LGEA Presentation

Western Monmouth Utility Authority

December 5, 2024

New Jersey's
Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future

INTRODUCTIONS

- *WMUA*
  - Stephen Bagadinski
  - Roger Brown

- *NJ Clean Energy Program*
  - Sarah Walters – LGEA Project Manager
  - Moussa Traore – LGEA Technical Manager
  - Sabin Wagle – LGEA Project Auditor

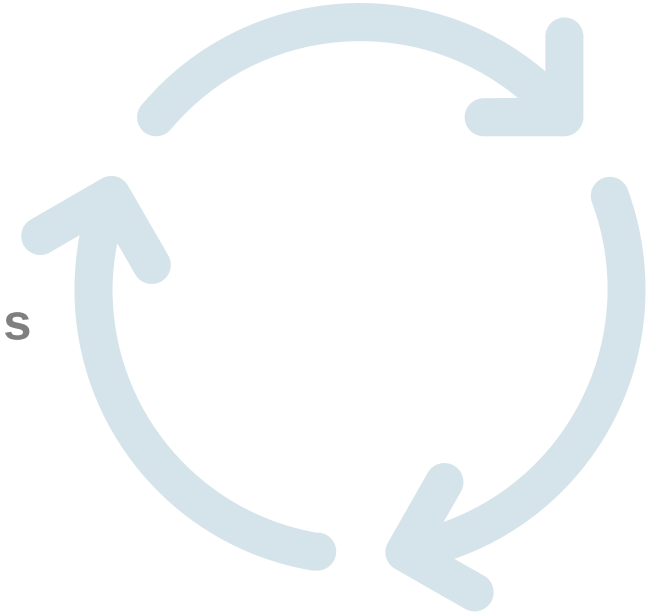
- *Utility Energy Efficiency Programs*
  - Tiffany Lewis – JCP&L
  - Andrew Doss – JCP&L

AGENDA

- The audit process overview
- Energy use & existing conditions
- Review of **E**nergy **C**onservation **M**easures (ECMs) identified & other recommendations
- Energy Savings Improvement Program (ESIP)
- Energy Efficiency Incentive Programs
- Questions regarding the draft audit report
- Next steps for Western Monmouth Utility Authority

LGEA Process

- Application Approval
- Initial Call
- Facility Interviews
- Audit
- Benchmarking & Analysis
- Draft Reports
- LGEA Presentation
- Final Reports



Site Visit & Utility Analysis

Overview of Systems, Baseline & Existing Conditions:

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment
- Process Equipment

Utility Consumption & Costs:

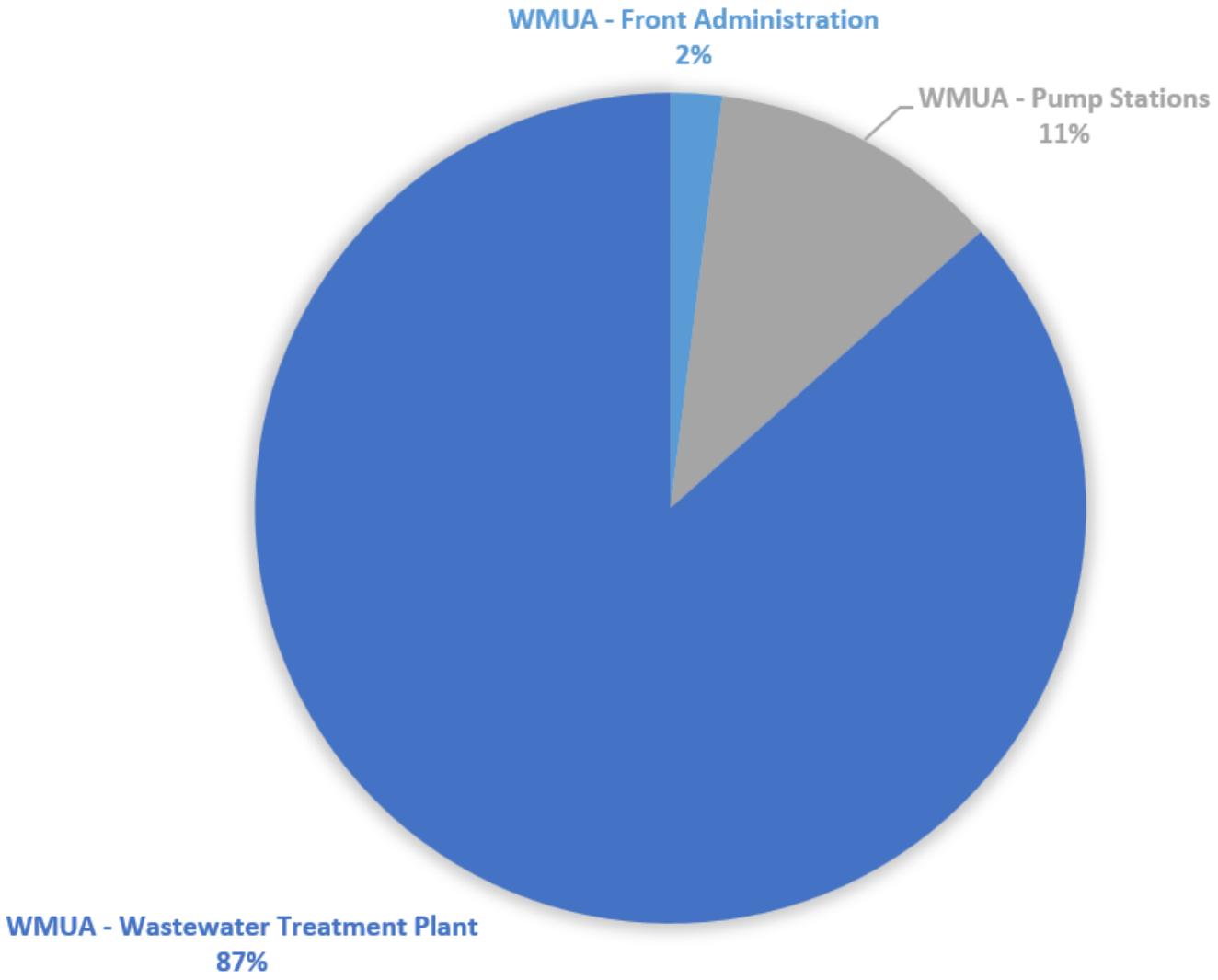
- Electric
- Natural Gas
- Solar
- Methane (consumption only)

