Utility Management Plan

FY 2020 – FY 2021

Executive Order No. 80 Update

North Carolina Department of Environmental Quality

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EXECUTIVE SUMMARY

The North Carolina Department of Environmental Quality (DEQ) is the lead stewardship agency for the protection of North Carolina's environmental resources. The DEQ reaches far and wide with offices from the mountains to the coast. Chief responsibilities include administering regulatory programs designed to protect air quality, water quality, and the public's health along with advancing energy efficiency. The majority of DEQ employees work in buildings owned by the Department of Administration or in leased buildings which are not included in the DEQ utility data. Only the State-owned facilities currently managed by DEQ are measured and tracked for the DEQ utility data. These facilities include the Reedy Creek complex located in Raleigh which is primarily occupied by the Divisions of Air Quality and Water Resources along with the Division of Marine Fisheries (DMF) located in Morehead City. Mr. Eric Turon, based in Raleigh, is the DEQ Facilities Engineering Manager who champions all the energy conservation projects for both Reedy Creek and DMF. That encompasses a total of 99,335 gross square feet (GSF) of facilities and amounts to $424,607 total spent on utilities for fiscal year 2019-20.

The DEQ presents this Utility Management Plan in accordance with Article 3B of General Statute 143, “Conservation of Energy, Water, and Other Utilities in Government Facilities,” which authorizes DEQ to develop a comprehensive program to manage energy, water and other utility use for state government. Each agency is to develop and implement a management plan including strategies to support stated energy reduction goals, and update plans biennially. The first plan was issued Mar. 1, 2019 as mandated by Governor Cooper’s Executive Order No. 80 (EO80), North Carolina’s Commitment to Address Climate Change and Transition to a Clean Energy Economy dated October 29, 2018. This document will serve as the March 1, 2021 update. EO80 Section 8 requires Cabinet agencies to implement strategies to support a new energy consumption reduction goal of 40% by 2025. This goal surpasses the previous goal to reduce energy consumption in state government buildings 30% by 2015 as measured from a fiscal year (FY) 2002-03 baseline.

This updated utility management plan presents the recorded utility data along with strategies to achieve continued success in energy and water management for DEQ state-owned facilities both at Reedy Creek in Raleigh, and the Division of Marine Fisheries in Morehead City. Many DEQ employees work in buildings owned by the Department of Administration, or in leased buildings, which are not included in the utilities scope of this management plan. However, DEQ occupants which are considered tenants in buildings owned or leased by the state can make significant contributions to energy and water savings efforts through awareness and behavior, contributing toward the goals in EO80.

Last year, DEQ assumed responsibilities of the Maintenance Operations for the Reedy Creek complex from DOA. Since that time, DEQ has repaired and replaced a significant amount of equipment that was previously not running nor operable. For that reason, their energy usage has increased slightly from FY 2018-19 to FY 2019-20. However, some significant energy conservation projects have taken place and are planned. These include cool, white roofs, building automation systems, new HVAC systems, LED lighting upgrades, and electric vehicle chargers. Although DEQ is currently only showing a 32% energy reduction from their FY 2010-11 baseline, these projects will enable DEQ to meet the 40% energy reduction by 2025 as required with EO 80. Even though DEQ may reflect a relatively

small footprint as compared to other cabinet agencies, DEQ is making great strides with energy conservation. The next few years should start to show the results of these improvements.

BACKGROUND

Efforts to measure and track energy use and cost in state buildings was highlighted in 2002 with the launch of the state's comprehensive program, the Utility Savings Initiative, pursuant to N.C.G.S. 143-64.10-12. At that time DEQ was known as the Department of Environment and Natural Resources (DENR.) DENR owned a few large buildings and a multitude of small buildings widely distributed across the state and across several divisions, including the NC Zoo, Parks and Recreation, and the NC Aquariums. Due to legislative changes in 2015, DENR was dismantled and now exists separately as the Department of Natural and Cultural Resources (DNCR) and the DEQ. That change effectively reduced DEQ's stock of buildings down to only two facilities. These two current DEQ facilities include the Reedy Creek complex located in Raleigh which is primarily occupied by the Divisions of Air Quality and Water Resources along with the Division of Marine Fisheries (DMF) located in Morehead City. The Reedy Creek Laboratory Complex consists of three buildings constructed in 1991 along with two modular buildings with 54,304 sq. ft. of laboratory and office space. The DMF consists of four State owned facilities totaling 45,031 square feet of office space. The overall total area DEQ comprises is 99,335 gross square feet.

In order to reflect the gross square footage changes and restructuring more accurately, an attempt was made to separate utility and square footage data back to the original FY 2002-03 baseline, but lack of data at the division and building level proved to be an overwhelming task. Therefore, new baselines of FY 2010-11 were established for both DEQ and DNCR. The applicable utility and square footage data were separated and divided between the two agencies according to the relative composition of each agency today. This allows the overall energy reduction of each agency to be reflected and accounted for against a baseline that more closely resembles how each agency is currently structured. Otherwise, the agencies would be trying to achieve energy reductions on square footages that no longer exist and are no longer under their control. All the utility data and calculations within this report reflect the new FY2010-11 baseline.

