

Engineering Consultant's Report

on the

**Operation and Maintenance
of the Electric System
Fiscal Year 2005**

Prepared for

**City of Dover, Delaware
Electric Department**

**2005
Project 40546**



**Burns &
McDonnell**

SINCE 1898



December 21, 2005

Mr. Anthony J. DePrima
City Manager
City of Dover
15 E. Loockerman St.
Dover, Delaware 19903

City of Dover
Annual Engineering Consultant's Report
Project Number 40546

Dear Mr. DePrima:

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 submits this Annual Engineering Consultant's Report for the fiscal year ended June 30, 2005. 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 taken from the City's annual financial statements and accounting records, as well as additional information furnished by City and Electric Department staff.

In the preparation of this Engineering Consultant's Report, Burns & McDonnell completed assessments of the electric generating stations and the transmission and distribution systems of the City's Electric Department. Assessments involved interviews, observations, and review of fiscal year (FY) 2005 expenditures and FY 2006 budgets. In addition, an analysis of the balances of the Improvement and Extension Fund, as well as other funds benefiting the Electric Department was performed. Burns & McDonnell also reviewed the adequacy of the revenues provided by the 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 Department was completed.

Based on these reviews and assessments, it is Burns & McDonnell's opinion 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, we find that the current retail rates have provided sufficient revenues to satisfy the debt service coverage requirement in the Resolution.

Further, it is our opinion that the balances in the various reserve funds maintained by the City for the Electric Department are sufficient for their intended purposes.



December 21, 2005
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We appreciate the cooperation and assistance provided by the City and the Electric Department staff to Burns and McDonnell in the preparation of this report. We will be happy to discuss the report with you at your convenience.

Sincerely,
BURNS & McDONNELL

A handwritten signature in black ink that reads "Ted J. Kelly". The signature is written in a cursive style with a large, looping "T" and "K".

Ted J. Kelly
Project Manager
Business & Technology Services

A handwritten signature in black ink that reads "Gary L. Groninger". The signature is written in a cursive style with a large, looping "G" and "R".

Gary L. Groninger
Project Engineer
Business & Technology Services

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

INTRODUCTION

This Engineering Consultant's 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 has been retained as Engineering Consultant by the City of Dover, Delaware (City) for this purpose.

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 a 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 fourth annual Engineering Consultant's Report prepared for the City by Burns & McDonnell.

ELECTRIC SYSTEM OVERVIEW AND ASSESSMENT

The Electric System owned by the City primarily consists of production plant, transmission plant, distribution plant, and general plant facilities.

The City owns two power plants, the McKee Run Generating Station (McKee Run) and the VanSant Generating Station (VanSant). McKee Run consists of three steam turbine generating units with total combined capacity of 136 megawatts (MW). VanSant is a 39-MW simple-cycle combustion turbine unit.

The Electric Department currently purchases its power requirements under an all-requirements power and energy supply contract with Duke Energy Trading & Marketing (Duke). The contract was executed on March 11, 1996 and expires on June 30, 2006. Duke/Fluor Daniel (D/FD) assumed responsibility for operating and maintaining the City's two power plants under a separate agreement also dated March 11, 1996. These agreements provided for the City to retain complete ownership of the two generating stations. The partnership between D/FD was dissolved as of September 13, 2004. The two power plants are now operated by DE Operating Services, LLC (DEOS).

The Electric Department served approximately 20,900 customers, approximately 17,900 of which were residential customers, as of the end of fiscal year (FY) 2004. The distribution facilities include 219.3 miles of overhead lines and 217.5 miles of underground lines connected through 17 different substations. The Engineering Consultant's observations regarding the transmission and distribution systems are described in the Electric System Overview and Assessment section of this report.

Four of the Electric Department customers take service off of the 69-kV transmission system. These customers include the Dover Air Force Base, Kraft, Proctor & Gamble, 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 Department provides power for the plant site.

The Electric Department has one contract for providing transmission service through the Electric System. As mentioned above, the Electric Department provides transmission service to NRG for the output of its 16-MW electric generator.

General plant consists primarily of Electric Department administrative and operations facilities and pollution control related equipment on the McKee Run and VanSant generating stations. Other types of general plant include office furniture and equipment, transportation and power-operated equipment, and communication equipment.

The various systems and components of the generating stations reviewed by the Engineering Consultant are listed below.

Management and Organization

- Safety
- Training

Major Equipment Condition and Improvements

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

Based on statements and information provided, 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 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 generating facilities have demonstrated a high level of availability despite the dispatching of the units primarily for peak demand.

The Engineering Consultant's observations regarding the generating stations and units are described in the Electric System Overview and Assessment section of this report.

The following list includes areas of the transmission and distribution systems 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.

The Engineering Consultant's observations regarding the transmission and distribution systems are described in the Electric System Overview and Assessment section of this report.

FINANCIAL ASSESSMENT

The level of revenues required from the retail electric rates for the Electric Department were determined through the analysis of the financial results and net income or net margins for FY 2005. The Resolution requires that the Electric Department maintain a debt service coverage ratio of 1.25. 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:

- (1) The Current Expenses of the Electric System during the current fiscal years shown by the Annual Budget . . . for such fiscal year, and*
- (2) 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.”*

Customers of the Electric Department of the City are charged for the electric service they receive based on 24 different rate schedules and contracts.

Total energy sales decreased from approximately 748.6 million kilowatt-hour (kWh) in FY 2003 to approximately 731.6 million kWh in FY 2005, or average annual decreases of 1.14 percent. Total revenues from sales to electric customers in FY 2005 were approximately \$60.2 million, representing average annual increases of 3.11 percent from the FY 2003 rate revenue of approximately \$56.6 million. In FY 2005, the average price per kWh for residential customers was 10.05 cents and the system-wide average price was 8.22 cents per kWh. These average prices compare to the corresponding 2003 national average rates of 8.64 and 7.35 cents per kWh, respectively.

From FY 2003 to FY 2005, the cost of power increased at an annual rate of 4.6 percent from approximately \$36.2 million to approximately \$39.6 million. Over the same period the volume of energy purchased decreased from approximately 778.7 million kWh to approximately 768.3 million kWh. The Electric Department's cost of power supply has increased from 64 percent of rate revenue in FY 2003 to 65.9 percent in FY 2005. Power costs are nearly equal to two-thirds of the total sales revenue. This increase means that the remaining portion of electric revenues available to cover the Electric Department's internal costs, allocated costs from the City, and transfers to other funds is getting smaller.

Net income decreased from FY 2003 to FY 2004 by 82.6 percent from approximately \$4.8 million in FY 2003 to approximately \$0.8 million in FY 2004. Net income increased from FY 2004 to FY 2005 by 200.4 percent to approximately \$2.5 million in FY 2005, primarily due to decreased operating expenses and a net increase in the fair value of investments.

The Resolution requires that annual revenues of the Electric Department be no less than the total current expenses plus 125 percent of the greatest remaining annual debt service. The Electric Department achieved debt service coverage ratios for FY 2003, FY 2004 and FY 2005 of 5.43, 5.04, and 4.84, respectively; all of which were well over the required 125 percent. 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 insure against varying types of liabilities, as well as significant losses related to various Electric Department properties. In Burns & McDonnell's opinion, 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 has established several funds and reserves to ensure that moneys are available for specific purposes when they are needed. Following is a list of these funds.

- Electric Revenue Fund
- Electric Improvement and Extension Fund
- Interest and Sinking Fund (Reserve Account)
- Depreciation Reserve Fund
- Future Capacity Fund
- Insurance Stabilization Fund
- Contingency Reserve Fund

- Electric Rate Revenue Fund

The Engineering Consultant reviewed the last five funds listed above and found that the balances in those funds as of June 30, 2005 were consistent with the required or target balances.

CONCLUSIONS

Based on the reviews and assessments completed, 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 systems and the associated facilities are consistent with current generally accepted electric utility standards.
3. The Electric Department capital projects included in the City's Capital Investment Plan and the FY 2005 Operating Budget are necessary and should provide improved reliability and power quality for the Electric System.
4. The balances as of June 30, 2005 for the various reserve funds maintained by the City for the Electric Department 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 Department 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 (1.25 times) defined in Section 502(c) of the Resolution.

* * * * *

PART I - INTRODUCTION

PART I INTRODUCTION

The City of Dover, Delaware (City) operates a municipally-owned electric utility system that serves approximately 21,000 customers within the City and the surrounding areas. The service area of the electric utility is located in the middle portion of the state of Delaware, with the City itself located approximately 70 miles south of Philadelphia, Pennsylvania.

PURPOSE OF REPORT

This 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 has been retained as Engineering Consultant by the City as 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 this 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

- (i) the proper maintenance, repair and condition of the Electric System during the ensuing fiscal year and a 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 fourth annual Engineering Consultant's Report prepared for the City by Burns & McDonnell.

ORGANIZATION

The City Manager is responsible for the overall management of the Electric Department. The Electric Director oversees the day-to-day operations of the Electric System and manages the Electric Department staff. The Electric Department is organized into three separate divisions. Descriptions of the current Electric Department divisions follow.