Sites Visited/Analyzed

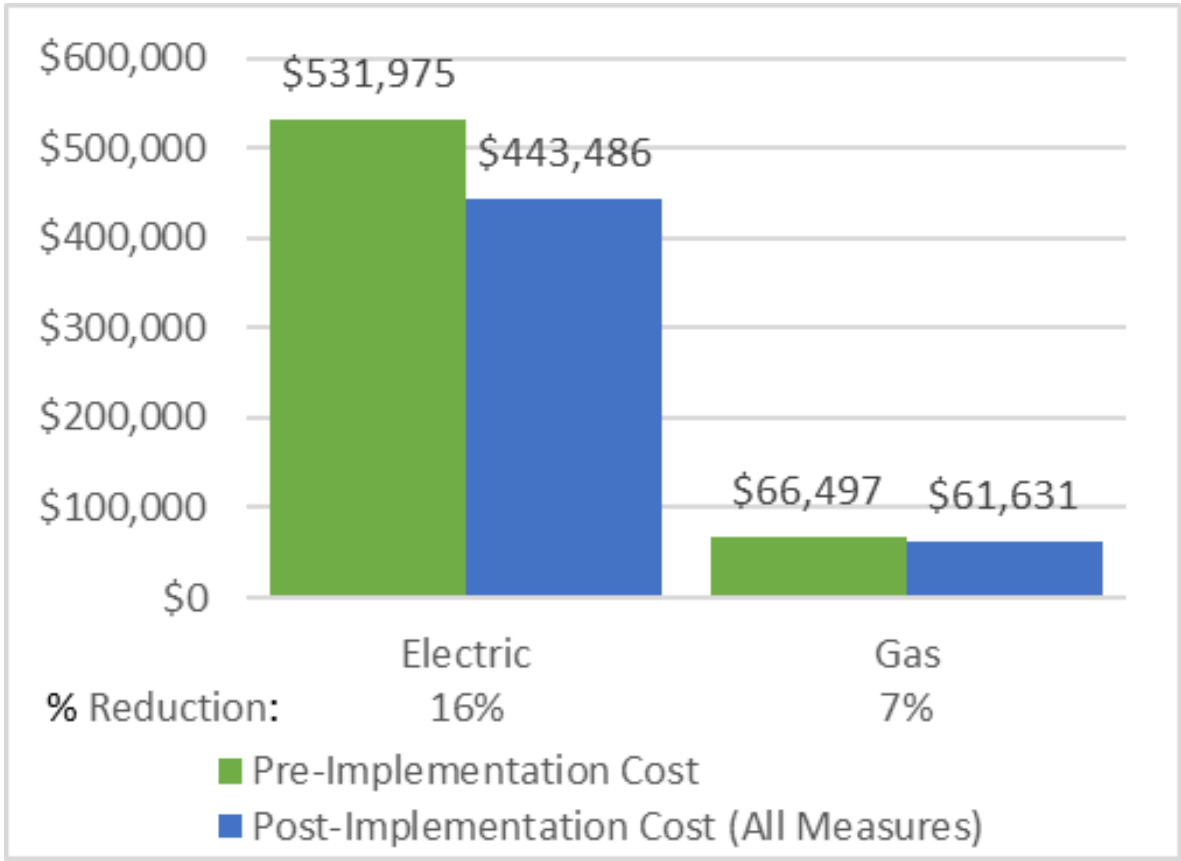
- WMUA Wastewater Treatment Plant
  - Old Administration Building
  - Facilities Management Building
  - Grit Building
  - Digester Building
  - Pump Station Electrical Control Building
  - Pump Station
  - Plant Maintenance Garage
  - U.V. Disinfection
  - Filter Buildings
  - Nitrification Building
  - Plant Maintenance Storage Building
  - Collections Vehicle Garage
- WMUA Pump Stations
  - Hawkins
  - Conover Hills
  - Millponds
  - Elizabeth Hills
  - Greenwood Road
  - Texas Road
  - Daum Road
- Front Administration

Utility Breakout

Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING

ENERGY STAR® Statement of Energy Performance

LEARN MORE AT energystar.gov

33

ENERGY STAR® Score[1]

Western Monmouth Utilities Authority (WMUA)
1 Utility Road Campus

Primary Property Type: Wastewater Treatment Plant
Gross Floor Area (ft²): 67,699
Built: 1974

For Year Ending: December 31, 2023
Date Generated: September 11, 2024

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Western Monmouth Utilities Authority (WMUA 1 Utility Road Campus) 1 Utility Road Manalapan, New Jersey 07726	Western Monmouth Utilities Authority (WMUA) 103 Pension Road Manalapan, NJ 07726 (732) 446-3900	Stephen B[illegible]gadinski 103 Pension Road Manalapan, NJ 07726 (732) 446-3900 sbagadinski@wmua.manalapan.nj.us

Property ID: 34923442

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
462.7 kBtu/ft²

Source EUI
805.4 kBtu/ft²

Annual Energy by Fuel		Annual Emissions	
Natural Gas (kBtu)	4,823,184 (15%)	Total (Location-Based) GHG Emissions (Metric Tons CO2e/year)	N/A
Other: (kBtu)	10,654,848 (34%)		
Electric - Grid (kBtu)	12,752,809 (41%)		
Electric - Solar (kBtu)	3,096,351 (10%)		

National Median Comparison		Green Power	
National Median Site EUI (kBtu/ft²)	389.9	Green Power – Onsite (kWh)	0
National Median Source EUI (kBtu/ft²)	678.6	Green Power – Offsite (kWh)	0
% Diff from National Median Source EUI	19%	Percent of RECs Retained	0

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____ Date: _____

Licensed Professional

___ _____

(___)___-____

_____

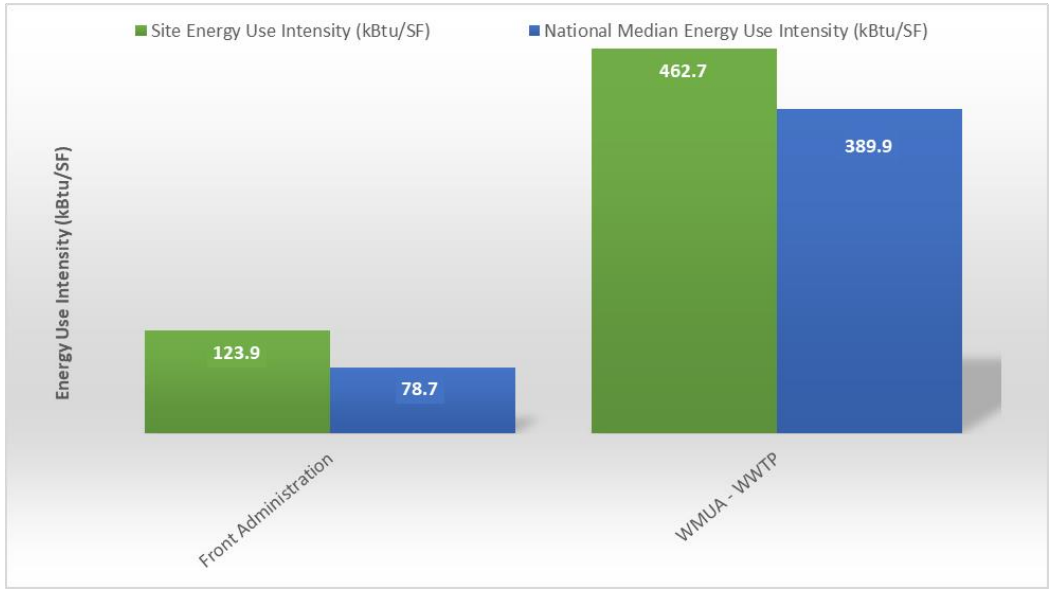
Professional Engineer or Registered Architect Stamp (if applicable)