The DEQ Reedy Creek and DMF facilities are managed by designated "site" energy managers, also serving as Capital Projects Coordinators, who are instrumental in achieving savings through capital improvement and repair projects and maintaining savings in energy and water. These sites report usage and cost annually and update management plans biennially as contributors to this DEQ management plan.

Many DEQ employees work in buildings owned by the Department of Administration or in leased buildings, which are not included in the utility scope of this management plan. However, DEQ occupants who are tenants in buildings owned or leased by the state can still make significant contributions to energy and water savings efforts through awareness and behavior. All DEQ employees can be a part of the statewide effort to save energy and water and to address climate change. Reducing energy consumption translates to a reduction in fossil fuels burned and a decrease in air pollution emitted. Water conservation is also becoming an increasingly important issue particularly during drought conditions.

UTILITY PERFORMANCE

The following tables present the energy, water, and performance data of the current DEQ facilities per GSF of building space for the Reedy Creek and Marine Fisheries locations combined using a baseline year of FY 2010-11. Table 1 shows the total amount spent on each utility along with the utility and energy cost per square feet. Utility costs include water and sewer whereas energy costs only include electricity and fuels. Per this data, electric is by far the major consumer followed by natural gas and water/sewer. Overall spending is reduced from the baseline but has increased over the past couple of years. This can be attributed to the work Reedy Creek has done to reinstate and replace a significant amount of non-operational equipment over the past couple of years.

Table 2 shows the DEQ energy reduction performance annually from the FY10-11 baseline. The EO80 goal is a 40% reduction, and DEQ currently stands at a 32% reduction. Although energy usage has increased over the past couple of years as Reedy Creek has improved and replaced inoperable equipment, the projects currently being installed and proposed should help them to attain the overall 40% reduction by 2025. Also of note is that approximately half of the DEQ space is used for laboratories which normally have a high energy use per square foot of space compared to a typical office. More detailed tables are available in the Appendix.

Table 1: DEQ Utility Cost Details

Fiscal year	Total Utility $	Total Energy $	Electric kwh $	Nat Gas $	Propane $	Water-sewer $	Total Utility $/GSF	Total Energy $/GSF	GSF
10-11	$572,246	$550,833	$428,428	$118,893	$ 3,512	$21,413	$5.42	$5.22	105,527
11-12	$502,132	$480,275	$372,292	$107,974	$ 8	$21,857	$4.76	$4.55	105,527
12-13	$444,867	$419,839	$363,472	$ 54,739	$ 1,628	$25,029	$4.22	$3.98	105,527
13-14	$485,174	$456,367	$384,948	$ 69,258	$ 2,161	$28,808	$4.60	$4.32	105,527
14-15	$470,151	$437,491	$370,135	$ 64,109	$ 3,247	$32,600	$4.46	$4.15	105,527
15-16	$393,311	$359,980	$302,288	$ 56,711	$ 981	$33,331	$3.73	$3.41	105,527
16-17	$373,231	$335,429	$277,124	$ 55,860	$ 2,445	$37,802	$3.54	$3.18	105,527
17-18	$341,919	$303,618	$236,851	$ 65,822	$ 945	$38,301	$2.82	$2.50	121,397
18-19	$378,914	$338,345	$280,824	$ 56,109	$ 1,411	$40,569	$3.81	$3.41	99,335
19-20	$424,607	$381,711	$283,710	$ 97,180	$ 822	$42,896	$4.27	$3.84	99,335

Table 2: DEQ Energy Reduction Performance

Fiscal year	Total energy Btu	GSF	Energy per GSF Btu/gsf	% Change Energy per GSF
2010-11	31,367,728,948	105,527	297,248	----
2011-12	28,777,710,158	105,527	272,705	-8%
2012-13	23,186,771,944	105,527	219,724	-26%
2013-14	22,477,883,549	105,527	213,006	-28%
2014-15	21,990,790,966	105,527	208,390	-30%
2015-16	22,049,504,628	105,527	208,947	-30%
2016-17	17,766,979,928	105,527	168,364	-43%
2017-18	18,432,835,063	121,397	151,839	-49%
2018-19	18,721,241,491	99,335	188,466	-37%
2019-20	19,992,304,434	99,335	201,261	-32%

DIVISION OF MARINE FISHERIES

The Department of Environmental Quality (DEQ), Division of Marine Fisheries (DMF) consists of four state owned facilities totaling 45,031 square feet located in Carteret County, North Carolina with the main headquarters in Morehead City. DMF shares space with other state agencies at six other locations that are leased facilities throughout the eastern region of the state. None of the leased facilities are included in the utility scope of this management plan. DMF spent a total of $155,532 on utilities for the FY19-20 year.

DMF works closely with DEQ to comply with the overall department Strategic Energy Plan (SEP) and supports the initiative to reduce energy consumption by 40 percent by 2025 as directed by the Governor's Executive Order No. 80. Currently, DMF is trending in the right direction to accomplish the goal but, much depends on whether sufficient Repair and Renovation (R&R) funding is received. The replacing of equipment with more efficient types and renovating with energy conservation measures are a high priority. Educating employees to be more aware of energy savings initiatives is also vital to accomplish our goals. DMF is working with DEQ to secure grants to change out LED lights and to install EV chargers. DMF is currently at an 18% energy reduction from their FY10-11 baseline as shown in Table 3 below.