Administration Division – The Administration Division provides overall administration of the Electric Department's Engineering and Transmission & Distribution Divisions. This division performs all planning and budgeting, monitors all construction projects, administers all power supply and power plant operations agreements, and coordinates all customer service and public relations functions for the Electric Department.

Engineering Services & System Operations Division – The Electric Engineering Division provides design, specifications, construction management, and project inspection for all capital investment projects of the Electric Department. This division develops and maintains maps, plans, and specifications, as well as engineering standards for construction and maintenance of the Electric System.

Transmission & Distribution Division – The Transmission & Distribution Division constructs, operates, and maintains the overhead and underground Electric Systems and fiber optic communication facilities. This division installs and maintains all electric metering, as well as street and security lighting. This division also investigates and resolves customers power problems and oversees the work of tree trimming contractors.

Figure I-1 presents an organization chart showing the staffing of the various divisions in the Electric Department, with the number of individuals in each position indicated. Total staffing at the time the FY 2006 budget was issued was 51.

The remaining sections of this report provide the information required in Section 504 of the Resolution. Part II describes the assessment of the Electric System and its condition. Part III presents the financial results for the Electric Department, including an analysis of the adequacy of revenues provided by the electric rates.

In the preparation of this report, Burns & McDonnell used the City's audited financial statements and other data and information provided by the City. Burns & McDonnell has relied on the information provided without independent verification 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 this report, it makes no representation that the conditions assumed will occur.

* * * * *

Figure I-1
ORGANIZATION
Page 1

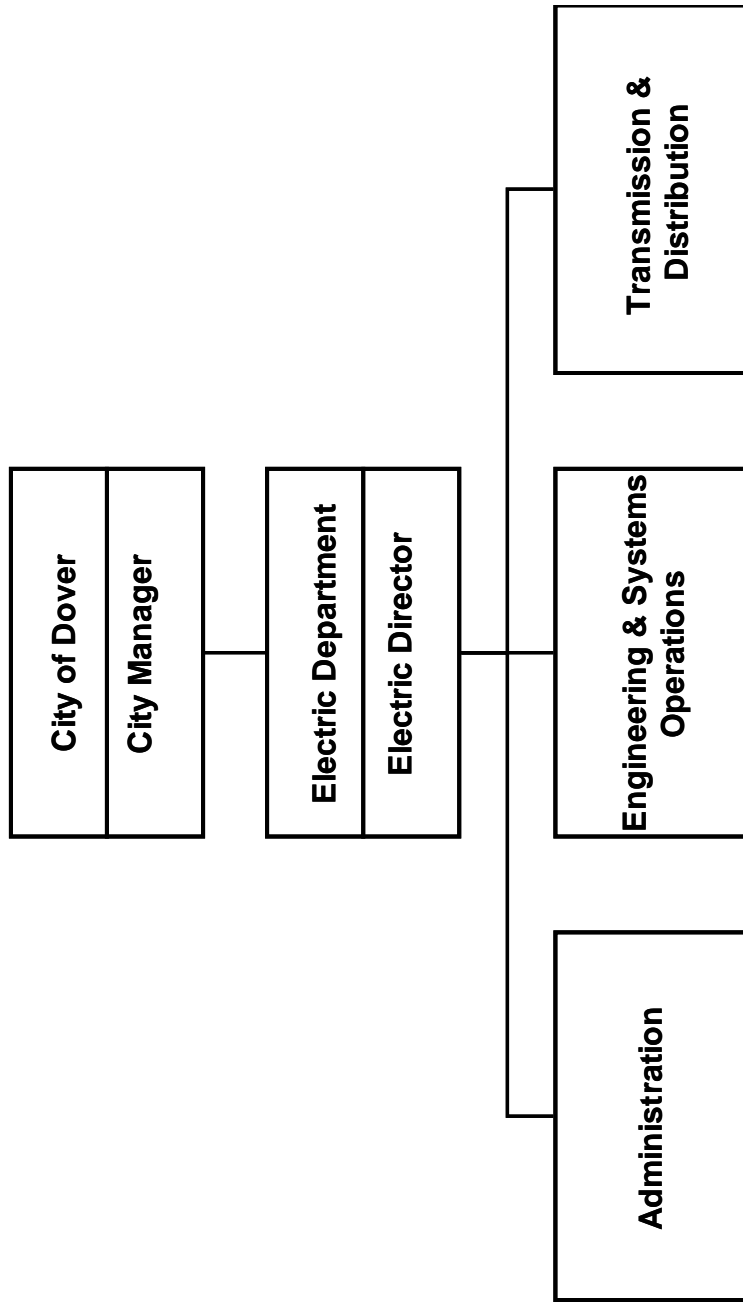
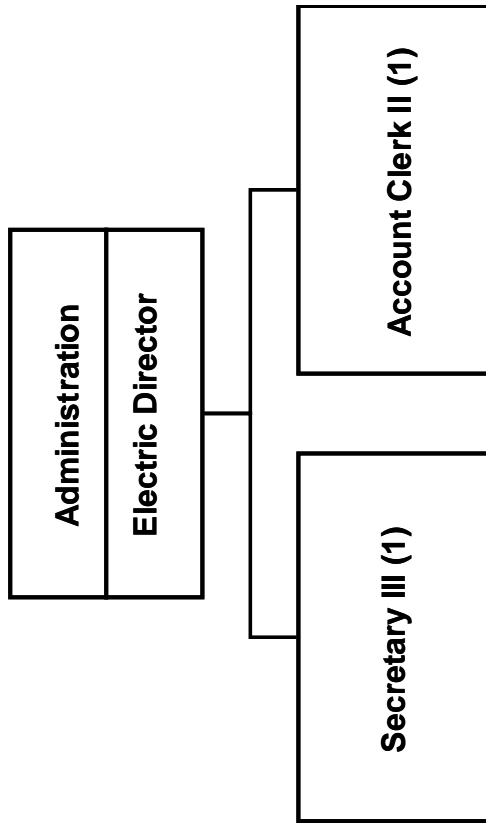