Site EUI
462.7 kBtu/ft²

Source EUI
805.4 kBtu/ft²

National Median Comparison

National Median Site EUI (kBtu/ft²)	389.9
National Median Source EUI (kBtu/ft²)	678.6
% Diff from National Median Source EUI	19%

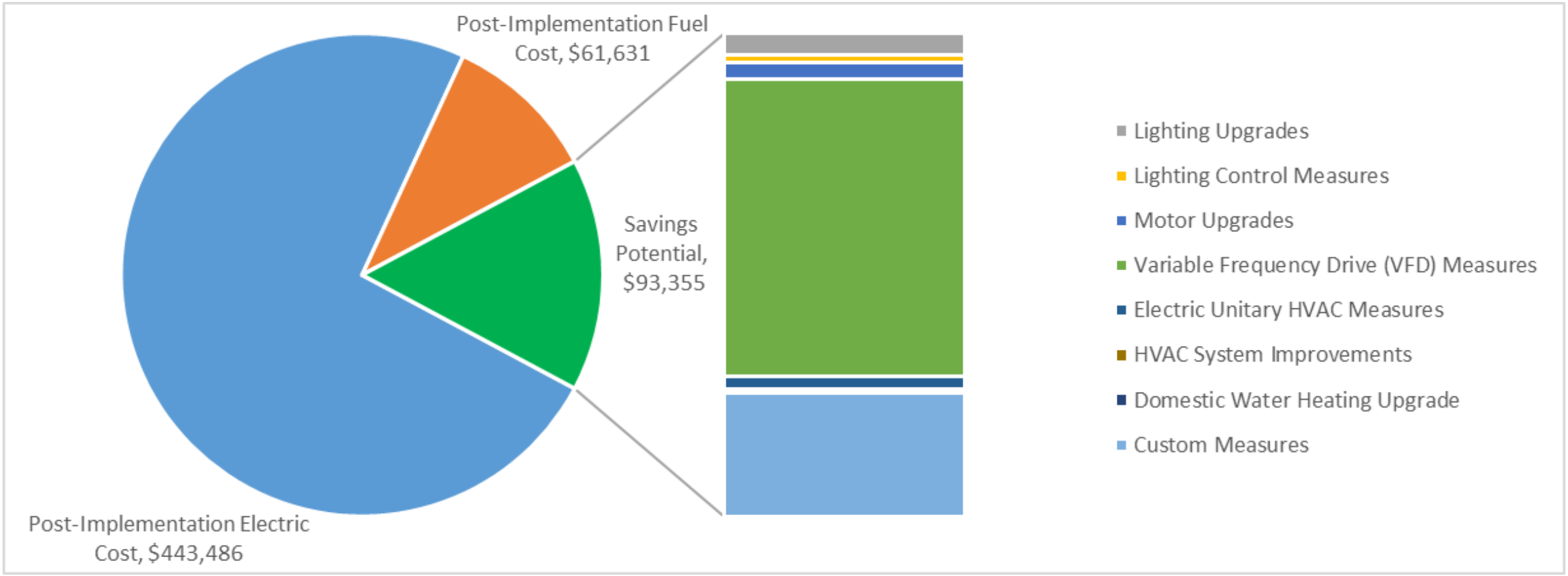


Site Name	ENERGY STAR® Score
Wastewater Treatment Plant	33
Pump Stations	N/A
Front Administration	12

ENERGY STAR® scores are percentile ranking from 1 (least efficient) to 100 (most efficient). It compares your building's energy performance to similar buildings nationwide.

All Opportunities

Savings Potential



ALL OPPORTUNITIES (1 OF 2)

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**42,909**	**6.8**	**-6.9**	**$4,242**	**$16,480**	**$2,240**	**$14,240**	**3.4**	**42,400**
ECM 1	Install LED Fixtures	6,920	0.0	0.0	$784	$5,360	$650	$4,710	6.0	6,969
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	4,057	1.1	-0.9	$383	$2,460	$300	$2,160	5.6	3,984
ECM 3	Retrofit Fixtures with LED Lamps	31,932	5.7	-6.0	$3,076	$8,660	$1,290	$7,370	2.4	31,447
Lighting Control Measures		**14,999**	**3.7**	**-3.0**	**$1,441**	**$14,920**	**$2,280**	**$12,640**	**8.8**	**14,749**
ECM 4	Install Occupancy Sensor Lighting Controls	13,679	3.6	-2.7	$1,317	$13,800	$1,650	$12,150	9.2	13,453
ECM 5	Install High/Low Lighting Controls	1,320	0.1	-0.3	$124	$1,120	$630	$490	3.9	1,296
Motor Upgrades		**32,033**	**8.4**	**0.0**	**$3,111**	**$68,000**	**$0**	**$68,000**	**21.9**	**32,257**
ECM 6	Premium Efficiency Motors	32,033	8.4	0.0	$3,111	$68,000	$0	$68,000	21.9	32,257
Variable Frequency Drive (VFD) Measures		**563,316**	**77.4**	**0.0**	**$57,465**	**$357,300**	**$28,400**	**$328,900**	**5.7**	**567,255**
ECM 7	Install VFDs on Constant Volume (CV) Fans	15,753	4.9	0.0	$1,530	$19,300	$2,200	$17,100	11.2	15,863
ECM 8	Install VFDs on Heating Water Pumps	11,168	1.7	0.0	$1,085	$13,400	$2,000	$11,400	10.5	11,246
ECM 9	Install VFDs on Process Pumps	518,425	66.5	0.0	$53,105	$314,300	$22,200	$292,100	5.5	522,050
ECM 10	Install VFDs on Process Blowers	17,970	4.5	0.0	$1,745	$10,300	$2,000	$8,300	4.8	18,095

ALL OPPORTUNITIES (2 OF 2)