Table 3: DMF Energy Reduction Performance

Fiscal year	Total energy Btu	GSF	Energy per GSF Btu/gsf	% Change Energy per GSF
2010-11	7,827,451,270	45,031	173,824	----
2011-12	9,210,378,678	45,031	204,534	18%
2012-13	7,997,642,651	45,031	177,603	2%
2013-14	8,442,216,980	45,031	187,476	8%
2014-15	8,269,790,588	45,031	183,647	6%
2015-16	9,674,385,185	45,031	214,838	24%
2016-17	7,772,732,988	45,031	172,608	-1%
2017-18	8,057,443,355	45,031	178,931	3%
2018-19	7,683,608,235	45,031	170,629	-2%
2019-20	6,432,374,826	45,031	142,843	-18%

NC Division of Marine Fisheries Energy Related Projects

DMF Noteworthy Energy Related Projects Already Completed

Project Description	Cost	Funding	Estimated Savings	Completion
HVAC Chiller & Replacement	$ 161,000	R&R	$ 9,500	2014
Elevator Modernization	$ 172,000	R&R	undetermined	2015
Maintenance Building Restrooms Renovation (Emergency Project)	$ 202,596	Special Funds	undetermined	2018
Maintenance Building Roof Replacement	$ 209,000	R&R	undetermined	2019
HVAC Controls System Upgrade and Standby Generator	$ 417,000	R&R	undetermined	2019
Main Building Complex Roof Replacement	$ 463,000	R&R	undetermined	2020

DMF Proposed Energy Related Projects

Project Description	Cost	Funding	Estimated Savings	Completion
Campus LED Lighting Conversion	100000	TBD	undetermined	TBD
Installation of Electric Vehicle Chargers	30000	TBD	undetermined	TBD

Plan of Action

DMF has submitted 10 projects in the six-year plan for 2019-2025 Reserve for Repairs and Renovations (R&R) and 40 percent of those projects will have an impact on energy efficiency. DMF will continue to strive to meet energy reduction goals, but funding for R&R projects is imperative to achieve DMF's goals.

DIVISIONS OF WATER RESOURCES AND AIR QUALITY AT REEDY CREEK LABORATORY

The Reedy Creek Laboratory Complex brings together the analytical capabilities of the Division of Water Resources and the Division of Air Quality. These capabilities include chemical analysis and biological assessment for determinations of environmental quality. The Complex consists of three buildings constructed in 1991 along with two modular buildings with 54,304 sq. ft. of laboratory and office space. These structures experienced numerous problems early on with the roofs of all three buildings requiring replacement within the first ten years. Partly due to the nature of the buildings being laboratories, numerous other problems emerged as the buildings aged. The Chemistry Laboratory was plagued by serious problems with air balance within the building. Energy consumption, particularly natural gas usage, seemed to be high for the size of the buildings. Comfort of the occupants and reliable conditions within the analytical instrument requirements were inferior to what would be expected for a building this age.

A study was done in 2007 to identify the problems and to recommend steps necessary to remedy the situation. Those recommendations were translated into requests for Repair and Renovation (R&R) funding and numerous projects have been taken to improve the occupant comfort, the environment for the analytical instruments, and energy conservation measures for the complex.

In 2012, the HVAC system in the Chemistry Laboratory was renovated, a new chiller was installed serving the whole complex and numerous other measures were taken to improve safety, comfort and energy conservation. The result is a building that can be relied upon to better serve staff and to save energy.

In 2016, the boiler serving the complex was replaced as well as air handling units in the other two buildings. The HVAC controls were not replaced but are part of an additional project that is about to commence. The buildings have reliable heat and cooling, but the coordination of the controls is lacking and extremely important. In May of 2020 DEQ Facilities Services installed analytics software on the existing HVAC system controls to help troubleshoot daily operational issues as well as track energy usage.

In December 2019 DEQ created and staffed a Facilities Services Department to support fully the Lab campus 24/7. Day to day maintenance responsibilities were transferred from DOA Facilities Services (who were service fee based) over to DEQ Facilities Services. All critical infrastructure equipment was put onto a Preventative Maintenance System. Additionally, an electronic asset inventory system was implemented with all equipment assets in the process of being asset tagged and logged into the system. Since December 2019 DEQ Facilities Services has spent over $550,000 on critical infrastructure and equipment repairs to ensure lab operations experience minimal interruption of services. Some of those repairs include:

- Installation of 80 Uninterrupted Power Supplies and Surge Protection Devices on all electronic pieces of lab equipment.
- Replacement of the broken gas main and meter.
- Infra-Red and Arc Flash Analysis on all campus electrical supply system, repairs made as identified in analysis.
- Repairs to campus generator, installation of remote monitoring system.
- Several HVAC repairs.
- Analytic Software installed on HVAC controls system.
- Convert 16 broken parking lot pole lights to LED.
- Replace burned out exterior lighting to LED.

The staff at the Reedy Creek complex is committed to, and takes pride in, working with the DEQ to comply and to exceed the energy reduction goal set out by the Governor in Executive Order No. 80. We are an environmental agency and committed to reduce the environmental impact of our operations as we carry out the mission of the Department. Reedy Creek is currently at a 36% energy reduction from their FY10-11 baseline as shown in Table 4 below. Their total utility spending was $269,074 for FY19-20.