Figure I-1
ORGANIZATION
Page 2



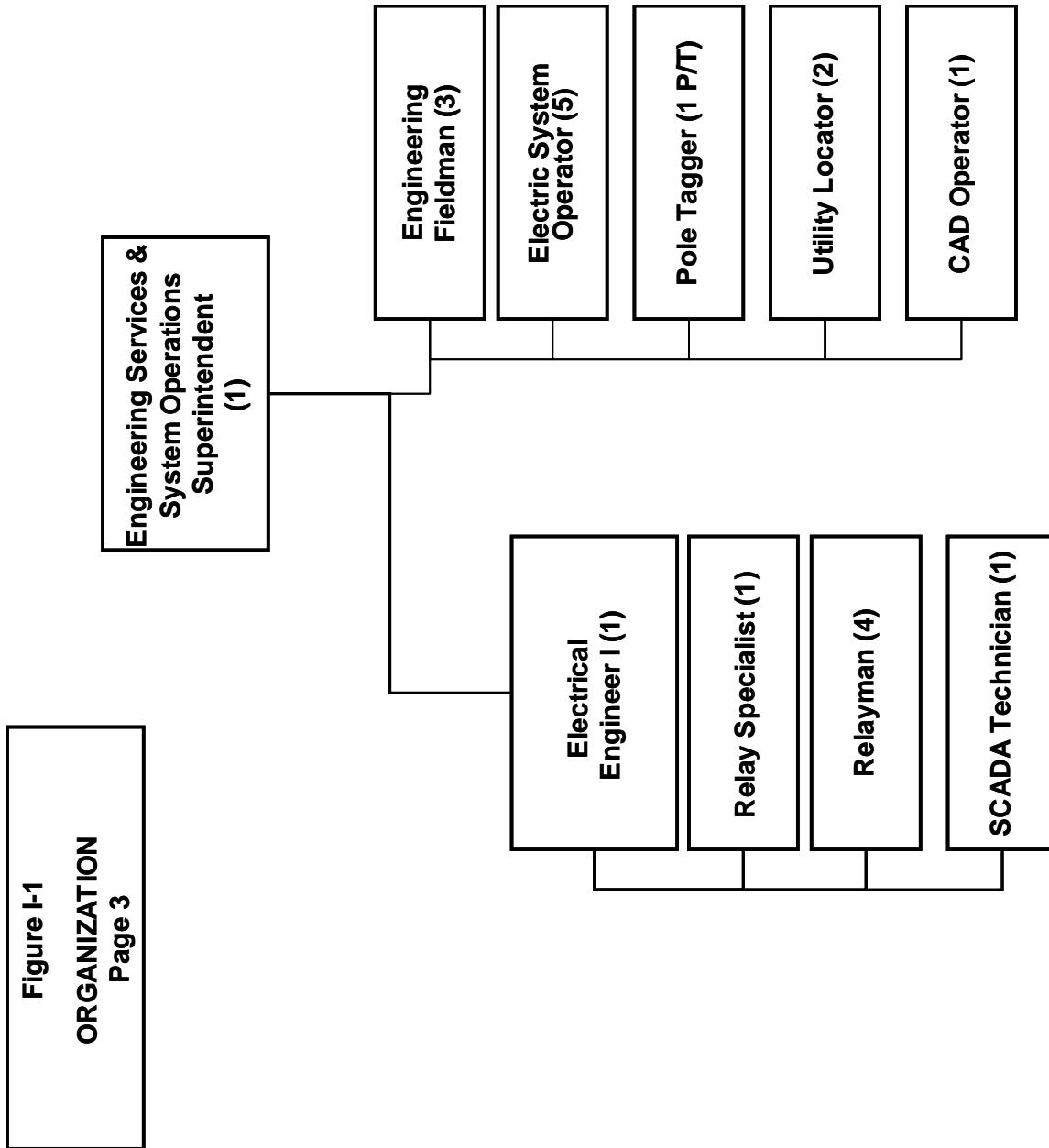
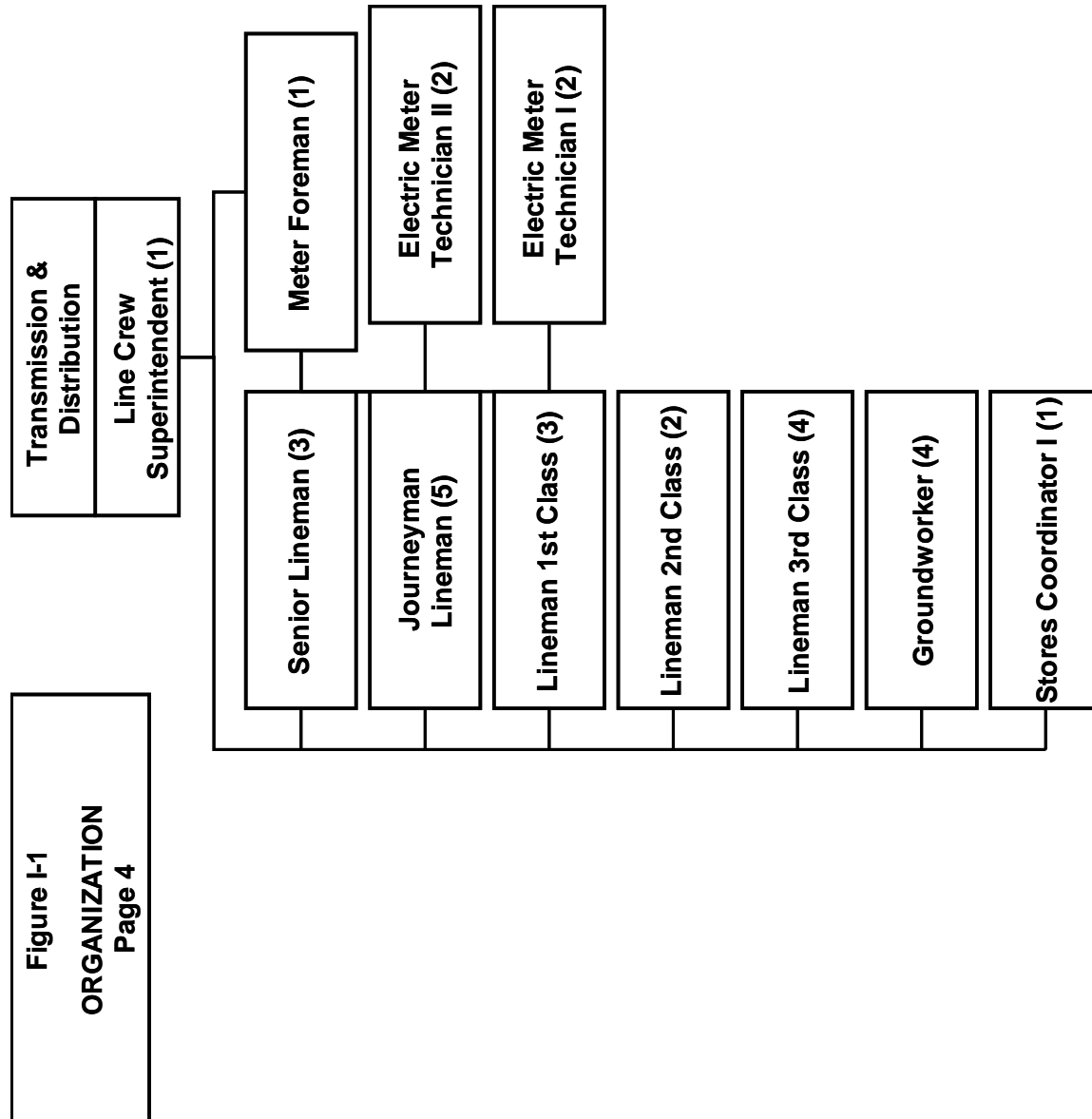


Figure I-1
ORGANIZATION
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PART II – ELECTRIC SYSTEM OVERVIEW AND ASSESSMENT

PART II

ELECTRIC SYSTEM OVERVIEW AND ASSESSMENT

ELECTRIC SYSTEM OVERVIEW

The Electric System owned by the City of Dover, Delaware (City), primarily consists of production plant, transmission plant, distribution plant, and general plant facilities. Table II-1 shows the year-end balances of the various plant components within the above categories for fiscal year (FY) 2003 through FY 2005. Table II-2 itemizes the specific capital investment plan projects and anticipated expenditures for FY 2006, as well as projections for other components included in the FY 2006 budget.

Production Plant

The City owns two power stations, the McKee Run Generating Station (McKee Run) and the VanSant Generating Station (VanSant). McKee Run consists of three steam turbine generating units with total combined capacity of 136 megawatts (MW). VanSant is a 39-MW simple-cycle combustion turbine unit.

The Electric Department currently purchases its power requirements under an all-requirements power and energy supply contract with Duke Energy Trading & Marketing (Duke). The contract was executed on March 11, 1996 and expires on June 30, 2006. Duke/Fluor Daniel (D/FD) assumed responsibility for operating and maintaining the City's two power stations under a separate agreement also dated March 11, 1996. These agreements provided for the City to retain complete ownership of the two generating stations. The partnership between Duke and Fluor Daniels was dissolved as of September 13, 2004. The two power stations are now operated by DE Operating Services, LLC (DEOS). The Engineering Consultant's observations regarding the generating stations and units are described in the Electric System Assessment section below.

As mentioned previously, the power supply agreement with Duke is an all-requirements contract. This contract guarantees certain rates for each year during the 10-year term. However, these guaranteed rates are applicable up to predefined maximum amounts of demand and energy. Monthly demand in excess of the maximum is priced at higher rates for each year as defined in the contract. Excess energy is determined on an annual basis and is priced using a specific formula defined in the contract that incorporates current economic indicators.

Table II-1

**YEAR-END PLANT IN SERVICE
FISCAL YEARS 2003 - 2005
City of Dover Electric Department**

	Plant in Service Year-End Balance		
	FY 2003	FY 2004	FY 2005
Production			
Land and land rights	\$1,403,464	\$1,458,066	\$1,488,382
Boiler plant equipment	15,275,712	15,259,321	15,259,321
Turbogenerator units	19,540,602	19,520,499	20,398,643
Accessory electric equipment	4,457,836	4,440,322	4,491,314
Miscellaneous steam plant equipment	17,982,832	17,944,886	17,985,283
Miscellaneous other plant equipment	791,284	791,284	791,284
Total Production	<u>\$59,451,730</u>	<u>\$59,414,378</u>	<u>\$60,414,227</u>
Transmission			
Station equipment	\$7,328,086	\$7,233,817	\$17,581,238
Overhead conductors and devices	6,011,873	5,861,557	6,057,818
Underground conductors and devices	2,890,161	2,731,250	2,731,251
Total Transmission	<u>\$16,230,120</u>	<u>\$15,826,624</u>	<u>\$26,370,307</u>
Distribution			
Station equipment	\$7,235,277	\$7,150,616	\$7,163,415
Overhead conductors and devices	5,080,263	4,995,894	4,995,894
Underground conductors and devices	8,097,930	8,535,800	9,487,621
Line transformers	7,917,680	7,908,312	8,043,108
Meters	2,653,236	2,759,096	2,954,619
Street lighting and signal systems	1,483,990	1,391,522	1,391,523
Total Distribution	<u>\$32,468,376</u>	<u>\$32,741,240</u>	<u>\$34,036,180</u>
General Plant			
Structures and improvements	\$14,189,566	\$14,138,112	\$14,464,266
Office furniture and equipment	570,871	456,692	497,870
Transportation equipment	417,605	417,605	494,384
Power operated equipment	20,000	20,000	20,000
Communication equipment	1,127,378	1,083,691	1,083,691
Miscellaneous equipment	4,716,772	4,424,513	4,447,176
Total General Plant	<u>\$21,042,192</u>	<u>\$20,540,613</u>	<u>\$21,007,387</u>
Total Plant in Service	<u>\$129,192,417</u>	<u>\$128,522,855</u>	<u>\$141,828,102</u>
Construction Work in Progress	\$1,292,523	\$10,339,827	\$819,813
Total Plant	<u>\$130,484,941</u>	<u>\$138,862,682</u>	<u>\$142,647,916</u>

Table II-2

PLANNED CAPITAL EXPENDITURES - FISCAL YEAR 2006
City of Dover Electric Department

Capital Investment Plan Projects	Plant in Service Year-End Balance	
Engineering		
69 KV Feeders 3 and 4	\$190,000	
Outage Report System	76,500	
Pole Inventory System	160,000	
Replacement of 69 KV Breakers	150,000	
Mayfair to Mid City	723,200	
Distribution Upgrades	300,000	
Kesselring Feeder	135,879	
SCADA Remote Terminal Units	28,000	
Governors Avenue Rebuild	1,268,450	
College Road Capacitor	155,000	
System OPS Radio Replacement	60,000	
Lighting Project and Rehab	50,000	
Connective 230 Line Rehab	<u>187,000</u>	\$3,484,029
Transmission and Distribution		
New Developments/Upgrades	\$520,000	
Radio Read Meters Change Out	545,000	
Heart Start ADS	27,000	
Meter Testing Bench	<u>23,000</u>	<u>\$1,115,000</u>
Total Capital Investment Plan Projects		\$4,599,029

The highest system peak demand experienced on the Electric System occurred in August 2001 when the total load reached 171 MW. For the FY 2005, the Electric Department had total energy sales of approximately 732 gigawatt-hours (GWh). Annual energy sales are projected by the Electric Department to grow from FY 2005 through FY 2008 at a compound annual rate of approximately 1.5 percent. Over the same period, the compound annual growth rate in system peak demand is projected to be 1.3 percent.

