-6 presents the annual totals of principal and interest amounts due on bonds currently outstanding. The calculation of the debt service coverage ratio in Table 4-5 is based on the total maximum debt service expense in any fiscal year. The FY 2018 calculation was based on the total FY 2018 debt service expense of $1,577,454.

4.4 Status of Revenue Bonds

At the end of FY 2015, the City had two series of outstanding electric revenue bonds that were issued pursuant to the Resolution. On July 1, 2008, the City issued $22,200,000 in Electric Revenue Bonds (2008 Bonds). The proceeds from the sale of the 2008 Bonds were used (i) to finance or reimburse the City for improvements to the City's electric system; (ii) to fund a Debt Service Reserve Fund; and (iii) to pay the costs of issuance of the 2008 Bonds.

On November 17, 2010, the City issued $8,810,000 of Electric Revenue Refunding Bonds (Series 2010). The proceeds from the sale of the Series 2010 Bonds were used (i) to refund the Series 2004 Bonds, and (ii) to pay the costs of issuance of the Series 2010 Bonds. The non-taxable Series 2010 Bonds received an underlying rating of Aa2 by Moody's Investors Services and an underlying rating of A+ by Fitch Ratings.

Table 4-6 illustrates the debt service schedule for outstanding debt of the electric division. The principal and interest and the annual total are shown for the bond series. On August 22, 2018, the City of Dover closed on a $15,700,000 Refunding Bond Issue (Series 2018). The proceeds of the sale of the Bonds are to be used (i) to refund on a current refunding basis, the Series 2008 Bonds, and (ii) the costs of issuing the Bonds.

Table 4-6: Debt Service Schedule of Electric Revenue Bonds

Outstanding Debt Service*

Fiscal Year	Principal	Interest	Total Debt Service
2019	$ 765,000	$ 770,661	$ 1,535,661
2020	650,000	629,450	1,279,450
2021	785,000	593,575	1,378,575
2022	820,000	553,450	1,373,450
2023	865,000	511,325	1,376,325
2024	910,000	466,950	1,376,950
2025	955,000	420,325	1,375,325
2026	1,005,000	371,325	1,376,325
2027	1,055,000	319,825	1,374,825
2028	1,110,000	265,700	1,375,700
2029	1,160,000	214,750	1,374,750
2030	1,200,000	173,550	1,373,550
2031	1,240,000	136,950	1,376,950
2032	1,275,000	99,225	1,374,225
2033	1,315,000	60,375	1,375,375
2034	1,355,000	20,325	1,375,325
Total	$ 16,465,000	$ 5,607,761	$ 22,072,761

*Includes principal and interest payments made on July 1, 2018 and accrued interest through the redemption date of August 22, 2018 for the Series 2008 Bonds, and debt service on the Series 2018 Bonds.

4.5 Insurance

The City maintains a comprehensive insurance program to insure against varying types of liabilities and significant losses related to various Electric Division properties. Section 706 of the Resolution reads:

> *"The City covenants that it will maintain a practical insurance program, with reasonable terms, conditions, provisions and costs, which the City Manager determines, with the approval of the Engineering Consultants, will afford adequate protection against loss, including loss of Revenues, caused by damage to or destruction of the Electric System or any part thereof and also comprehensive public liability insurance on the Electric System for bodily injury and property damage in such amounts as may be approved by the Engineering Consultants."*

Table 4-7 summarizes itemized insurance coverage procured by the City for the period July 1, 2017, through June 30, 2018. Burns & McDonnell has reviewed this list of insurance, and in the opinion of Burns & McDonnell, as Engineering Consultant and not as insurance counselor, the insurance in full force and affect appears to satisfy the requirements of Section 706 of the Resolution.

Table 4-7: Schedule of Insurance Coverage in Effect

	July 1, 2017 - June 30, 2018 Coverage
Policy #1	
XL Insurance Company	
$50,000,000 per Occurance (50% Carrier Capacity Limit of $100,000,000)	
Coverages:	
50% policy limit	$ 50,000,000
	Agreed Amount, Special
Extra Expense	2,000,000
Errors & Omissions	2,000,000
Expediting Cost	1,000,000
Property in the Course of Construction	5,000,000
Earthquake	20,000,000
Flood	10,000,000
Debris Removal	2,500,000
Property in Transit	2,500,000
Demolition & Increase Cost of Construction	10,000,000
Policy #2	
Ace American Insurance Company	
$50,000,000 per Occurance (50% Carrier Capacity Limit of $100,000,000)	
Coverages:	$ 50,000,000
50% policy limit	Agreed Amount, Special
Extra Expense	2,000,000
Errors & Omissions	2,000,000
Expediting Cost	1,000,000
Property in the Course of Construction	5,000,000
Earthquake	20,000,000
Flood	10,000,000
Debris Removal	2,500,000
Property in Transit	2,500,000
Demolition & Increase Cost of Construction	10,000,000

4.6 Operating and Reserve Accounts

The Electric Revenue Fund and the Electric Improvement & Extension (I&E) Fund are the City's two funds devoted to the Electric Division. The funds are used to manage cash and transactions related to utility operations and capital expenditures, respectively. Each fund includes certain cash accounts established to make money available for specific purposes when they are needed. The accounts maintained within the Revenue and I&E Funds are listed herein.