Table 4: Reedy Creek Energy Reduction Performance

Fiscal year	Total energy Btu	GSF	Energy per GSF Btu/gsf	% Change Energy per GSF
2010-11	23,540,277,678	60,496	389,121	----
2011-12	19,567,331,480	60,496	323,448	-17%
2012-13	15,189,129,293	60,496	251,077	-35%
2013-14	14,035,666,569	60,496	232,010	-40%
2014-15	13,721,000,378	60,496	226,808	-42%
2015-16	12,375,119,444	60,496	204,561	-47%
2016-17	9,994,246,940	60,496	165,205	-58%
2017-18	10,375,391,708	76,366	135,864	-65%
2018-19	11,037,633,256	54,304	203,256	-48%
2019-20	13,559,929,608	54,304	249,704	-36%

NC Division of Water Resources and Air Quality-Reedy Creek Labs Projects

Reedy Creek Noteworthy Energy Related Projects Already Completed or In Progress

Project Description	Cost	Funding	Estimated Savings	Completion
HVAC Chiller Replacement & Chemistry Lab Renovations	$ 1,205,973 $ 982,000	ARRA R&R	$ 57,000	2012
Boiler & Air Handler Replacement in DAQ & DWQ Buildings	$ 632,846	R&R	undetermined	2020
HVAC Renovations & DDC Controls - DAQ & DWQ Labs	$ 265,000	R&R	undetermined	Jun-21
HVAC Ductwork & VAV Box Replacements - DAQ & DWQ	$ 496,000	R&R	undetermined	Jun-21
Cooling Tower Replacement & Evaporation Credit Meter	$ 159,000	R&R	undetermined	Dec-21
Glycol Energy Loop Refurbishment - DWQ Building	$ 35,000	R&R	undetermined	2020
Campus Lighting Retrofit from T12 to LED	$ 114,000 $ 46,000	DOE Grant Duke Rebates	$ 20,000	2020
Cool Roof Replacements for buildings 4401 and 4403	$ 567,000	R&R	$ 6,440	Jun-21
Reflective window blinds for entire campus	$ 14,000	Gen. Fund	undetermined	Dec-20

Reedy Creek Proposed Energy Related Projects

Project Description	Cost	Funding	Estimated Savings	Completion
Installation of Electric Vehicle Chargers	$ 30,000	TBD	undetermined	TBD

Plan of Action

The Reedy Creek Lab Complex will continue the efforts already underway to improve the energy efficiency of the buildings in the complex. We will continue to seek new ways to save energy through improvements to the buildings, their operations and their maintenance. The support provided by the Department of Environmental Quality has been and will continue to be critical for the complex to carry out its mission and set an example for environmental stewardship.

DECLARATION OF SUPPORT FOR
DEPARTMENT OF ENVIRONMENTAL QUALITY
UTILITY MANAGEMENT PLAN

We recognize that:

- Energy and water consumption can be managed to the benefit of our agency.
- Energy and water management is a responsibility of the staff at each facility.

This Agency will implement a Utility Management Plan. Eric Turon, Facilities Engineering Manager, is responsible for the implementation of the Program at this agency.

The attached plan outlines the activities and expenditures required to reduce energy and water consumption to achieve the goals of the program.

The Division staff will review progress and results quarterly and will support staff attendance at training in energy and water management.

Utility Management Plan Mandate- Goals

Agency will reduce annual Total Energy Use Btu per Square Foot by a minimum of 40% by fiscal year 2024-2025 from a baseline fiscal year 2002-2003. We will also continue to track and manage water consumption.

Utility Management Plan Mandate- Measures

Our tracking measures will be the following State Key Performance Indicators (KPI):

- *Total Energy Use Btu per Square Foot*
- *Total Utilities Cost per Square Foot*
- *Total Energy Cost per Square Foot*

I have read and will support the Utility Management Plan for my Organization.

Implemented this 16 day of December, 2020

DocuSigned by:
John A. Nicholson
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Chief Deputy Secretary

DocuSigned by:
Kimberly L. Van Metre
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Submitted by:

Julie Pfeiffer
Utility Savings Initiative

Appendix of Tables for NCDEQ Utility Management Plan
FY 2020 – FY 2021 Executive Order No. 80 Update

Appendix Table 1: DEQ Buildings Energy Performance All Fuels by Fiscal Year

Fiscal year	Energy Cost per GSF $/gsf	Cost per million Btu of Energy $/mmbtu	% Change Cost per million Btu of Energy	Energy per GSF Btu/gsf	% Change Energy per GSF
2010-11	$ 5.22	$ 17.56		297,243	
2011-12	$ 4.55	$ 16.69	-5%	272,705	-8%
2012-13	$ 3.98	$ 18.11	3%	219,721	-26%
2013-14	$ 4.32	$ 20.30	16%	213,004	-28%
2014-15	$ 4.15	$ 19.89	13%	208,387	-30%
2015-16	$ 3.41	$ 16.33	-7%	208,946	-30%
2016-17	$ 3.18	$ 18.88	8%	168,362	-43%
2017-18	$ 2.50	$ 16.47	-6%	151,839	-49%
2018-19	$ 3.41	$ 18.07	3%	188,464	-37%
2019-20	$ 3.84	$ 19.09	9%	201,261	-32%

This table shows data for DEQ combined sites which includes Reedy Creek and DMF. Energy costs have risen slightly during the last fiscal year which puts the total energy reduction for DEQ at 32% less than their 2010-11 baseline. The EO80 goal is a 40% energy reduction from the baseline.