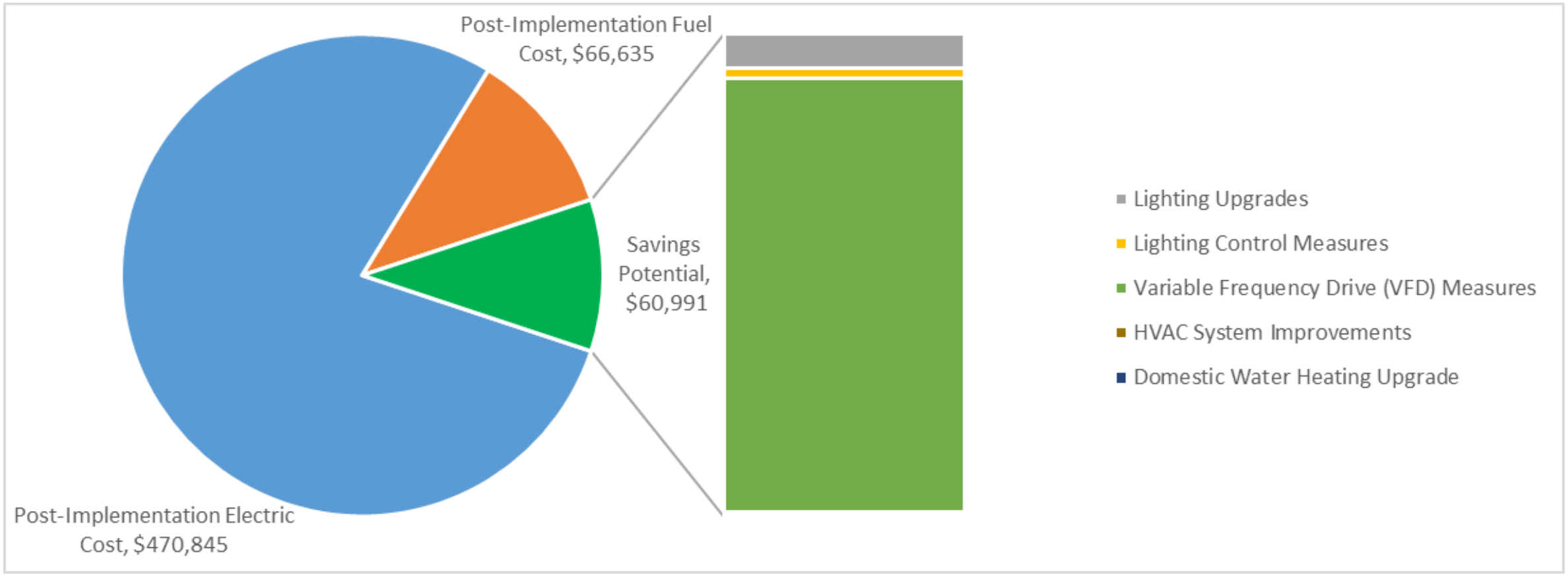
#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Unitary HVAC Measures		**19,652**	**20.8**	**0.0**	**$2,610**	**$74,200**	**$3,200**	**$71,000**	**27.2**	**19,790**
ECM 11	Install High Efficiency Air Conditioning Units	4,252	2.3	0.0	$413	$17,100	$900	$16,200	39.2	4,281
ECM 12	Install High Efficiency Heat Pumps	15,401	18.5	0.0	$2,197	$57,100	$2,300	$54,800	24.9	15,508
HVAC System Improvements		**1,060**	**0.0**	**0.0**	**$114**	**$410**	**$60**	**$350**	**3.1**	**1,067**
ECM 13	Install Pipe Insulation	1,060	0.0	0.0	$114	$410	$60	$350	3.1	1,067
Domestic Water Heating Upgrade		**4,426**	**0.0**	**0.0**	**$445**	**$320**	**$110**	**$210**	**0.5**	**4,457**
ECM 14	Install Low-Flow DHW Devices	4,426	0.0	0.0	$445	$320	$110	$210	0.5	4,457
Custom Measures		**195,864**	**0.0**	**362.0**	**$23,926**	**$362,400**	**$2,000**	**$360,400**	**15.1**	**239,621**
ECM 15	Installation of an Energy Management System	15,170	0.0	362.0	$6,310	$68,700	$0	$68,700	10.9	57,663
ECM 16	Replace Electric Water Heater with Heat Pump Water Heater	12,314	0.0	0.0	$1,261	$13,300	$0	$13,300	10.5	12,400
ECM 17	Install Automated Dissolved Oxygen Aeration Control	161,290	0.0	0.0	$15,666	$267,000	$0	$267,000	17.0	162,418
ECM 18	Install Air Compressors with VFDs	7,090	0.0	0.0	$689	$13,400	$2,000	$11,400	16.6	7,140
TOTALS (ALL MEASURES)		**874,259**	**117.2**	**352.1**	**$93,355**	**$894,030**	**$38,290**	**$855,740**	**9.2**	**921,595**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Cost Effective Opportunities

Savings Potential



Cost Effective Opportunities

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**42,909**	**6.8**	**-6.9**	**$4,242**	**$16,480**	**$2,240**	**$14,240**	**3.4**	**42,400**
ECM 1	Install LED Fixtures	6,920	0.0	0.0	$784	$5,360	$650	$4,710	6.0	6,969
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	4,057	1.1	-0.9	$383	$2,460	$300	$2,160	5.6	3,984
ECM 3	Retrofit Fixtures with LED Lamps	31,932	5.7	-6.0	$3,076	$8,660	$1,290	$7,370	2.4	31,447
Lighting Control Measures		**14,207**	**3.4**	**-3.0**	**$1,339**	**$12,730**	**$2,010**	**$10,720**	**8.0**	**13,952**
ECM 4	Install Occupancy Sensor Lighting Controls	12,887	3.3	-2.7	$1,215	$11,610	$1,380	$10,230	8.4	12,656
ECM 5	Install High/Low Lighting Controls	1,320	0.1	-0.3	$124	$1,120	$630	$490	3.9	1,296
Variable Frequency Drive (VFD) Measures		**536,395**	**70.9**	**0.0**	**$54,850**	**$324,600**	**$24,200**	**$300,400**	**5.5**	**540,145**
ECM 9	Install VFDs on Process Pumps	518,425	66.5	0.0	$53,105	$314,300	$22,200	$292,100	5.5	522,050
ECM 10	Install VFDs on Process Blowers	17,970	4.5	0.0	$1,745	$10,300	$2,000	$8,300	4.8	18,095
HVAC System Improvements		**1,060**	**0.0**	**0.0**	**$114**	**$410**	**$60**	**$350**	**3.1**	**1,067**
ECM 13	Install Pipe Insulation	1,060	0.0	0.0	$114	$410	$60	$350	3.1	1,067
Domestic Water Heating Upgrade		**4,426**	**0.0**	**0.0**	**$445**	**$320**	**$110**	**$210**	**0.5**	**4,457**
ECM 14	Install Low-Flow DHW Devices	4,426	0.0	0.0	$445	$320	$110	$210	0.5	4,457
TOTALS		**598,996**	**81.1**	**-9.9**	**$60,991**	**$354,540**	**$28,620**	**$325,920**	**5.3**	**602,021**