Electric Revenue Fund

- Insurance Reserve Account
- Contingency Reserve Account
- Electric Rate Stabilization Reserve Account

- Interest and Sinking Account

Electric Improvement & Extension Fund

- Depreciation Reserve Account
- Future Capacity Reserve Account

The following are descriptions of each Fund, their respective accounts and their purposes.

4.6.1 Electric Revenue Fund

The Electric Revenue Fund was established in Section 503 of the Resolution. All revenues are to be deposited into the Electric Revenue Fund when received. Current expenses are to be paid and other accounts are to be maintained from the Electric Revenue Fund. Moneys are transferred from the Electric Revenue Fund to the Electric Rate Stabilization Reserve Account, the Interest and Sinking Account, the I&E Fund, the Depreciation Reserve Account, and the Future Capacity Reserve Account.

4.6.1.1 Insurance Reserve Account

The Insurance Reserve Account was established by the City to fund insurance deductibles on the electric transmission and distribution system and the generating plants in the event of loss(es) covered by the City's insurance policies. The reserve balance at the end of FY 2018 was $769,146. To reduce insurance premiums, the City raised the minimum reserve balance to $750,000.

4.6.1.2 Contingency Reserve Account

The Contingency Reserve Account was established by the City in FY 2003 to provide for unplanned expenditures that may not be avoidable. The City's Financial Policies require that a minimum balance be maintained in the Contingency Reserve Account of at least $750,000. The FY 2018 year-end balance was $876,251 which is equal to 1.04 percent of the FY 2018 revenues for the Electric Revenue Fund.

4.6.1.3 Electric Rate Stabilization Account

The Electric Rate Stabilization Reserve Account was established in FY 2005 to offset the costs of the power cost adjustment to the customers of Dover. The account's target balance is a minimum of 10.0 percent, not to exceed 20.0 percent, of purchase power cost in any given year. Any excess of this amount will be refunded to customers in future years by reducing the rate of the power cost adjustment. The account's FY 2018 end-of-year balance was $16,024,104.

4.6.1.4 Interest and Sinking Account

The Interest and Sinking Account was established in Section 507 of the Resolution. This account consists of two restricted accounts: The Bond Service account and the Reserve Account. The Bond Service Account is funded with equal monthly transfers from the Electric Revenue Fund such that the balance, as of each payment date for interest or for principal and interest, will be equal to the amount of the payment due. The payments of principal and interest due on bonds are made from the Bond Service Account. The Reserve Account is funded by transfers from the Electric Revenue Fund, as necessary, to maintain a balance equal to the maximum combined principal and interest for any future fiscal year through the life of all bonds then outstanding. Moneys in the Reserve Account are used for paying interest on and principal of bonds when the balance in the Bond Service Account is insufficient for making those payments. The total amount in the Restricted Accounts for the 2008 bond as of June 30, 2018, was $1,663,651.

4.6.2 Electric Improvement and Extension Fund

The I&E Fund was established in Section 507 of the Resolution. Funds are transferred to the I&E Fund from the Electric Revenue Fund to the extent that the amount of funds available from the Electric Revenue Fund exceeds the total of the amounts required to be added to the Interest and Sinking Account. The I&E Fund also receives additional funding from the Depreciation Reserve Account, the Future Capacity Reserve Account, and from development receipts. Section 510 of the Resolution indicates that, except for certain situations, moneys held in the I&E Fund are to be used only for payment of costs of unusual maintenance or repairs, renewals or replacements, obtaining or replacing equipment, constructing extensions, additions, or improvements, and engineering expenses related to the foregoing activities.

4.6.2.1 Depreciation Reserve Account

The Depreciation Reserve Account represents moneys that have been set aside for the sole purpose of funding renewals and replacements of the Electric System as components or equipment wear out, deteriorate, or otherwise become unsuitable for the intended purpose. Transfers from the Electric Revenue Fund and investment earnings are the only sources of additional moneys for the Depreciation Reserve Account. Transfers to the I&E Fund are made as necessary to fund capital projects. The target appropriation for the Depreciation Reserve Account each year is the excess of depreciation expense for the year over the amount of principal included in debt service payments made during the year. The reserve balance at the end of FY 2018 was $13,246,698.