Appendix Table 2: DEQ Buildings Energy Cost & Usage by Fuel Type

Fiscal year	Total Energy $	Total energy million Btu	Electric kwh	Electric $	Natural Gas therms	Natural Gas $	Propane gals	Propane $
10-11	$550,833	31,367	4,968,293	$ 428,428	142,512	$118,893	1792	$ 3,512
11-12	$480,275	28,778	4,305,027	$ 372,292	140,885	$107,974	5	$ 8
12-13	$419,839	23,187	4,660,789	$ 363,472	72,022	$ 54,739	891	$ 1,628
13-14	$456,367	22,478	4,149,933	$ 384,948	82,629	$ 69,258	603	$ 2,161
14-15	$437,491	21,991	3,945,660	$ 370,135	84,412	$ 64,109	947	$ 3,247
15-16	$359,980	22,049	3,402,930	$ 302,288	104,136	$ 56,711	273	$ 981
16-17	$335,429	17,767	3,184,744	$ 277,124	68,325	$ 55,860	741	$ 2,445

17-18	$303,618	18,433	3,040,599	$ 236,851	80,339	$ 65,822	265	$ 945
18-19	$338,345	18,721	3,418,012	$ 280,824	70,161	$ 56,109	466	$ 1,411
19-20	$381,711	19,992	3,224,230	$ 283,710	89,659	$ 97,180	276	$ 822

This table shows data for DEQ combined sites which includes Reedy Creek and DMF. Energy costs have risen slightly during the last fiscal year with most of that increase occurring in the cost of Natural gas. Actual therms used only rose slightly, but the cost almost doubled.

Appendix Table 3: DEQ Buildings Energy & Water Cost and Indexed by GSF

Fiscal year	Total Utility $	Total Energy $	Water-Sewer $	Total Utility $/GSF	Energy $/GSF	Water $/GSF	GSF
2010-11	$ 572,246	$ 550,833	$ 21,413	$ 5.42	$ 5.22	$ 0.20	105527
2011-12	$ 502,132	$ 480,275	$ 21,857	$ 4.76	$ 4.55	$ 0.21	105527
2012-13	$ 444,867	$ 419,839	$ 25,029	$ 4.22	$ 3.98	$ 0.24	105527
2013-14	$ 485,174	$ 456,367	$ 28,808	$ 4.60	$ 4.32	$ 0.27	105527
2014-15	$ 470,151	$ 437,491	$ 32,660	$ 4.46	$ 4.15	$ 0.31	105527
2015-16	$ 393,311	$ 359,980	$ 33,331	$ 3.73	$ 3.41	$ 0.32	105527
2016-17	$ 373,231	$ 335,429	$ 37,802	$ 3.54	$ 3.18	$ 0.36	105527
2017-18	$ 341,919	$ 303,618	$ 38,301	$ 2.82	$ 2.50	$ 0.32	121,397
2018-19	$ 378,914	$ 338,345	$ 40,569	$ 3.81	$ 3.41	$ 0.41	99,335
2019-20	$ 424,607	$ 381,711	$ 42,896	$ 4.27	$ 3.84	$ 0.43	99,335

This table shows data for DEQ combined sites which includes Reedy Creek and DMF. Energy costs have risen slightly during the last fiscal year, but this shows the increase was not due to significant increases in water/sewer.

Appendix Table 4: DEQ Water Data Cost and Usage

Fiscal year	Water & Sewer Cost $	Total Usage in 1,000 gal (kgal)	Cost per 1,000 gal $/kgal	% Change $/kgal	gal/sf	% Change gal/sf	Water-sewer $/gsf	gsf
2010-11	$ 21,413.00	1,507	$ 14.21		14.28		$ 0.20	105,527
2011-12	$ 21,857.00	1,442	$ 15.16	7%	13.66	-4%	$ 0.21	105,527
2012-13	$ 25,029.00	2,417	$ 10.36	-27%	22.90	60%	$ 0.24	105,527

2013-14	$ 28,808.00	3,114	$ 9.25	-35%	29.51	107%	$ 0.27	105,527
2014-15	$ 32,600.00	2,597	$ 12.58	-11%	24.61	72%	$ 0.31	105,527
2015-16	$ 33,331.00	2,450	$ 13.60	-4%	23.22	63%	$ 0.32	105,527
2016-17	$ 37,802.00	2,482	$ 15.23	7%	23.52	65%	$ 0.36	105,527
2017-18	$ 38,301.00	2,652	$ 14.44	2%	21.85	53%	$ 0.32	121,397
2018-19	$ 40,569.37	2,915	$ 13.92	-2%	29.34	105%	$ 0.41	99,335
2019-20	$ 42,895.84	2,547	$ 16.84	18%	25.65	80%	$ 0.43	99,335

This table shows data for DEQ combined sites which includes Reedy Creek and DMF. Water and sewer costs have risen slightly during the last fiscal year, but usage has decreased. Water and sewer costs have risen significantly.