Transmission and Distribution Plant

The Electric Department served approximately 20,900 customers, approximately 17,900 of which were residential customers, as of the end of FY 2004. The service area includes 219.3 miles of overhead lines and 217.5 miles of underground lines. The Engineering Consultant's observations regarding the transmission and distribution systems are described in the Electric System Assessment section below.

Four of the Electric Department's customers take service off of the 69-kV transmission system. These customers include the Dover Air Force Base, Kraft, Proctor & Gamble, 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 Department provides power for the plant site.

The Electric Department has one contract for providing transmission service through the Electric System. As mentioned above, the Electric Department provides transmission service to NRG for the output of its 16-MW electric generator.

General Plant

The general plant category consists primarily of Electric Department administrative and operations facilities and pollution control related equipment on the McKee Run and VanSant generating stations. The City's agreement with DEOS is that DEOS is responsible for the costs of all replacements and upgrades required to maintain the capability of the two stations, except that the City is responsible for the costs of compliance with new regulations promulgated after the start of the operations and maintenance contract. Other types of items included in general plant include office furniture and equipment i.e. computer-related equipment, transportation and power-operated equipment, and communication equipment. Burns & McDonnell did not specifically assess the items in the general plant category.

ELECTRIC SYSTEM ASSESSMENT

Burns & McDonnell, Engineering Consultant to the City, performed observations and assessments of the Electric System assets in support of the development of this annual Engineering Consultant's Report. The findings from the review of the City's Electric System are documented in this section of the report.

Electric Generating Stations

On October 12, 2005, Mr. Ted Kelly and Gary Groninger of Burns & McDonnell Engineering Company met with representatives of DEOS to discuss the condition of McKee Run and VanSant, both of which are owned by the City. Mr. Dean Blaha, Plant Manager, coordinated the visit and arranged for the following additional DEOS personnel to be available for the meeting.

- Mr. Kenneth Beard, O&M Superintendent
- Mr. Phil Kosek, Administrative Coordinator
- Mr. Paul Greenage, Maintenance Coordinator

Description of Generating Stations: McKee Run consists of three units. Unit 1 and Unit 2 were originally coal-fired units, which commenced operation in 1961 and 1962, respectively. In 1972, these units were converted to burn No. 6 fuel oil. These units are rated at 17 MW each. Unit 3 commenced operation in 1975 and was designed to fire No. 6 fuel oil and natural gas. Unit 3 is rated at 102 MW. Currently, each of the units has dual fuel usage capability, No. 6 fuel oil and/or natural gas. VanSant consists of a simple cycle combustion turbine rated at 39 MW in the summer and 40 MW in the winter. This unit commenced operation in 1991. VanSant is normally unmanned, except when it is dispatched into service. Personnel from McKee Run are sent to VanSant to start-up and operate the unit.

Prior to 1996, these generating facilities were operated and maintained by the Electric Department. In 1996, the City contracted with Duke/Louis Dreyfus (D/LD) to operate and maintain the facilities. In turn, D/LD signed an agreement with D/FD to operate and maintain the Stations. The partnership between Duke and Fluor Daniels was dissolved in September 2004. The two Stations are now operated by DEOS.

Management and Organization: Station management appeared very well organized and knowledgeable, and presented a logical approach to operation and maintenance of the generating facilities. Mr. Dean Blaha serves as the Plant Manager. The management/leadership team consists of Mr. Blaha and nine other personnel. Reporting to Mr. Blaha are the positions of Administrative Coordinator,

Administrative Specialist, Material Management Coordinator, and O&M Superintendent. The Superintendent oversees a Maintenance Coordinator, Plant Engineer, and four Operations teams. Each operations team consists of the supervisor and four operators working 12-hour rotating shifts. The maintenance team consists of a coordinator and seven employees working 10-hour shifts. The operations and maintenance personnel are all union employees and the relationship between the union and management is reported to be excellent. McKee Run is currently at a staff level of 35. It is the opinion of Burns & McDonnell that this is an excessive level of staff required based on the dispatch level of the plant the past two years. Currently the Plant Engineer position is vacant after the person in the position was promoted to Operation and Maintenance Superintendent.

Safety: Safety is of paramount importance to the entire Station staff. In FY 2005 there were two reportable injuries. One was a first aid case that did not result in any loss of time. The current count of injury-free days is 86 through June 30, 2005. Prior to the beginning of the current injury-free period, the Station achieved an injury-free period of 1,427 days. Safety First is an overall theme and attitude. Near-miss incidents are documented, reviewed, and corrective follow-up actions taken as required. An employee-run safety committee is actively in place. This committee conducts monthly safety meetings, completes safety equipment inspections, and defines and implements tasks to improve safety in all areas. Safety is the first topic discussed at all meetings. Employees participated in creating an indoctrination video emphasizing safety that is shown to all visitors when entering the Station.

Training: For each employee the required annual OSHA compliance training is completed and documented. For the new employee, a formal two-day employee orientation program is in place. 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) has been established. EDQP is a formal program for training operators to progressively advance to positions having additional responsibilities. In addition to the above programs, cross training of various disciplines also occurs. An example is electricians cross training with instrumentation and control (I&C) craft and vice versa.

Major Equipment Condition and Improvements: In general, the generating facilities are maintained and operated in very good condition as evidenced by the high availability of the units. The generating facilities are dispatched sparingly and operate primarily as peaking units. As such, the individual units incur a very large number of starts per year. Table II-3 summarizes the major FY 2005 Operating Results:

Table II-3
Fiscal Year 2005 Operating Results

<u>Unit Number</u>	<u>Rated MW Capacity</u>	<u>Operating Hours</u>	<u>Net MWh Production</u>	<u>Number of Starts</u>	<u>Net Capacity Factor [1]</u>	<u>Service Factor [2]</u>
McKee Run						
1	17	311.0	3,688	5	2.48%	3.55%
2	17	288.9	3,515	5	2.36%	3.30%
3	102	1,363.5	83,759	60	9.37%	15.75%
VanSant [3]	<u>39</u>	<u>149.9</u>	<u>4,016</u>	<u>41</u>	<u>1.18%</u>	<u>1.17%</u>
Total	175	2,113.4	94,610	111	6.17%	6.03%

[1] Net Capacity Factor = (Net MWh Production / (Total Available Hours * Rated MW Capacity)) * 100

[2] Service Factor = (Operating Hours / Total Available Hours) * 100

Total Available Hours = 365 days, 24 hours/day

[3] VanSant is rated at 40 MW in the winter and 39 MW in the summer

The large amount of time that units are not operating allows for maintenance and repair of the units. As a result, the overall equivalent availability factor for the generating facilities was well above 90 percent.

Maintenance activities are organized, planned, and managed using a computer based system, Maximo. Using this system, all three major categories of maintenance activities, i.e., corrective, preventative, and predictive, are managed.

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 according to a predetermined categorization. The work order is then assigned to an operator or maintenance technician for completion.

This system is also used to manage and track preventative maintenance activities that follow a schedule. Changing filters, turning on and off heat tracing, etc. are examples.

Predictive maintenance activities practiced include oil analyses, vibration testing, and infrared surveys. Recently, portable vibration testing equipment was purchased. This testing equipment will improve the

frequency of and capabilities to trouble shoot rotating equipment to identify problems and take corrective actions before equipment failure occurs.

Following is a summary of the condition assessment of McKee Run major equipment and VanSant as presented by the DEOS staff. Burns & McDonnell made no internal assessments of equipment during the facility tour.

Steam Turbines/Generators: The steam turbines and generators for Units 1, 2, and 3 were reported to be in satisfactory condition with no major problems.

No major repairs or replacements are expected or required for the turbine/generators in the next fiscal year.

Boilers and Auxiliaries: Boiler inspections are conducted every year on each of the boilers. Each fiscal year, the inspections on each boiler typically include inspection and cleaning of the major boiler components, including the mud and steam drums, the forced draft and induced draft fans, the windbox, condenser water box, condenser tubes, hotwell, air preheater components, and safety valves.