* - All incentives presented in this table are included as placesholders and are based on previously run state rebate programs. Contact your utility provider for details on current programs

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WASTEWATER TREATMENT PLANT

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**35,590**	**6.6**	**-7**	**$3,364**	**$11,830**	**$1,700**	**$10,130**	**3.0**	**35,030**
ECM 1	Install LED Fixtures	Yes	2,133	0.0	0	$207	$1,600	$200	$1,400	6.8	2,148
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	4,057	1.1	-1	$383	$2,460	$300	$2,160	5.6	3,984
ECM 3	Retrofit Fixtures with LED Lamps	Yes	29,400	5.5	-6	$2,775	$7,770	$1,200	$6,570	2.4	28,897
Lighting Control Measures			**14,207**	**3.4**	**-3**	**$1,339**	**$12,730**	**$2,010**	**$10,720**	**8.0**	**13,952**
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	12,887	3.3	-3	$1,215	$11,610	$1,380	$10,230	8.4	12,656
ECM 5	Install High/Low Lighting Controls	Yes	1,320	0.1	0	$124	$1,120	$630	$490	3.9	1,296
Motor Upgrades			**32,033**	**8.4**	**0**	**$3,111**	**$68,000**	**$0**	**$68,000**	**21.9**	**32,257**
ECM 6	Premium Efficiency Motors	No	32,033	8.4	0	$3,111	$68,000	$0	$68,000	21.9	32,257
Variable Frequency Drive (VFD) Measures			**433,223**	**51.2**	**0**	**$42,078**	**$202,100**	**$13,600**	**$188,500**	**4.5**	**436,252**
ECM 7	Install VFDs on Constant Volume (CV) Fans	No	15,753	4.9	0	$1,530	$19,300	$2,200	$17,100	11.2	15,863
ECM 8	Install VFDs on Heating Water Pumps	No	11,168	1.7	0	$1,085	$13,400	$2,000	$11,400	10.5	11,246
ECM 9	Install VFDs on Process Pumps	Yes	388,333	40.3	0	$37,718	$159,100	$7,400	$151,700	4.0	391,048
ECM 10	Install VFDs on Process Blowers	Yes	17,970	4.5	0	$1,745	$10,300	$2,000	$8,300	4.8	18,095
Unitary HVAC Measures			**4,252**	**2.3**	**0**	**$413**	**$17,100**	**$900**	**$16,200**	**39.2**	**4,281**
ECM 11	Install High Efficiency Air Conditioning Units	No	4,252	2.3	0	$413	$17,100	$900	$16,200	39.2	4,281
HVAC System Improvements			**828**	**0.0**	**0**	**$80**	**$140**	**$20**	**$120**	**1.5**	**834**
ECM 12	Install Pipe Insulation	Yes	828	0.0	0	$80	$140	$20	$120	1.5	834
Domestic Water Heating Upgrade			**4,092**	**0.0**	**0**	**$397**	**$250**	**$90**	**$160**	**0.4**	**4,121**
ECM 13	Install Low-Flow DHW Devices	Yes	4,092	0.0	0	$397	$250	$90	$160	0.4	4,121
Custom Measures			**194,471**	**0.0**	**362**	**$23,727**	**$359,900**	**$2,000**	**$357,900**	**15.1**	**238,218**
ECM 14	Installation of an Energy Management System	No	15,170	0.0	362	$6,310	$68,700	$0	$68,700	10.9	57,663
ECM 15	Replace Electric Water Heater with Heat Pump Water Heater	No	10,921	0.0	0	$1,062	$10,800	$0	$10,800	10.2	10,997
ECM 16	Install Automated Dissolved Oxygen Aeration Control	No	161,290	0.0	0	$15,666	$267,000	$0	$267,000	17.0	162,418
ECM 17	Install Air Compressors with VFDs	No	7,090	0.0	0	$689	$13,400	$2,000	$11,400	16.6	7,140
TOTALS (COST EFFECTIVE MEASURES)			**461,019**	**54.7**	**-10**	**$44,645**	**$194,350**	**$13,220**	**$181,130**	**4.1**	**463,079**
TOTALS (ALL MEASURES)			**718,695**	**72.0**	**352**	**$74,511**	**$672,050**	**$20,320**	**$651,730**	**8.7**	**764,944**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

PUMP STATIONS

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**6,813**	**0.2**	**0**	**$806**	**$3,900**	**$490**	**$3,410**	**4.2**	**6,861**
ECM 1	Install LED Fixtures	Yes	4,358	0.0	0	$515	$3,100	$400	$2,700	5.2	4,389
ECM 2	Retrofit Fixtures with LED Lamps	Yes	2,455	0.2	0	$290	$800	$90	$710	2.4	2,472
Lighting Control Measures			**452**	**0.1**	**0**	**$53**	**$1,200**	**$160**	**$1,040**	**19.5**	**455**
ECM 3	Install Occupancy Sensor Lighting Controls	No	452	0.1	0	$53	$1,200	$160	$1,040	19.5	455
Variable Frequency Drive (VFD) Measures			**130,093**	**26.2**	**0**	**$15,387**	**$155,200**	**$14,800**	**$140,400**	**9.1**	**131,002**
ECM 4	Install VFDs on Process Pumps	Yes	130,093	26.2	0	$15,387	$155,200	$14,800	$140,400	9.1	131,002
TOTALS (COST EFFECTIVE MEASURES)			**136,906**	**26.4**	**0**	**$16,193**	**$159,100**	**$15,290**	**$143,810**	**8.9**	**137,863**
TOTALS (ALL MEASURES)			**137,358**	**26.5**	**0**	**$16,246**	**$160,300**	**$15,450**	**$144,850**	**8.9**	**138,318**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