Appendix Table 5: DEQ Fuel Cost Comparison

Fiscal year	$/kwh	$/therm	Propane $/gal	Electric $/therm	Nat Gas $/therm	Propane $/therm
2010-11	$ 0.086	$ 0.834	$ 1.96	$ 2.53	$ 0.83	$ 2.13
2011-12	$ 0.086	$ 0.766	$ 1.67	$ 2.53	$ 0.77	$ 1.81
2012-13	$ 0.078	$ 0.760	$ 1.83	$ 2.29	$ 0.76	$ 1.99
2013-14	$ 0.093	$ 0.838	$ 3.58	$ 2.72	$ 0.84	$ 3.90
2014-15	$ 0.094	$ 0.759	$ 3.43	$ 2.75	$ 0.76	$ 3.73
2015-16	$ 0.089	$ 0.545	$ 3.59	$ 2.60	$ 0.54	$ 3.91
2016-17	$ 0.087	$ 0.818	$ 3.30	$ 2.55	$ 0.82	$ 3.59
2017-18	$ 0.078	$ 0.819	$ 3.57	$ 2.28	$ 0.82	$ 3.87
2018-19	$ 0.082	$ 0.800	$ 3.03	$ 2.41	$ 0.80	$ 3.29
2019-20	$ 0.088	$ 1.084	$ 2.98	$ 2.58	$ 1.08	$ 3.24

This table shows data for DEQ combined sites which includes Reedy Creek and DMF. Costs for electricity and natural gas have increased while propane cost has decreased slightly.

Appendix Table 6: Reedy Creek Energy Performance All Fuels by Fiscal Year

Fiscal year	Energy Cost per GSF $/gsf	Cost per million Btu of Energy $/mmbtu	% Change Cost per million Btu of Energy	Energy per GSF Btu/gsf	% Change Energy per GSF
2010-11	$ 6.49	$ 16.68		389,121	
2011-12	$ 5.25	$ 16.22	-3%	323,448	-17%
2012-13	$ 4.55	$ 18.11	9%	251,077	-35%
2013-14	$ 4.98	$ 21.45	29%	232,010	-40%
2014-15	$ 4.88	$ 21.53	29%	226,808	-42%
2015-16	$ 3.99	$ 19.51	17%	204,561	-47%
2016-17	$ 3.45	$ 20.89	25%	165,205	-58%
2017-18	$ 2.23	$ 16.40	-2%	135,864	-65%
2018-19	$ 3.48	$ 17.10	2%	203,256	-48%
2019-20	$ 4.40	$ 17.62	6%	249,704	-36%

This table shows data for Reedy Creek alone. Energy costs have risen slightly during the last fiscal year which puts the total energy reduction for Reedy Creek at 36% less than their 2010-11 baseline. The EO80 goal is a 40% energy reduction from the baseline.

Appendix Table 7: Reedy Creek Energy Cost & Usage by Fuel Type

Fiscal year	Total Energy $	Total energy million Btu	Electric kwh	Electric $	Natural Gas therms	Natural Gas $
10-11	$392,738	23,540	3,489,360	$ 297,218	115,097	$ 92,821
11-12	$317,336	19,567	2,798,368	$ 248,462	100,193	$ 68,874
12-13	$275,076	15,189	3,319,440	$ 248,771	38,632	$ 26,305
13-14	$301,077	14,036	2,794,363	$ 266,575	45,013	$ 34,502
14-15	$295,430	13,721	2,726,751	$ 262,718	44,173	$ 32,712
15-16	$241,420	12,375	2,327,250	$ 212,295	44,345	$ 29,126
16-17	$208,790	9,994	2,081,784	$ 186,380	28,912	$ 22,410
17-18	$170,121	10,375	1,909,259	$ 144,950	38,610	$ 25,171
18-19	$188,736	11,038	2,040,338	$ 161,018	40,760	$ 27,719
19-20	$238,864	13,560	2,107,834	$ 162,015	63,680	$ 76,848

This table shows data for Reedy Creek alone. Energy costs have risen slightly during the last fiscal year with most of that increase occurring in the cost of Natural gas. Actual therms used has increased by about 50%, but the cost almost tripled. Most of the increased usage can be attributed to the significant amount of equipment that was restored to working order over the past couple of years.

Appendix Table 8: Reedy Creek Energy & Water Cost and Indexed by GSF

Fiscal year	Total Utility $	Total Energy $	Water-Sewer $	Total Utility $/GSF	Energy $/GSF	Water $/GSF	GSF
2010-11	$ 404,801	$ 392,738	$ 12,063	$ 3.84	$ 3.72	$ 0.11	105527
2011-12	$ 332,094	$ 317,336	$ 14,757	$ 3.15	$ 3.01	$ 0.14	105527
2012-13	$ 292,121	$ 275,076	$ 17,045	$ 2.77	$ 2.61	$ 0.16	105527
2013-14	$ 323,020	$ 301,077	$ 21,943	$ 3.06	$ 2.85	$ 0.21	105527
2014-15	$ 318,127	$ 295,430	$ 22,698	$ 3.01	$ 2.80	$ 0.22	105527
2015-16	$ 264,120	$ 241,420	$ 22,700	$ 2.50	$ 2.29	$ 0.22	105527
2016-17	$ 236,511	$ 208,790	$ 27,721	$ 2.24	$ 1.98	$ 0.26	105527
2017-18	$ 197,546	$ 170,121	$ 27,425	$ 1.63	$ 1.40	$ 0.23	121,397
2018-19	$ 219,331	$ 188,736	$ 30,595	$ 2.21	$ 1.90	$ 0.31	99,335
2019-20	$ 269,074	$ 238,864	$ 30,211	$ 2.71	$ 2.40	$ 0.30	99,335

This table shows data for Reedy Creek alone. Energy costs have risen slightly during the last fiscal year, but this shows the increase was not due to significant increases in water/sewer.