In June 2005, Unit 1 experienced a loss of feed water flow on unit with a suspected tube break. However, the cause was due to having the continuous blow down valve in the open position. When it was closed, the feed water flow returned to normal. A forced outage of Unit 1 was also experienced in June 2005 due to a communications mix up which resulted in no start-up gas available.

Unit 2 also had a forced outage due to lack of start-up gas as mentioned above. Unit 2 also had some minor incidents which were reported and corrected and did not cause any unit downtime.

Unit 3 underwent a forced outage in July 2004 when paint on the limit switches on C3 gas valve caused the lever arm to hang up, thereby causing the entire fuel system to trip because it did not close within the ten second time period. This was corrected and all similar devices were checked to insure that this incident does not happen again. In February 2005 Unit 3 had a reduction in load due to a leak in the atomizing steam system. The unit was reduced from full load to approximately 30 MW on gas fuel as the atomizing system is not needed on gas. Weld repairs were made to the leaking tee and after a period of three hours, the unit was returned to full load availability. In June 2005 Unit 3 experienced a generator trip at full load when a breaker (2050) was opened which caused breakers 2030 and 2040 to open also

which caused the trip. All appropriate breakers were put into their proper position and the unit was returned on-line. The cause of this incident is still being investigated.

Station Cooling Water Systems: The Station has split cooling water systems with one system serving Unit 1 and Unit 2 and a separate system serving Unit 3. The cooling water systems are reported to be sufficiently sized and in satisfactory condition, with no major problems reported.

Cooling Tower 3 received a variety of improvements and repairs, including replacement of the fire deluge and pilot system, removal of asbestos from the cooling tower decking, repair of all five cells of the cooling tower, installation of an acid unloading pad at the cooling tower's acid tank, cleanout of the tower basin and rebuilding of the basin walls and the weir basin.

Fuel Handling Systems: Natural gas comes into the station in a 4-inch diameter pipeline for Unit 1 and Unit 2 and in a 10-inch diameter pipeline for Unit 3. Fuel oil is delivered to the station and unloaded into tanks. Two natural gas-fired boilers heat the oil lines and storage tanks. Forwarding pumps deliver the oil to each of the units. These systems are reported to be in satisfactory condition, with no major problems reported. Containment walls were installed at the fuel unloading area to prevent any oil spills from entering the sewer system. No further major repairs or replacements are expected or required for the fuel handling systems in the next fiscal year.

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 made as required. Boiler feed water is treated city water (well water from City) using a regenerative ion resin demineralizer system, along with deaeration for oxygen control. Boilers 1 and 2 use a coordinated phosphate control for boiler internal purity control and 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's permitted limits. By combining city water with the well water, the chlorine levels can be maintained at the permitted limits.

Cooling tower makeup is also City water. The primary control parameter is silica concentration. Blow down is adjusted as required to maintain control.

Steam purity is not continuously monitored. Samples are taken 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.

The station has not experienced any internal corrosion related failures, steam path deposits, or excessive condenser fouling.

NALCO provides water treatment consulting services and chemicals. A representative visits the station once per week to review test data and check chemical usage rates.

Station Electrical Systems: Station electrical systems and transformers are considered to be in satisfactory condition. Through the annual transformer oil sampling program it was discovered that Unit 3 had an excessive particulate count in the main transformer Load Tap Charger (LTC). The oil was cleaned and filtered during a period when the unit was not in use.

No major repairs or replacements are expected or required for the station electrical systems in the next fiscal year.

Station Control Systems: Unit 1 and Unit 2 controls are electro-pneumatic and Unit 3 controls are a distributed control system (DCS). In general the station control systems are considered to be in satisfactory condition. The Unit 1 and Unit 2 control systems are outdated but perform satisfactorily. Any long-term operation plans for these two units should include consideration of an upgrade of the control systems.

General Facilities: A new station air compressor and air dryer were purchased and will be installed in the fall of 2004. Repairs to the roof over the turbine floor will be undertaken during fiscal year 2005. In general, the station facilities appeared clean and well maintained.

VanSant Generating Station: In general, the unit is operated very infrequently, but is well maintained. Although the station is only manned when operating, an operator performs a twice daily walk through with a checklist of items to review and the results/findings are logged.

In January 2004 the starting diesel overheated and cracked the right side head. The cracked head was replaced with a new head. Also during the year, two bad fuel injectors were found and replaced, and a burnt coil on the generator differential trip relay caused the 1200 amp breaker to trip. The burnt coil was

replaced and the 1200 amp breaker was reset. Two bad fuses on the number two water injection pump breaker were also found and replaced.

Currently the hot gas path of the turbine is being inspected and repaired as necessary. Also the generator is being rewedged. This repair is considered preventative maintenance and is being performed per recommendations of General Electric. A new air dryer has also been purchased and will be installed in FY 2005.

Transmission and Distribution Systems

On October 12th and 13th, 2005, Mr. Ted Kelly and Mr. Gary Groninger, visited the City to collect information and to observe the electric facilities owned by the City and operated and maintained by the Electric Department. Steve Sax, Electric Director, provided information as requested. Steve Enss, Engineering Services & Operations Superintendent led a tour of the electric transmission and distribution systems.

The Electric Department distributes power to its customers by a network of transmission lines, distribution substations, and distribution lines. The transmission lines are rated at 22 kV or 69 kV and are connected to 17 distribution substations located throughout the service area. The distribution substations reduce the power from transmission voltages to the primary distribution voltages of 4 kV or 12 kV to facilitate distribution of electric power to customers. The 22 kV and 4 kV lines are being converted to 69 kV and 12 kV to make the system uniform. Duke completed the last load flow study of the Electric System in 2001. A short circuit duty study was completed recently to study the effects of the new 230-kV Conectiv Inc. (Conectiv) tie station.

System Reliability: The Electric Department provides for reliability of its distribution system by configuring a majority of its distribution circuits in primary closed loop arrangements, improving existing circuits, and installing adequate substation transformer capacity. Normal transformer and line loading are limited to provide sufficient margin to convey firm power requirements during an emergency or a switching operation, or for maintenance. The City has one mobile substation stored at St. James substation that is capable of functioning at all electrical system voltages to be used in case of a substation transformer failure.

The Electric Department is continually making efforts at improving reliability of the Electric System. There was a slight increase in the number of outages in the past year due to some weather-related issues. One way to avoid weather-related outages on the distribution lines is to move lines from overhead to underground. The Electric Department has been continually making an effort to move many of its overhead lines to underground.

Power Quality: The Electric Department does not have any significant power quality problems. The overall power factor for the Electric System has increased to approximately 98.5 percent. Power transformers equipped with load tap changers 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.

Operations and Maintenance: The Electric Department 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. Two more large screens are planned in FY 2007 in the control room to provide the capability to display additional system information needed during emergencies. 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 will soon finish classes to become PJM (Pennsylvania/New Jersey/Maryland ISO) certified.

Loading on substation transformers used for an emergency, a switching operation, or maintenance is limited to 150 percent of the rated capacity, followed by a 12-hour cool down period. The mobile substation is energized at least once a year to prevent moisture build-up in the transformer oil and to ensure the substation works properly.

The Electric Department has nine crews 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 maintenance crew is responsible for visual inspections of equipment, trip counter checks, battery systems checks, and transformer oil tests. Tree trimming is now contracted out and is no longer performed by the Electrical Department.

The City contracts with an outside firm every five years to check and chemically treat each wood pole in the Electric System. The City also 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 transmission poles were tested in 2005 and were found, for the most part, to be in good condition.

Design Standards and Specifications: The Electric Department designs the transmission and distribution circuits and some substation upgrades in conformance with national safety standards. Other substation and transmission design is contracted out to The Shaw Group, Black & Veatch and Wilson and Wilson Consultants.

The underground distribution design utilizes 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 PVC pipe for added protection and for easy cable replacement. The Electric Department installs unshielded cable manufactured by Pirelli that is rated at 15 kV, with 133 percent Ethylene Propylene Rubber (EPR) insulation.

The overhead distribution design utilizes a flat construction using a single cross-arm and insulators on 45 foot class 2 poles. Each pole is grounded with ground rods to five 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.

Transmission and Distribution Improvements: The following describes completed, on-going, and planned improvements to the City's Electric System:

Completed:

- White Oak Line – Rebuilt to support the new 230 kV Tie station
- 69 kV Line from VanSant to Mayfair
- Division Street Substation
- Power supply system analysis
- Administration UPS

- Relay test set
- Printer plotter

On-Going:

- Pole Inventory
- Radio read meters
- 69 kV breaker replacement
- 69 kV line from Mayfair to Mid City
- Kesselring Feeder

Planned:

- Lebanon Transformer replacement
- 69 kV Feeders 3 & 4
- Governors Avenue rebuild
- Delmarva Power 230 line rehab
- Outage Reporting System
- GIS Upgrade

System Tour: The tour of the Electric System included drive-by observations of a sample of the transmission circuits, distribution circuits, and substations.

The Electric System was in good condition and appeared to be well maintained. The newly completed Cartanza Substation is a 230/69 kV substation, which serves as an inter-tie with Conectiv. Conectiv maintains the 230 kV side of the station, while the City of Dover will maintain the 69 kV side. Cartanza currently has two 69 kV lines leaving the station. There are plans for a total of four 69 kV lines at Cartanza. The two lines leave the station on one structure and remain a double circuit until the circuits split down the line.