FRONT ADMINISTRATION

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**506**	**0.0**	**0**	**$72**	**$750**	**$50**	**$700**	**9.7**	**509**
ECM 1	Install LED Fixtures	Yes	429	0.0	0	$61	$660	$50	$610	10.0	432
ECM 2	Retrofit Fixtures with LED Lamps	Yes	77	0.0	0	$11	$90	$0	$90	8.2	77
Lighting Control Measures			**340**	**0.2**	**0**	**$49**	**$990**	**$110**	**$880**	**18.1**	**343**
ECM 3	Install Occupancy Sensor Lighting Controls	No	340	0.2	0	$49	$990	$110	$880	18.1	343
Unitary HVAC Measures			**15,401**	**18.5**	**0**	**$2,197**	**$57,100**	**$2,300**	**$54,800**	**24.9**	**15,508**
ECM 4	Install High Efficiency Heat Pumps	No	15,401	18.5	0	$2,197	$57,100	$2,300	$54,800	24.9	15,508
HVAC System Improvements			**232**	**0.0**	**0**	**$33**	**$270**	**$40**	**$230**	**6.9**	**234**
ECM 5	Install Pipe Insulation	Yes	232	0.0	0	$33	$270	$40	$230	6.9	234
Domestic Water Heating Upgrade			**334**	**0.0**	**0**	**$48**	**$70**	**$20**	**$50**	**1.1**	**336**
ECM 6	Install Low-Flow DHW Devices	Yes	334	0.0	0	$48	$70	$20	$50	1.1	336
Custom Measures			**1,393**	**0.0**	**0**	**$199**	**$2,500**	**$0**	**$2,500**	**12.6**	**1,403**
ECM 7	Replace Electric Water Heater with Heat Pump Water Heater	No	1,393	0.0	0	$199	$2,500	$0	$2,500	12.6	1,403
TOTALS (COST EFFECTIVE MEASURES)			**1,072**	**0.0**	**0**	**$153**	**$1,090**	**$110**	**$980**	**6.4**	**1,079**
TOTALS (ALL MEASURES)			**18,205**	**18.7**	**0**	**$2,598**	**$61,680**	**$2,520**	**$59,160**	**22.8**	**18,333**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Energy Efficient Best Practices

- Reduce Air Leakage
- Close Doors and Windows
- Develop a Lighting Maintenance Schedule
- Ensure Lighting Controls Are Operating Properly
- Use Fans to Reduce Cooling Load
- Use Window Treatments/Coverings
- Clean and/or Replace HVAC filters
- Check and Seal Duct Leakage
- Perform Proper Boiler Maintenance
- Perform Proper Water Heater Maintenance
- Plug Load Controls
- Water Conservation

See individual reports for specific EE Best Practices by building

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WASTEWATER TREATMENT PLANT BEST PRACTICES

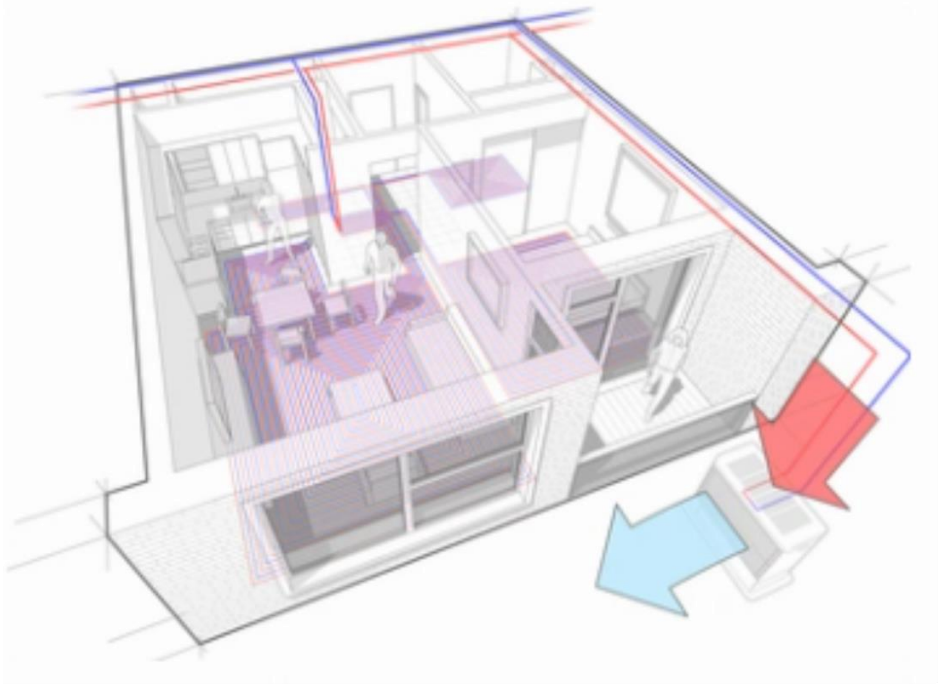
- See report for best practices on:
  - Blower Aeration Systems
  - Mechanical Aeration Systems
  - Secondary Treatment Mixing Systems
  - Anaerobic Digester Mixing Systems
  - Pumping Systems
  - Plant Water Systems for Non-potable Use
  - Ultra Violet Disinfection Systems
  - Odor Control Systems

Process	Best Practices Measure	Typical Energy Savings of unit of process (%)	Typical Payback (Years)
Operations	Operational Flexibility	10 – 25	< 2
	Staging of Treatment Capacity	10 – 30	< 2
	Manage for Seasonal/Tourist Peaks Variable	Variable	4 – 6
	Flexible Sequencing of Basin Use	15 – 40	2 – 5
	Cover Basins to Reduce Freezing and Aerosol or Odor Emissions	Variable	Variable
	Reduce Fresh Water Consumption through Final Effluent Recycling	10 – 50	2 – 3
Aeration	Optimize Aeration System	30 – 70	3 – 7
	Fine Bubble Aeration	20 – 75	1 – 5
	Variable Blower Air Flow Rate	15 – 50	<3
	Dissolved Oxygen Control	20 – 50	2 – 3
	Cascade Aeration	Variable	Variable
	Aerobic Digestion Options	20 – 50	Variable
	Blower Technology Options	10 – 25	1 – 7
	Assess Aeration System Configuration	Variable	Variable
Sludge and Biosolids	Improve Solids Capture in Dissolved Air Flotation (DAF)	Variable	Variable
	Evaluate Replacing Centrifuge with Screw Press	Variable	Variable
	Replace Centrifuge with Gravity Belt Thickener	Variable	Variable
	Digestion Options	Variable	Variable
	Mixing Options in Aerobic Digesters	10 – 50	1 – 3
	Mixing Options in Anaerobic Digesters	Variable	Variable
	Recover Heat from Wastewater	Variable	Variable
Special Treatment Options	Anoxic-Zone Mixing Options	25 – 50	3 – 5
	Side-stream De-ammonification	–	–
	Biotower Energy Efficiency	15 – 30	Variable
Biogas Enhancement	Optimize Anaerobic Digester Performance	Variable	Variable
	Use Biogas to Produce Combined Heat and/or Power (CHP)	Variable	Variable
	Assessment of Beneficial Utilization	Variable	Variable