Appendix Table 9: Reedy Creek Water Data Cost and Usage

Fiscal year	Water & Sewer Cost $	Total Usage in 1,000 gal (kgal)	Cost per 1,000 gal $/kgal	% Change $/kgal	gal/sf	% Change gal/sf	Water-sewer $/gsf	gsf
2010-11	$ 12,063.47	966	$ 12.49		15.97		$ 0.11	105,527
2011-12	$ 14,757.38	792	$ 18.63	49%	13.09	-18%	$ 0.14	105,527
2012-13	$ 17,044.63	1,797	$ 9.49	-24%	29.70	86%	$ 0.16	105,527
2013-14	$ 21,943.31	2,617	$ 8.38	-33%	43.26	171%	$ 0.21	105,527
2014-15	$ 22,697.54	1,930	$ 11.76	-6%	31.90	100%	$ 0.22	105,527
2015-16	$ 22,699.65	1,826	$ 12.43	0%	30.18	89%	$ 0.22	105,527
2016-17	$ 27,720.90	1,902	$ 14.57	17%	31.44	97%	$ 0.26	105,527

2017-18	$ 27,425.15	2,059	$ 13.32	7%	26.96	69%	$ 0.23	121,397
2018-19	$ 30,594.76	2,300	$ 13.30	7%	42.35	165%	$ 0.31	99,335
2019-20	$ 30,210.80	2,233	$ 13.53	8%	41.11	157%	$ 0.30	99,335

This table shows data for Reedy Creek alone. Water and sewer costs have remained relatively stable during the last fiscal year.

Appendix Table 10: Reedy Creek Fuel Cost Comparison

Fiscal year	$/kwh	$/therm	Electric $/therm	Nat Gas $/therm
2010-11	$ 0.085	$ 0.806	$ 2.50	$ 0.81
2011-12	$ 0.089	$ 0.687	$ 2.60	$ 0.69
2012-13	$ 0.075	$ 0.681	$ 2.20	$ 0.68
2013-14	$ 0.095	$ 0.766	$ 2.80	$ 0.77
2014-15	$ 0.096	$ 0.741	$ 2.82	$ 0.74
2015-16	$ 0.091	$ 0.657	$ 2.67	$ 0.66
2016-17	$ 0.090	$ 0.775	$ 2.62	$ 0.78
2017-18	$ 0.076	$ 0.652	$ 2.23	$ 0.65
2018-19	$ 0.079	$ 0.680	$ 2.31	$ 0.68
2019-20	$ 0.077	$ 1.207	$ 2.25	$ 1.21

This table shows data for Reedy Creek alone. The cost for natural gas has almost doubled while electricity has decreased very slightly.

Appendix Table 11: DMF Energy Performance All Fuels by Fiscal Year

Fiscal year	Energy Cost per GSF $/gsf	Cost per million Btu of Energy $/mmbtu	% Change Cost per million Btu of Energy	Energy per GSF Btu/gsf	% Change Energy per GSF
2010-11	$ 3.51	$ 20.20		173,824	
2011-12	$ 3.62	$ 17.69	-12%	204,534	18%
2012-13	$ 3.21	$ 18.10	-10%	177,603	2%
2013-14	$ 3.45	$ 18.39	-9%	187,476	8%
2014-15	$ 3.15	$ 17.18	-15%	183,647	6%

2015-16	$ 2.63	$ 12.26	-39%	214,838	24%
2016-17	$ 2.81	$ 16.29	-19%	172,608	-1%
2017-18	$ 2.96	$ 16.57	-18%	178,931	3%
2018-19	$ 3.32	$ 19.47	-4%	170,629	-2%
2019-20	$ 3.17	$ 22.21	10%	142,843	-18%

This table shows data for DMF alone. Energy used per gross square foot has decreased slightly during the last fiscal year which puts the total energy reduction for DMF at 18% less than their 2010-11 baseline. The EO80 goal is a 40% energy reduction from the baseline. DMF still has significant work to do before achieving a 40% energy reduction goal.

Appendix Table 12: DMF Energy Cost & Usage by Fuel Type

Fiscal year	Total Energy $	Total energy million Btu	Electric kwh	Electric $	Natural Gas therms	Natural Gas $	Propane gals	Propane $
10-11	$158,095	7,827	1,478,933	$ 131,211	27,415	$ 26,072	433	$ 812
11-12	$162,939	9,210	1,506,659	$ 123,830	40,692	$ 39,101	5	$ 8
12-13	$144,762	7,998	1,341,349	$ 114,700	33,390	$ 28,434	891	$ 1,628
13-14	$155,290	8,442	1,355,570	$ 118,373	37,616	$ 34,756	603	$ 2,161
14-15	$142,061	8,270	1,218,909	$ 107,417	40,238	$ 31,397	947	$ 3,247
15-16	$118,560	9,674	1,075,680	$ 89,993	59,791	$ 27,586	273	$ 981
16-17	$126,639	7,773	1,102,960	$ 90,744	39,413	$ 33,450	741	$ 2,445
17-18	$133,498	8,057	1,131,340	$ 91,900	41,729	$ 40,652	265	$ 945
18-19	$149,608	7,684	1,377,674	$ 119,806	29,401	$ 28,391	466	$ 1,411
19-20	$142,847	6,432	1,116,396	$ 121,694	25,979	$ 20,332	276	$ 822

This table shows data for DMF alone. Energy costs except for electricity have decreased slightly during the last fiscal year.