Most of the seventeen substations were observed during the tour. St. Jones substation is the last 22/4 kV substation on the system. This station is old and will be updated when the 22 kV and 4 kV line conversions are complete. Division Street substation has been rebuilt. Mayfair substation is also in the process of being rebuilt and the transformer and breaker are on site. North Street and VanSant substation were observed and appeared to be in good condition. Overall, the substations appeared to be well

maintained. Some older structures have corrosion on the steel, but much of this steel will be replaced by planned or ongoing projects and upgrades. There was no vegetation visible and the yards appeared to be well maintained.

During the tour the 69 kV and 12 kV lines were observed and all appeared to be in good condition. None of the poles appeared to be leaning. There were a few abandoned poles from recent line rebuilds that have not been removed.

Conclusions

Based on statements and information provided, as well as the observations and reviews performed, it is Burns & McDonnell's opinion 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 generating facilities have demonstrated a high level of availability despite the dispatching of the units primarily for peak demand.

In addition, it is Burns & McDonnell'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. The City and the Electric Department are proactive in preventative maintenance and expansion of the Electric System before problems arise.

* * * * *

PART III – FINANCIAL ASSESSMENT

PART III

FINANCIAL ASSESSMENT

The financial results of the City of Dover, Delaware (City) Electric System for the fiscal year (FY) ended June 30, 2005 were generated through the management and operation of the Electric System by the Electric Department. The financial results are reviewed below.

FINANCIAL RESULTS

The revenues of the Electric Department during FY 2005 included charges for electric service, as well as miscellaneous revenues from items such as rents, pole connections, reconnect fees, Duke contract revenue, etc. On the Comparative Statement of Revenues, Expenses, and Changes in Unreserved Retained Earnings, these revenues were compared to the Electric Department's costs of providing services to its customers to determine whether the financial requirements of the Electric Department were met.

Required Revenue Level

The level of revenues required from the retail electric rates for the Electric Department could be determined through the analysis of the financial results and net income or net margins for the most recent FY. The City of Dover, Delaware Resolution Authorizing and Securing Electric Revenue Bonds, adopted December 23, 1985 (Resolution) requires that the Electric Department maintain a debt service coverage ratio of 1.25. 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:

- (1) The Current Expenses of the Electric System during the current fiscal years shown by the Annual Budget . . . for such fiscal year, and*
- (2) 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.”

Electric Rates

Customers of the Electric Department of the City are charged for the electric service they receive based on rate schedules, tariffs, or contracts that reflect the costs to the Electric Department of providing that service. For purposes of setting electric rates, customers with similar load and service characteristics, i.e., size of load, load factor, equipment, etc., should be placed in the same rate classification. Following are the various current rate classifications.

- Residential
- Small Commercial
- Medium Commercial
- Primary
- Primary Time of Use – Playtex
- Water Pump
- Water Pump2
- Transmission Voltage
- Dover Air Force Base
- Kraft
- Proctor & Gamble
- Tilcon Delaware Totaled
- Special Application Time of Use
- Private Outdoor Lighting
- Outdoor Development Lighting
- Supplemental for NRG

Operating Results

The Electric Department provides service to its customers under the 24 available rate schedules listed previously. However, Table III-1 presents summaries of the energy sales, the number of customers, and the average kilowatt-hour (kWh) per customer of the Electric Department for FY 2003 through FY 2005 by the City's revenue classifications and in total. Total energy sales decreased from approximately 748.6

Table III-1

ANNUAL SALES AND CUSTOMERS
FISCAL YEARS 2003 - 2005
City of Dover Electric Department [1]

	2003	2004	2005
Energy Sales (kWh)			
Residential	184,758,999	186,999,447	186,240,829
Commercial	220,100,859	223,533,328	231,085,393
Primary	159,896,719	173,992,513	164,293,100
Transmission	175,062,922	157,667,740	142,606,622
Municipal	8,780,754	8,119,610	7,409,075
Total Energy Sales	748,600,251	750,312,638	731,635,019
Average Number of Customers (bills)			
Residential	17,585	17,703	17,943
Commercial	2,842	2,870	2,963
Primary	31	32	33
Transmission	4	4	4
Municipal	1	1	1
Total Customers	20,463	20,610	20,944
Energy Per Customer			
Residential	10,507	10,563	10,379
Commercial	77,459	77,877	78,001
Primary	5,228,231	5,451,463	4,978,579
Transmission	43,765,731	39,416,935	35,651,656
Municipal	8,780,754	8,119,610	7,409,075
Average Energy Per Customer	36,583	36,406	34,933

[1] From Monthly Electric Billing Summaries by Revenue Class.

million kWh in FY 2003 to approximately 731.6 million kWh in FY 2005, or an average annual decrease of about 1.14 percent.

Table III-2 shows the revenues resulting from those sales with ratios for revenue per kWh and average revenue per customer for each revenue classification and in total. Total revenues from sales to electric customers in FY 2005 were approximately \$60.2 million, representing an increase of 3.11 percent over the FY 2003 rate revenue of approximately \$56.6 million.

In FY 2005, the average price per kWh for residential customers was 10.05 cents and the system-wide average price was 8.22 cents per kWh. These average prices compare to the corresponding 2003 national average rates of 8.64 and 7.35 cents per kWh, respectively. For a regional comparison, the averages within PJM were 9.57 cents per kWh for residential and 8.40 cents system-wide.

The largest cost to the Electric Department of providing electric service to its customers is the cost of power purchased from its supplier, Duke Energy Trading & Marketing (Duke). From FY 2003 to FY 2005, the cost of power increased at an average annual rate of 4.6 percent from approximately \$36.2 million to approximately \$39.6 million. Over the same period the volume of energy purchased decreased from approximately 778.7 million kWh to approximately 768.6 million kWh.

The significance of this data to the Electric Department is illustrated in Table III-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. The ratios of purchased power expense to sales revenues are calculated for FY 2003 through FY 2005.

As indicated, the Electric Department's cost of power supply has increased from 64 percent of rate revenue in FY 2003 to 65.9 percent in FY 2005. Power costs are nearly equal to two-thirds of the total sales revenue. This increase means that the remaining portion of electric revenues available to cover the Electric Department's internal costs, allocated costs from the City, and transfers to other funds is decreasing.

Another comparison that can be made from the previous data is the relationship of the amount of energy purchased and delivered to the electric system to the energy sales. This relationship identifies the level of unaccounted for energy in the Electric System. This unaccounted for energy may include energy that was

Table III-2

**ANNUAL REVENUES AND SALES RATIOS
FISCAL YEARS 2003 - 2005
City of Dover Electric Department**

	2003	2004	2005
Revenue			
Residential	\$17,594,597	\$17,808,922	\$18,722,220
Commercial	18,852,142	19,222,266	20,612,790
Primary	9,264,745	9,834,190	11,040,130
Transmission	9,645,024	8,858,243	8,566,630
Municipal	1,243,214	1,201,637	1,228,655
Total Revenue	\$56,599,722	\$56,925,258	\$60,170,424
Revenue/kWh			
Residential	\$0.0952	\$0.0952	\$0.1005
Commercial	0.0857	0.0860	0.0892
Primary	0.0579	0.0565	0.0672
Transmission	0.0551	0.0562	0.0601
Municipal	0.1416	0.1480	0.1658
Total Revenue/kWh	\$0.0756	\$0.0759	\$0.0822
Revenue Per Customer			
Residential	\$1,001	\$1,006	\$1,043
Commercial	6,635	6,697	6,958
Primary	302,934	308,121	334,549
Transmission	2,411,256	2,214,561	2,141,657
Municipal	1,243,214	1,201,637	1,228,655
Average Revenue Per Customer	\$2,766	\$2,762	\$2,873

Table III-3

**NET REVENUE MARGINS AND UNACCOUNTED FOR ENERGY
FISCAL YEARS 2003 - 2005
City of Dover Electric Department**

	2003	2004	2005
Net Revenue Margins (\$)			
Sales Revenues	\$56,599,722	\$56,925,258	\$60,170,424
Purchased Power Expense	36,222,102	37,697,401	39,631,302
Net Revenue Margin	\$20,377,620	\$19,227,857	\$20,539,122
Net Revenue Ratio	64.0%	66.2%	65.9%
Unaccounted for Energy (kWh)			
Purchased Power	778,715,700	780,677,900	768,653,000
Energy Sales	748,600,253	750,312,638	731,635,019
Unaccounted for Energy (Losses)	30,115,447	30,365,262	37,017,981
Percentage	3.9%	3.9%	4.8%

unmetered, metered inaccurately, stolen, lost, etc. The bottom portion of Table III-3 presents these comparisons for the Electric Department for FY 2003 through FY 2005. As shown, the percentage ratio of the unaccounted for energy to the total energy purchased has increase to approximately 4.8 percent.

Table III-4 presents a re-creation of the City's Statement of Revenues, Expenses, and Changes in Unreserved Retained Earnings for the Electric Revenue Fund for FY 2003 through FY 2005. Net income decreased from FY 2003 to FY 2004 by approximately 82.6 percent from approximately \$4.8 million in FY 2003 to approximately \$0.8 million in FY 2004. Net income increased from FY 2004 to FY 2005 by 200.4 percent to approximately \$2.5 million in FY 2005, primarily due to decreased operating costs and a net increase in the fair value of investments.