Table based on information published by Wisconsin Focus on Energy in the "ENERGY BEST PRACTICES GUIDE: WATER & WASTEWATER INDUSTRY" (February 2020)– https://focusonenergy.com

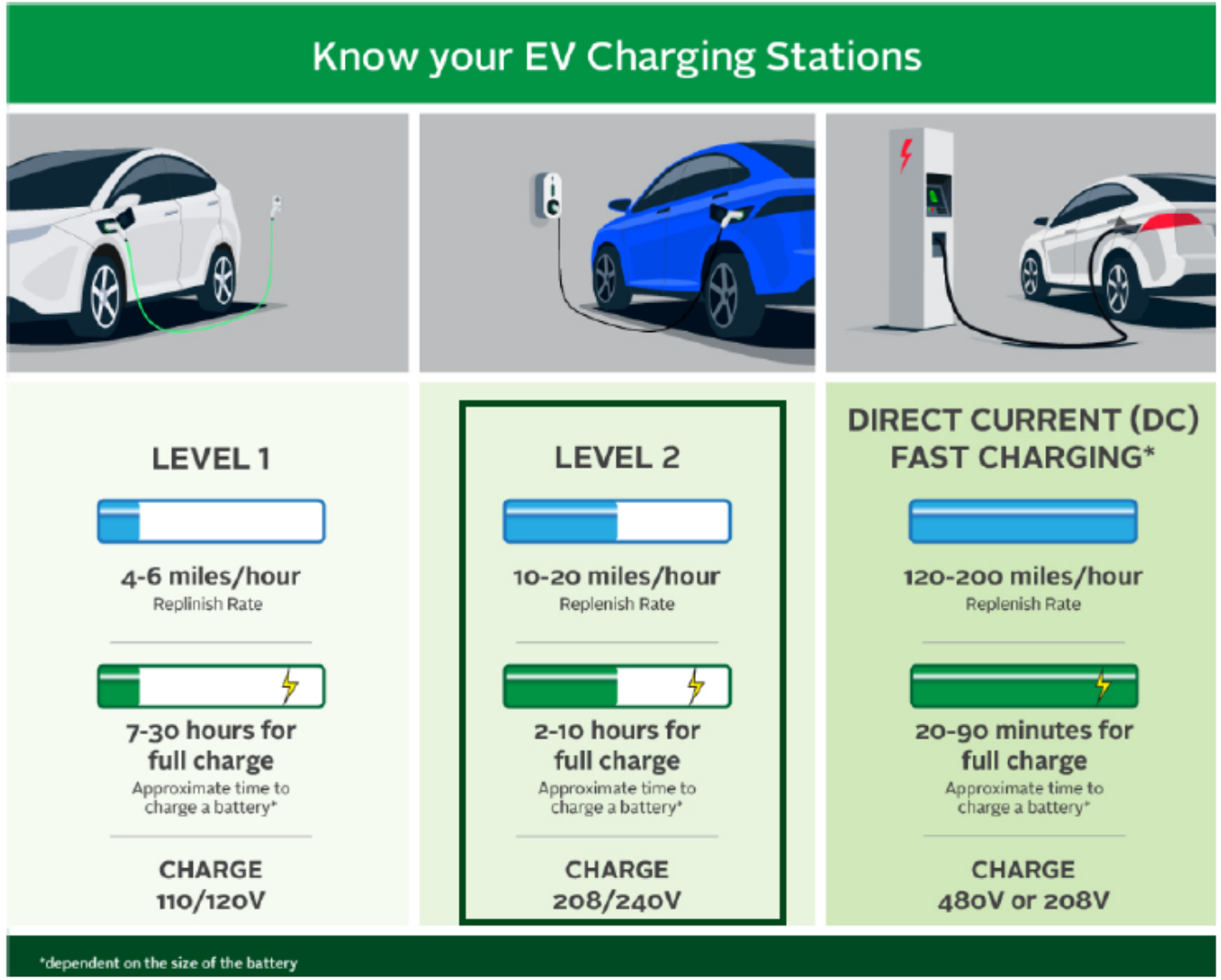
Measures for Future Consideration

- High Speed Insulated Overhead Doors
- Electric Submeter
- Replace Smooth V-Belts with Notched or Synchronous Belts
- Upgrade to a Heat Pump System
- Flow Based Ultraviolet Disinfection System



EV Charging Station Potential

NJCleanEnergy.com/EV



	WMUA Sites
Potential:	**Medium**

Solar Energy Generation Potential

NJCleanEnergy.com/renewable-energy

	WWTP Campus
Potential:	**MEDIUM**
System Potential: (kW)	54
Electric Generation: (kWh per year)	64,334
Displaced Cost: (per year)	$6,250

Combined Heat & Power Potential

	WWTP Campus
Potential:	**HIGH**
System Type:	Microturbine
System Potential: (kW)	190
Electric Generation: (kWh per year)	1,521,094
Thermal Generation: (MBtu per year)	7,878,696
Displaced Cost: (per year)	$34,792

FINANCING MECHANISM: ESIP

NJCleanEnergy.com/ESIP

ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

- Energy Performance Contracting = NJ ESIP Program
- A creative tool and financing mechanism that allows public entities to make energy efficiency improvements without impacting their budgets
- Administered by the NJBPU
- Project is paid for with the value of its own energy savings
- 2 Options: Lease Purchase Loan or Bond
- 15 or 20 year pay back term
- NJBPU Approved Incentive Programs
    - Utility or NJCEP
- Can be combined with Federal/State Grants
- No upfront capital expenses
- No referendum or impact to tax payers

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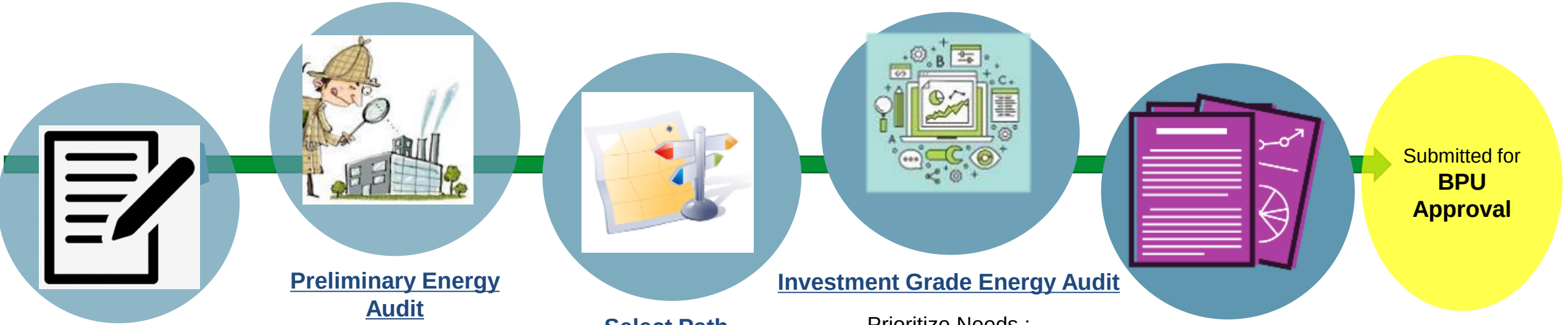
Energy Savings Improvement Program