Appendix Table 13: DMF Energy & Water Cost and Indexed by GSF

Fiscal year	Total Utility $	Total Energy $	Water-Sewer $	Total Utility $/GSF	Energy $/GSF	Water $/GSF	GSF
2010-11	$ 167,445	$ 158,095	$ 9,350	$ 1.59	$ 1.50	$ 0.09	105527
2011-12	$ 170,038	$ 162,939	$ 7,100	$ 1.61	$ 1.54	$ 0.07	105527
2012-13	$ 152,746	$ 144,762	$ 7,984	$ 1.45	$ 1.37	$ 0.08	105527
2013-14	$ 162,155	$ 155,290	$ 6,865	$ 1.54	$ 1.47	$ 0.07	105527
2014-15	$ 152,024	$ 142,061	$ 9,962	$ 1.44	$ 1.35	$ 0.09	105527
2015-16	$ 129,191	$ 118,560	$ 10,631	$ 1.22	$ 1.12	$ 0.10	105527
2016-17	$ 136,720	$ 126,639	$ 10,081	$ 1.30	$ 1.20	$ 0.10	105527
2017-18	$ 144,373	$ 133,498	$ 10,876	$ 1.19	$ 1.10	$ 0.09	121,397
2018-19	$ 159,583	$ 149,608	$ 9,975	$ 1.61	$ 1.51	$ 0.10	99,335
2019-20	$ 155,532	$ 142,847	$ 12,685	$ 1.57	$ 1.44	$ 0.13	99,335

This table shows data for DMF alone. Energy costs have decreased slightly during the last fiscal year, but water and sewer costs have increased a small amount.

Appendix Table 14: DMF Water Data Cost and Usage

Fiscal year	Water & Sewer Cost $	Total Usage in 1,000 gal (kgal)	Cost per 1,000 gal $/kgal	% Change $/kgal	gal/sf	% Change gal/sf	Water-sewer $/gsf	gsf
2010-11	$ 9,350	541	$ 17.28		12.01		$ 0.09	105,527
2011-12	$ 7,100	650	$ 10.93	-37%	14.42	20%	$ 0.07	105,527
2012-13	$ 7,984	619	$ 12.89	-25%	13.76	15%	$ 0.08	105,527
2013-14	$ 6,865	497	$ 13.82	-20%	11.03	-8%	$ 0.07	105,527
2014-15	$ 9,962	667	$ 14.93	-14%	14.82	23%	$ 0.09	105,527
2015-16	$ 10,631	624	$ 17.04	-1%	13.85	15%	$ 0.10	105,527
2016-17	$ 10,081	580	$ 17.38	1%	12.88	7%	$ 0.10	105,527
2017-18	$ 10,876	593	$ 18.33	6%	13.18	10%	$ 0.09	121,397
2018-19	$ 9,975	615	$ 16.21	-6%	13.66	14%	$ 0.10	99,335
2019-20	$ 12,685	315	$ 40.30	133%	6.99	-42%	$ 0.13	99,335

This table shows data for DMF alone. Water and sewer costs have risen sharply during the last fiscal year, but usage has almost halved. The drastic change in this data could possibly be traced to a reporting error.

Appendix Table 15: DMF Fuel Cost Comparison

Fiscal year	$/kwh	$/therm	Propane $/gal	Electric $/therm	Nat Gas $/therm	Propane $/therm
2010-11	$ 0.089	$ 0.951	$ 1.87	$ 2.60	$ 0.95	$ 2.04
2011-12	$ 0.082	$ 0.961	$ 1.60	$ 2.41	$ 0.96	$ 1.74
2012-13	$ 0.086	$ 0.852	$ 1.83	$ 2.51	$ 0.85	$ 1.99
2013-14	$ 0.087	$ 0.924	$ 3.59	$ 2.56	$ 0.92	$ 3.90
2014-15	$ 0.088	$ 0.780	$ 3.43	$ 2.58	$ 0.78	$ 3.73
2015-16	$ 0.084	$ 0.461	$ 3.60	$ 2.45	$ 0.46	$ 3.91
2016-17	$ 0.082	$ 0.849	$ 3.30	$ 2.41	$ 0.85	$ 3.59
2017-18	$ 0.081	$ 0.974	$ 3.56	$ 2.38	$ 0.97	$ 3.87
2018-19	$ 0.087	$ 0.966	$ 3.03	$ 2.55	$ 0.97	$ 3.29
2019-20	$ 0.109	$ 0.783	$ 2.98	$ 3.19	$ 0.78	$ 3.24

This table shows data for DMF alone. Costs for electricity has increased while natural gas and propane costs have decreased slightly.

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