Adequacy of Electric Rates

The Resolution requires that annual revenues of the Electric Department be no less than the total current expenses plus 125 percent of the greatest remaining annual debt service. Current expenses is a term defined in the Resolution to include 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."

In order to determine if the City and the Electric Department have met this requirement, the net income shown in Table III-4 must be adjusted to add back the operating transfers, the interest on bonds, depreciation expense, and other non-cash income and expenses. Table III-5 presents the adjustments to net income and the determination of the revenues available for debt service for FY 2003 though FY 2005.

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 III-6 shows that the annual totals of principal and interest amounts due on bonds currently outstanding decreases every year. Therefore, the debt service for each year is the maximum at that time. The calculation of the debt service coverage ratio on Table III-5 is based on the total debt service for each year from FY 2003 through FY 2005.

As Table III-5 indicates, the City and the Electric Department maintained a debt service coverage ratio each year that was well over the required 125 percent. Therefore, the revenues generated by the current electric rates have been sufficient to meet the applicable covenants of the Resolution.

Table III-4

**COMPARATIVE STATEMENT OF REVENUES, EXPENSES, AND
CHANGES IN UNRESERVED RETAINED EARNINGS
FISCAL YEARS 2003 - 2005
City of Dover Electric Department**

	Actual		
	FY 2003	FY 2004	FY 2005
Operating Revenues:			
Charges for Electric Service	\$56,599,722	\$57,151,810	\$60,170,424
Miscellaneous Services/Incomes	2,978,821	2,325,060	3,132,608
Total Operating Revenues	<u>\$59,578,543</u>	<u>\$59,476,870</u>	<u>\$63,303,032</u>
Operating Expenses:			
General Administration	\$4,388,332	\$3,858,224	\$4,500,056
Purchased Power	36,222,102	37,675,178	39,631,302
Transmission/distribution	2,841,389	2,746,340	2,817,700
Engineering	1,339,461	1,508,135	2,828,499
Metering	236,864	254,723	270,187
Tree Trimming	258,100		
Utility Tax	960,614	978,807	1,032,656
Depreciation	3,600,910	4,560,586	3,680,282
Environmental			
Allowance for Bad Debts			
Right of Way Fees			
Retiree Health Care	342,199	371,696	424,900
Self Insurance-health			
Workman's Compensation	45,243		
Total Operating Expenses	<u>\$50,235,214</u>	<u>\$51,953,689</u>	<u>\$55,185,582</u>
Net Operating Income	<u>\$9,343,329</u>	<u>\$7,523,181</u>	<u>\$8,117,450</u>
Non-operating Revenues (Expenses)			
Interest Earned			
Operating Fund	\$159,028	\$134,682	\$164,482
Reserved Funds	1,200,663	1,060,282	881,860
Net Increase in Fair Value of Investments	564,650	(1,135,388)	154,607
Interest and Fiscal Charges	(1,480,203)	(1,394,711)	(1,101,249)
Bond Discount Amortized	(39,089)	(39,090)	(97,965)
Gain/(loss) on Sale of Assets	12,107	16,213	(12,839)
Total Non-operating Revenues(expenses)	<u>\$417,156</u>	<u>(\$1,358,012)</u>	<u>(\$11,104)</u>
Net Income Before Operating Transfers	<u>\$9,760,485</u>	<u>\$6,165,169</u>	<u>\$8,106,346</u>
Operating Transfers - Out	(\$4,990,923)	(\$5,338,118)	(\$5,663,008)
Net Income	<u>\$4,769,562</u>	<u>\$827,051</u>	<u>\$2,443,338</u>

Table III-5

**DEBT SERVICE COVERAGE CALCULATION
PER SECTION 502 OF RESOLUTION
FISCAL YEARS 2003 - 2005
City of Dover Electric Department**

	FY 2003	FY 2004	FY 2005
Net Income	\$4,769,562	\$827,051	\$2,443,338
Plus Excluded Expenses			
Operating Transfers - Out	4,990,923	5,338,118	5,663,008
Depreciation	3,600,910	4,560,586	3,680,282
Interest on Bonds	1,477,017	1,391,525	1,098,063
Bond Discount Amortized	39,089	39,090	97,965
Less Excluded Income			
Net Increase in Fair Value of Investments	(564,650)	1,135,388	(154,607)
Revenues Available for Debt Service	<u>\$14,312,851</u>	<u>\$13,291,758</u>	<u>\$12,828,049</u>
Maximum Principal and Interest in Any Year	\$2,636,040	\$2,635,002	\$2,652,213
Debt Service Coverage	<u>5.43</u>	<u>5.04</u>	<u>4.84</u>
Minimum Required Debt Service Ratio	1.25	1.25	1.25

Table III-6

AMORTIZATION SCHEDULE OF ELECTRIC REVENUE BONDS OUTSTANDING
2004 ELECTRIC REVENUE BONDS (TAXABLE ISSUE)
City of Dover Electric Department

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
8/31/2004					
1/1/2005			\$320,474	\$320,474	
7/1/2005	\$1,855,000	2.330%	476,739	2,331,739	\$2,652,213
1/1/2006			455,128	455,128	
7/1/2006	1,730,000	2.960%	455,128	2,185,128	2,640,256
1/1/2007			429,524	429,524	
7/1/2007	1,780,000	3.480%	429,524	2,209,524	2,639,048
1/1/2008			398,552	398,552	
7/1/2008	1,840,000	3.840%	398,552	2,238,552	2,637,104
1/1/2009			363,224	363,224	
7/1/2009	1,905,000	4.140%	363,224	2,268,224	2,631,448
1/1/2010			323,791	323,791	
7/1/2010	1,995,000	4.375%	323,791	2,318,791	2,642,581
1/1/2011			280,150	280,150	
7/1/2011	2,080,000	4.600%	280,150	2,360,150	2,640,300
1/1/2012			232,310	232,310	
7/1/2012	2,180,000	4.750%	232,310	2,412,310	2,644,620
1/1/2013			180,535	180,535	
7/1/2013	2,270,000	4.950%	180,535	2,450,535	2,631,070
1/1/2014			124,353	124,353	
7/1/2014	2,390,000	5.050%	124,353	2,514,353	2,638,705
1/1/2015			64,005	64,005	
7/1/2015	2,510,000	5.100%	64,005	2,574,005	2,638,010
Total	\$22,535,000		\$6,500,357	\$29,035,357	\$29,035,357

STATUS OF REVENUE BONDS

The City has one series of electric revenue bonds currently outstanding that was issued pursuant to the Resolution. The 2004 Electric Revenue Bonds were issued in 2004, in the amount of \$22,535,000. These bonds were issued to refund the 1990 and 1993 bonds.

Table III-6 sets forth the debt service schedule for the 2004 bonds. The amounts of principal and interest and the total due each year are shown for the bond issue. As of the creation of this report, the current total principal outstanding for the 2004 bonds, adjusted for the FY 2005 payments that have already been made, is \$20,680,000.

INSURANCE

The City maintains a comprehensive insurance program to insure against varying types of liabilities, as well as significant losses related to various Electric Department properties. Section 706 of the Resolution, reads as follows.

"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 III-7 lists the insurance coverage procured by the City for the period July 1, 2005 through June 30, 2006. Burns & McDonnell has reviewed this list of insurance, and in Burns & McDonnell's opinion, 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 III-7

**SCHEDULE OF INSURANCE COVERAGE IN EFFECT
City of Dover Electric Department**

	July 1, 2005 - June 30, 2006		July 1, 2004 - June 30, 2005	
	Coverage	Deductible	Coverage	Deductible
Commercial Package Policy				
Property				
Building & Contents	51,904,419	5,000	40,880,100	5,000
Inland Marine				
Computer Equipment	530,000	1,000	530,000	1,000
Contractors Equipment			1,495,303	1,000
Unscheduled Property	100,000	1,000	100,000	1,000
Max Any One Scheduled Item	5,000			
Scheulded Equipment - Total Value	14,000	1,000		
Catastrophic Limit	114,000			
Steel Towers & Antennas	18,700	1,000		
General Liability				
Per Occurrence	1,000,000		1,000,000	
General Total Limit	3,000,000		3,000,000	
Personal Injury	1,000,000		1,000,000	
Advertising Injury	1,000,000		1,000,000	
Automobile				
Liability	1,000,000		1,000,000	
Personal Injury	300,000		300,000	
Uninsured Motorist	1,000,000		1,000,000	
Comprehensive		500		500
Collision		1,000		1,000
Non-Owned Liability	1,000,000		1,000,000	
Hired Auto Liability	1,000,000		1,000,000	
Employee Benefit Plans Administration Liability				
Total Limit	3,000,000		3,000,000	
Each Wrongful Act	1,000,000	1,000	1,000,000	1,000
Law Enforcement Liability				
Total Limit	3,000,000		3,000,000	
Each Wrongful Act	1,000,000	5,000	1,000,000	5,000
Public Entity Management Liability				
Total Limit	3,000,000		3,000,000	
Each Wrongful Act	1,000,000	25,000	1,000,000	25,000
Employment Practices Liability				
Total Limit	3,000,000		3,000,000	
Each Wrongful Offense	1,000,000	25,000	1,000,000	25,000
Crime				
Employee Theft	100,000	500	100,000	500
Inside Theft of Money & Securities	10,000	500	10,000	500
Robbery or Burglary	10,000	500		
Outside Theft of Money & Securities.	10,000	500		