NJCleanEnergy.com/ESIP



ESIP Intake Form

Get informed;
Begin the process

Preliminary Energy Audit

Free LGEA
or
other ASHRAE Level II Audit

Select Path

ESCO, Hybrid or DIY Model;
Local Public Contract Law
Public School Contract Law
Compliance

Investment Grade Energy Audit

Prioritize Needs ;
Select Project's ECM's

Energy Savings Plan

Must be Cash Flow Positive;
Purchase Savings Guarantee?
Third Party Verification

Submitted for **BPU Approval**

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Energy Savings Improvement Program

NJCleanEnergy.com/ESIP

FOR MORE INFORMATION

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SUSTAINABLE JERSEY – DIRECT PAY

Combining NJBPU Incentives with Direct Pay

Direct Pay (Elective Pay), part of Inflation Reduction Act (IRA), allows tax-exempt entities, including municipalities and school districts, to receive tax credits for clean energy projects.

About Direct Pay

- All eligible projects receive tax credits (not competitive)
- Currently authorized for 10 years
- Projects completed in 2023 are eligible for tax credits until Nov 15
  For local governments filing on a calendar year, fiscal year deadline is May 15

Eligible Projects Include

- Renewables – solar, geothermal, wind, etc.
- Electric vehicles
- Electric vehicle charging infrastructure *(limited)*
- Combined heat and power; Electric storage

Direct Pay can be used in combination with other funding sources like NJBPU incentives.

Example

Lightweight EV	$24,000
NJBPU Clean Fleet Grant	-$4,000
Direct Pay Tax Credit	-$7,500
Total cost to entity	**$12,500**

Note: Total incentive can not exceed total project cost.

Full list of Direct Pay eligible tax credits at https://www.irs.gov/pub/irs-pdf/p5817a.pdf

For more information, visit Sustainable Jersey's Direct Pay Tax Credits page.

C&I Energy Efficiency Programs

NJCleanEnergy.com

LOCAL GOVERNMENT CUSTOMERS

COMMERCIAL & INSTITUTIONAL CUSTOMERS

LARGE ENERGY CUSTOMERS

EXISTING BUILDINGS

MEASUREMENT & AUDITS

FREE Energy Audits

RETROFITS

Prescriptive & Custom Rebates

Direct Install

Engineered Solutions

And more from your local utility!

Incentives up to $4 million for eligible projects

NEW CONSTRUCTION

Prescriptive & Custom Rebates for New Construction and Gut Rehabs

Pay for Performance incentives for buildings over 50,000 sq. ft.

DISTRIBUTED ENERGY RESOURCES

Combined Heat & Power and Fuel Cell Installation Incentives

Microgrid Development

Battery Storage

Muni EV Fleets

Key:

Programs run by investor-owned utility companies

Programs run by NJCEP

Combined Heat & Power - Fuel Cells

NJCleanEnergy.com/CHP

WHO	C&I customers that require on-site electric generation that either does or does not utilize waste heat
SIZE TO QUALIFY	N/A - Projects must pass a cost-effectiveness test and run 5,000 full load equivalent hours per year (3,500 for critical facilities)
ABOUT	• Combined Heat & Power (CHP) units generates electricity and recycle waste heat to provide heating or cooling • Resiliency with return on investment • Technology-neutral incentives • Fuel Cells (FC) with or without heat recovery (HR)
INCENTIVE LEVELS	• CHPs and FC with HR have a project cap of $2M - $3M • 25% bonus for critical facilities with black-start/islanding capabilities • Up to 30% incentive bonus for CHP using biofuel • FC without HR have a project cap of $1M

COMBINED HEAT & POWER - FUEL CELLS

NJCleanEnergy.com/CHP

Eligible Technology	Size (Installed Rated Capacity)	Incentive ($/Watt) [5]	% of Total Cost Cap per project	$ Cap per project
CHP powered by non-renewable or renewable fuel source, or a combination[4]: • Gas Internal Combustion Engine • Gas Combustion Turbine • Microturbine Fuel Cell with Heat Recovery (FCHR)	≤500 kW[1]	$2.00	30-40%[2]	$2 million
	>500 kW – 1 MW[1]	$1.00		
	>1 MW – 3 MW[1]	$0.55	30%	$3 million
	>3 MW[1]	$0.35		
Fuel Cell without Heat Recovery (FCwoHR)	Same as above[1]	Applicable amount above	30%	$1 million
Waste Heat to Power (WHP)[3] Powered by non-renewable fuel source. Heat recovery or other mechanical recovery from existing equipment utilizing new electric generation equipment (e.g. steam turbine)	≤1 MW[1]	$1.00	30%	$2 million
	>1 MW[1]	$0.50	30%	$3 million

+critical facility/blackstart bonus of 25%

New Jersey's cleanenergy program™

UTILITY RUN ENERGY EFFICIENCY PROGRAMS*

NJCleanEnergy.com/Transition

PRESCRIPTIVE & CUSTOM REBATES:

- Individual high efficiency equipment rebates for renovation, remodeling, and equipment replacement
- Flexibility to do a little or a lot
- No size requirement

DIRECT INSTALL:

- Turn-key retrofit program to replace outdated and inefficient equipment including, lighting, HVAC, refrigeration, etc.
- The facility must have an average electric peak demand <200kW in the previous year to qualify

ENERGY MANAGEMENT :

- Includes the Building Tune-up (BT), Retro-commissioning (RCx), and Strategic Energy Management (SEM) subprograms. These subprograms offer a comprehensive mix of custom energy-savings measures such as basic HVAC tune-ups, building systems tune-ups, controls' calibration, diagnostic testing, and installation of measures to enhance your building's energy performance and savings.

ENGINEERED SOLUTIONS:

- Comprehensive, whole-building approach to saving energy
- The facility must have an average electric peak demand >200kW in the previous year to qualify

****Other programs may be available to you. Check with your Utility Provider to see a full list of offering and what you may be qualified for.***

Utility Run Energy Efficiency Programs

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THANK YOU