4.6.2.2 Future Capacity Reserve Account

The Future Capacity Reserve Account was established to set aside and accumulate funds from the Electric Revenue Fund for use in evaluating and pursuing activities related to the Electric Division's alternatives for power supply resources for future demand for electricity. The target balance for this reserve is $10,000,000. The reserve balance at the end of FY 2018 was $13,404,040.

Table 4-8 presents FY 2016 through FY 2018 year-end summaries of the activity within the cash accounts described above. The Insurance Reserve Account, the Contingency Reserve Account, the Electric Rate Stabilization Reserve Account, and the Interest and Sinking Account are accounts within the Electric Revenue Fund. The Depreciation Reserve Account and the Future Capacity Reserve Account are accounts within the I&E Fund.

Table 4-8: Reserve Account Activity and Balances

	Insurance Reserve Account	Contingency Reserve Account	Electric Rate Stabilization Account	Bond Reserve Account	Depreciation Reserve Account	Future Capacity Account
Year Ended June 30, 2016						
Balance in Account on July 1	$ 740,642	$ 822,677	$ 7,505,354	$ 3,562,746	$ 9,957,873	$ 10,107,899
Receipts						
Interest Earned	12,873	14,303	119,022	5,754	172,794	175,393
Appropriations	10,000	13,000				
Total Funds Available	$ 763,515	$ 849,980	$ 7,624,377	$ 3,568,500	$ 10,130,667	$ 10,283,292
Disbursements						
Debt Service Payments				(1,940,320)		
Transfer to Capital Projects/Ops.			(355,200)			
Balance in Account on June 30	$ 763,515	$ 849,980	$ 7,269,177	$ 1,628,180	$ 10,130,667	$ 10,283,292
Year Ended June 30, 2017						
Balance in Account on July 1	$ 763,515	$ 849,980	$ 7,269,177	$ 1,628,180	$ 10,130,667	$ 10,283,292
Receipts						
Interest Earned	11,215	12,485	118,180	16,719	157,625	159,867
Appropriations	-	-	3,250,000		2,750,000	2,750,000
Total Funds Available	$ 774,730	$ 862,465	$ 10,637,357	$ 1,644,899	$ 13,038,292	$ 13,193,158
Disbursements						
Debt Service Payments						
Transfer to Capital Projects/Ops.						
Balance in Account on June 30	$ 774,730	$ 862,465	$ 10,637,357	$ 1,644,899	$ 13,038,292	$ 13,193,158
Year Ended June 30, 2018						
Balance in Account on July 1	$ 774,730	$ 862,465	$ 10,637,357	$ 1,644,899	$ 13,038,292	$ 13,193,158
Receipts						
Interest Earned	12,383	13,786	186,747	18,753	208,406	210,882
Appropriations	(17,967)	-	5,200,000	-	-	-
Total Funds Available	$ 769,146	$ 876,251	$ 16,024,104	$ 1,663,651	$ 13,246,698	$ 13,404,040
Disbursements						
Debt Service Payments						
Transfer to Capital Projects/Ops.						
Balance in Account on June 30	$ 769,146	$ 876,251	$ 16,024,104	$ 1,663,651	$ 13,246,698	$ 13,404,040

5.0 – CONCLUSIONS

5.0 CONCLUSIONS

In the preparation of this Engineering Consultant's Report, Burns & McDonnell completed assessments of the electric generating stations and the transmission and distribution system of the City Electric Division. The investigations included interviews, observations, and reviews of FY 2018 expenditures and FY 2019 budgets. In addition, an analysis of the balances of the Improvement and Extension Fund and other funds benefiting the Electric Division was performed. Burns & McDonnell also reviewed the adequacy of the revenues provided by the current retail rates in relation to the requirements of the City of Dover, Delaware Resolution Authorizing and Securing Electric Revenue Bonds, adopted December 23, 1985. A high-level assessment of the City's insurance coverage related to the Electric Division was also completed. Based on these reviews and assessments, it is Burns & McDonnell's opinion that:

1. The City's power generation facilities are being operated and maintained consistent with accepted electric utility practice in the United States.
2. The design, construction, operation, and maintenance of the City's electric transmission and distribution system and associated facilities are consistent with generally accepted electric utility standards. The system has been upgraded to improve operation, reliability, and service quality to customers.
3. The Electric Division capital projects included in the City's Capital Investment Plan and the FY 2019 Operating Budget are necessary and should provide improved reliability and power quality for the Electric System.
4. The balances as of June 30, 2018, for the various reserve funds maintained by the City for the Electric Division appear to be sufficient for their defined purposes.
5. The insurance coverage in full force and affect as maintained by the City related to the various assets of the Electric Division appears to satisfy the requirements of Section 706 of the Resolution.
6. The electric revenues generated by the City's current retail rates are more than sufficient to fulfill the debt service coverage requirement defined in Section 502(c) of the Resolution.

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