Commercial Package Policy (continued)

sheet 2 of 2

Boiler & Machinery				
Property Limit		5,000		5,000
Epediating Expenses	250,000		250,000	
Pollution Cleanup & Removal	250,000		250,000	
Spoilage	250,000		250,000	
Umbrellas				
General Total Limit	2,000,000		2,000,000	
Products & Work Limit	2,000,000		2,000,000	
Personal Injury	2,000,000		2,000,000	
Advertising Injury	2,000,000		2,000,000	
Law Enforcement Liability	2,000,000		2,000,000	
Each Event Limit	2,000,000		2,000,000	
Deductible Per Event		10,000		10,000
<u>Pollution Liability Policy</u>				
Each Claim Limit	1,000,000	5,000	1,000,000	5,000
Aggregate Limit	1,000,000		1,000,000	
<u>Excess Worker's Comp</u>				
Employer's Liability Limit	1,000,000	400,000	1,000,000	400,000
Specific Limit	Statutory	400,000	Statutory	400,000
Aggregate Limit	1,000,000		1,000,000	
<u>Worker's Comp - TPA Services</u>				
<u>Travel Accident Policy</u>				
Principal Sum	100,000		100,000	
<u>Bond - Self-Insured Worker's Comp - State of DE</u>				
Limit	750,000		750,000	
<u>Bond - Janice Green - Public Official Bond</u>				
Limit	100,000		100,000	
<u>Bond - Donna S. Mitchell - Public Official Bond</u>				
Limit	100,000		100,000	
<u>Bond - Traci McDowell - Public Official Bond</u>				
Limit	100,000		100,000	

OPERATING AND RESERVE FUNDS

The City has established several funds and reserves to ensure that moneys are available for specific purposes when they are needed. Following are descriptions of each fund and their purpose.

- **Electric Revenue Fund** – The Revenue Fund was established in Section 503 of the Resolution. All revenues are to be deposited into the Revenue Fund when received. Current expenses are to be paid and other funds are to be maintained from the Revenue Fund. Moneys are transferred from the Revenue Fund to the Interest and Sinking Fund, Improvement and Extension Fund, the Depreciation Reserve Fund, Future Capacity Fund, and Electric Rate Stabilization Fund.
- **Electric Improvement and Extension Fund** – The Improvement and Extension Fund was established in Section 507 of the Resolution. Funds are added to the Improvement and Extension Fund from the Revenue Fund to the extent that the amount of funds available from the Revenue Fund exceeds the total of the amounts required to be added to the Interest and Sinking Fund. The Improvement and Extension Fund also receives additional funding from the Depreciation Fund, the Future Capacity Fund, the Insurance Stabilization Fund, and from the State of Delaware. Section 510 of the Resolution indicates that, except for certain situations, moneys held in the Improvement and Extension 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.
- **Interest and Sinking Fund** – The Interest and Sinking Fund was established in Section 507 of the Resolution. This fund consists of three separate accounts: the Bond Service Account, the Reserve Account, and the Redemption Account. The Bond Service Account is funded with equal monthly transfers from the 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 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 Redemption Account is used for the optional redemption of bonds or to purchase bonds on the open market. The total amount in the Reserve Accounts for the 2004 bonds as of June 30, 2005 was

\$5,567,414. The combined total of these reserves exceeds the maximum combined debt service for any future fiscal year, which is the \$2,640,256 in FY 2006.

- **Depreciation Reserve Fund** – The Depreciation Reserve Fund 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 Revenue Fund and investment earnings are the only sources of additional moneys for the Depreciation Reserve Fund. Transfers to the Improvement and Extension Fund are made as necessary to fund capital projects. The target appropriation for the Depreciation Reserve Fund 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 that date was \$15,319,320.
- **Future Capacity Fund** – The Future Capacity Fund was established to set aside and accumulate funds from the Revenue Fund for use in evaluating and pursuing activities related to the Electric Department's alternatives for power supply resources for future demand for electricity. The original target balance for this reserve was \$5,000,000. The reserve balance as of June 30, 2005 was \$8,386,381.
- **Insurance Stabilization Fund** – The Insurance Stabilization Fund was established by the City to provide for the funding of insurance deductibles in the event of loss(es) covered by the City's insurance policies then in effect. The target balance in the Insurance Stabilization Reserve is \$250,000. The reserve balance as of June 30, 2005 was \$218,518 due to a transfer of \$505,937 to the contingency reserve fund. An appropriation of \$25,000 has been scheduled for FY 2006 to bring the account up to the target balance.
- **Contingency Reserve Fund** – The Contingency Reserve Fund was established by the City 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 Fund equal to one percent of the current year revenues for the Electric Revenue Fund. This fund was initiated in FY 2003 and at June 30, 2005 had a balance of \$1,123,647.

- Electric Rate Stabilization Fund – The Electric Rate Stabilization Fund was established in FY 2005 to offset the costs of the power cost adjustment to the customers of Dover. The fund's target balance is \$5,000,000. Any excess of this amount will be refunded to customers by reducing the rate of the power cost adjustment. The fund's balance as of June 30, 2005 was \$2,615,646.

The Interest and Sinking Fund, the Insurance Stabilization Fund, the Contingency Reserve Fund, and the Electric Rate Stabilization Fund are within the Electric Revenue Fund. The Depreciation Fund and the Future Capacity Fund are within the Improvement and Extension Fund. Table III-8 presents the activity in the funds listed above, except the Electric Revenue Fund and the Improvement and Extension Fund.

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Table III-8

**RESERVE FUND ACTIVITY AND BALANCES
FISCAL YEARS 2003 - 2005
City of Dover, Delaware**

	Bond Reserve Account [1]	Depreciation Reserve Fund	Future Capacity Fund	Insurance Stabilization Fund	Contingency Reserve Fund [2]	Electric Rate Stabilization Fund [3]
Year Ended June 30, 2003						
Balance in Account on July 1	\$917,605	\$17,924,740	\$12,239,665	\$701,268	-	-
Receipts						
Interest Earned	230,099	584,938	374,350	\$11,276	-	-
Appropriations	-	-	2,000,000	-	580,643	-
Total Funds Available	\$1,147,704	\$18,509,678	\$14,614,015	\$712,543	\$580,643	-
Disbursements						
Transfer to Operations	975,186	1,000,000	4,000,000	-	-	-
Balance in Account on June 30	\$172,518	\$17,509,678	\$10,614,015	\$712,543	\$580,643	-
Year Ended June 30, 2004						
Balance in Account on July 1	\$172,518	\$17,509,678	\$10,614,015	\$712,543	\$580,643	\$491,922
Receipts						
Interest Earned	207,504	512,666	313,618	7,525	17,713	1,256
Appropriations	-	-	-	-	-	-
Total Funds Available	\$380,022	\$18,022,344	\$10,927,633	\$720,069	\$598,356	\$493,178
Disbursements						
Transfer to Operations	-	3,026,513	2,745,883	-	-	-
Balance in Account on June 30	\$380,022	\$14,995,831	\$8,181,750	\$720,069	\$598,356	\$493,178
Year Ended June 30, 2005						
Balance in Account on July 1	\$380,022	\$14,995,831	\$8,181,750	\$720,069	\$598,356	\$493,178
Receipts						
Interest Earned	286,845	323,489	204,631	4,386	19,354	43,156
Appropriations	-	-	-	-	505,937	2,079,312
Total Funds Available	\$666,867	\$15,319,320	\$8,386,381	\$724,455	\$1,123,647	\$2,615,646
Disbursements						
Transfer to Operations	-	-	-	505,937	-	-
Balance in Account on June 30	\$666,867	\$15,319,320	\$8,386,381	\$218,518	\$1,123,647	\$2,615,646

[1] Bond Reserve Account balance is for 1990, 1993, and 2004 bonds.

[2] Contingency Reserve Fund initiated in FY 2003.

[3] Electric Rate Stabilization Fund initiated in FY 2004.

PART IV – CONCLUSIONS

PART IV CONCLUSIONS

In the preparation of this Engineering Consultant's Report, Burns & McDonnell completed assessments of the electric generating stations and the transmission and distribution systems of the City of Dover, Delaware (City) Electric Department, including interviews, observations, and reviews of fiscal year (FY) 2005 expenditures and FY 2006 budgets. In addition, an analysis of the balances of the Improvement and Extension Fund and other funds benefiting the Electric Department 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 (Resolution). A high level assessment of the City's insurance coverage related to the Electric Department was 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 systems and the associated facilities are consistent with current generally accepted electric utility standards.
3. The Electric Department capital projects included in the City's Capital Investment Plan and the FY 2006 Operating Budget are necessary and should provide improved reliability and power quality for the Electric System.
4. The balances as of June 30, 2005 for the various reserve funds maintained by the City for the Electric Department 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 Department 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 (1.25 times) defined in Section 502(c) of the Resolution.

* * * * *