LGEA Presentation

DePaul Catholic High School

September 17, 2024

New Jersey's
Clean Energy Program

Lighting the way to New Jersey's Clean Energy Future

INTRODUCTIONS

- *DePaul Catholic High School*
  - Christopher Iannarone - Facilities

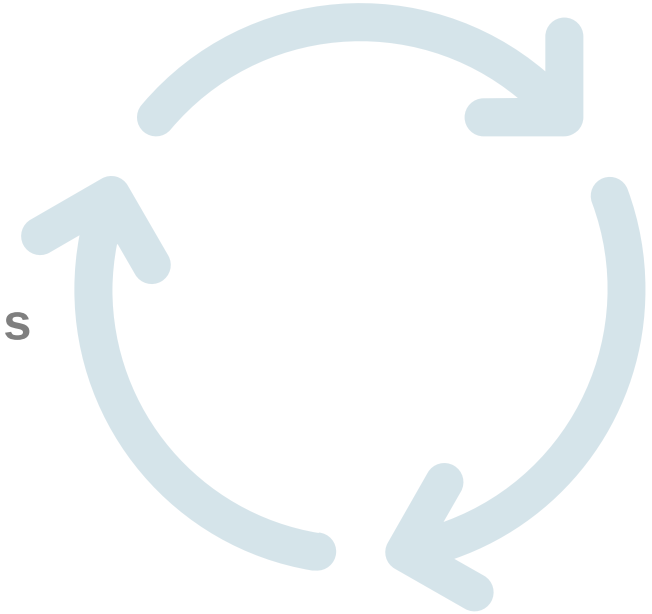
- *NJ Clean Energy Program*
  - Sarah Walters – LGEA Project Manager
  - Moussa Traore – LGEA Technical Manager
  - Chris Nolan – LGEA Project Auditor

AGENDA

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

LGEA Process

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



New Jersey's cleanenergy program™

Site Visit & Utility Analysis

Overview of Systems, Baseline & Existing Conditions:

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment
- Cooking & Refrigeration Equipment
- Building Automation System (BAS)

Utility Consumption & Costs:

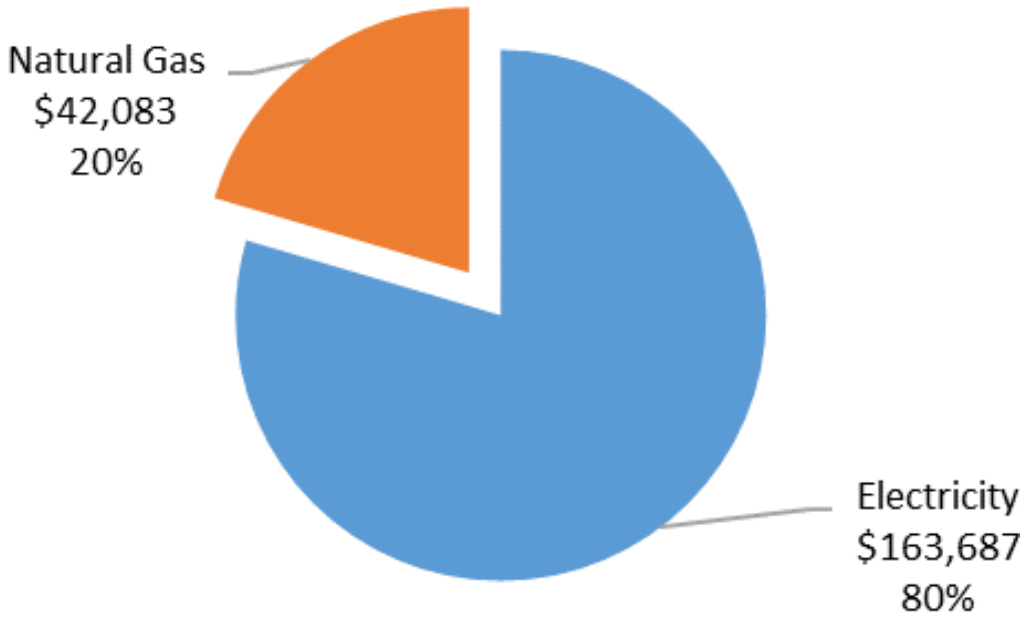
- Electric
- Natural Gas
- Water

Sites Visited/Analyzed

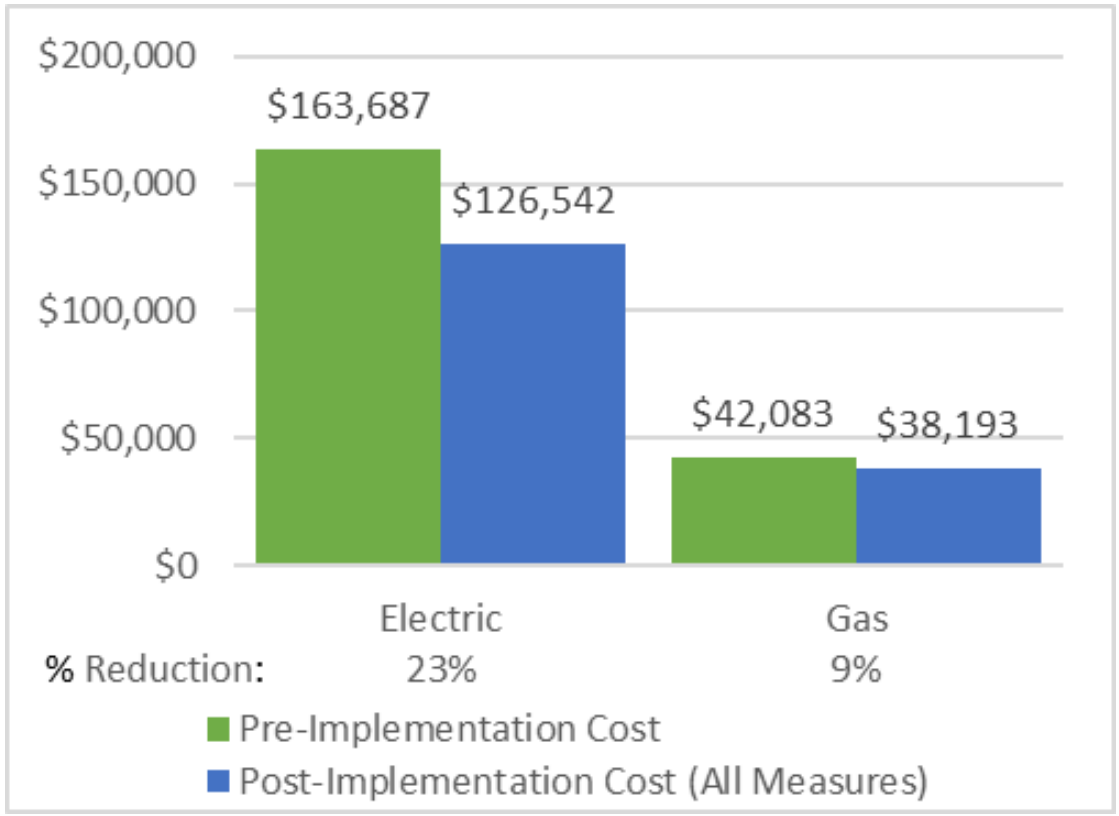
- DePaul Catholic High School Campus
  - High School
  - Art Annex
  - Snack Shack
  - Maintenance Garage

Utility Breakout

Percent of Total Annual Energy Costs



Pre & Post Implementation Cost



BENCHMARKING

LEARN MORE AT energystar.gov

ENERGY STAR® Statement of Energy Performance

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ENERGY STAR® Score[1]

DePaul Catholic High School (campus)

Primary Property Type: K-12 School
Gross Floor Area (ft²): 74,751
Built: 1956

For Year Ending: January 31, 2024
Date Generated: August 12, 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
DePaul Catholic High School (campus) 1512 Alps Rd Wayne, New Jersey 07470	DePaul Catholic HS 1512 Alps Road Wayne, NJ 07470 908-694-3702 x 228	Chris Iannarone 1512 Alps Road Wayne, NJ 07470 973-694-3702 ex. 228 amuench@trccompanies.com

Property ID: 34311794

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
97 kBtu/ft²

Source EUI
166.3 kBtu/ft²

Annual Energy by Fuel		
Natural Gas (kBtu)	4,500,777 (62%)	
Electric Grid (kBtu)	2,752,062 (38%)	

National Median Comparison	
National Median Site EUI (kBtu/ft²)	78.6
National Median Source EUI (kBtu/ft²)	134.7
% Diff from National Median Source EUI	23%

Annual Emissions
Total (Location-Based) GHG Emissions (Metric Tons CO2e/year) 166

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
97 kBtu/ft²

Source EUI
166.3 kBtu/ft²

National Median Comparison

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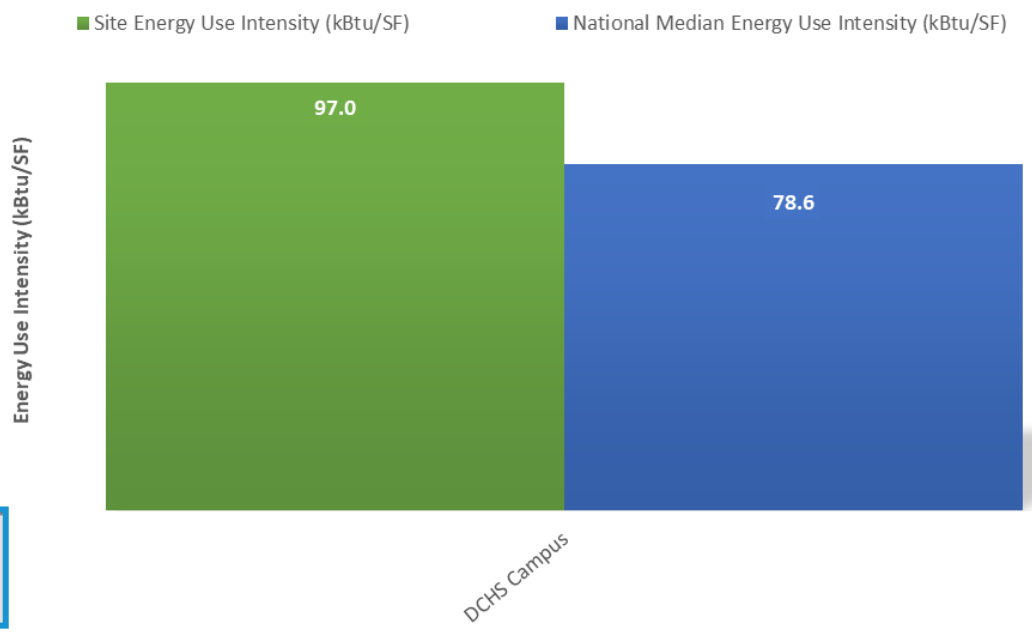
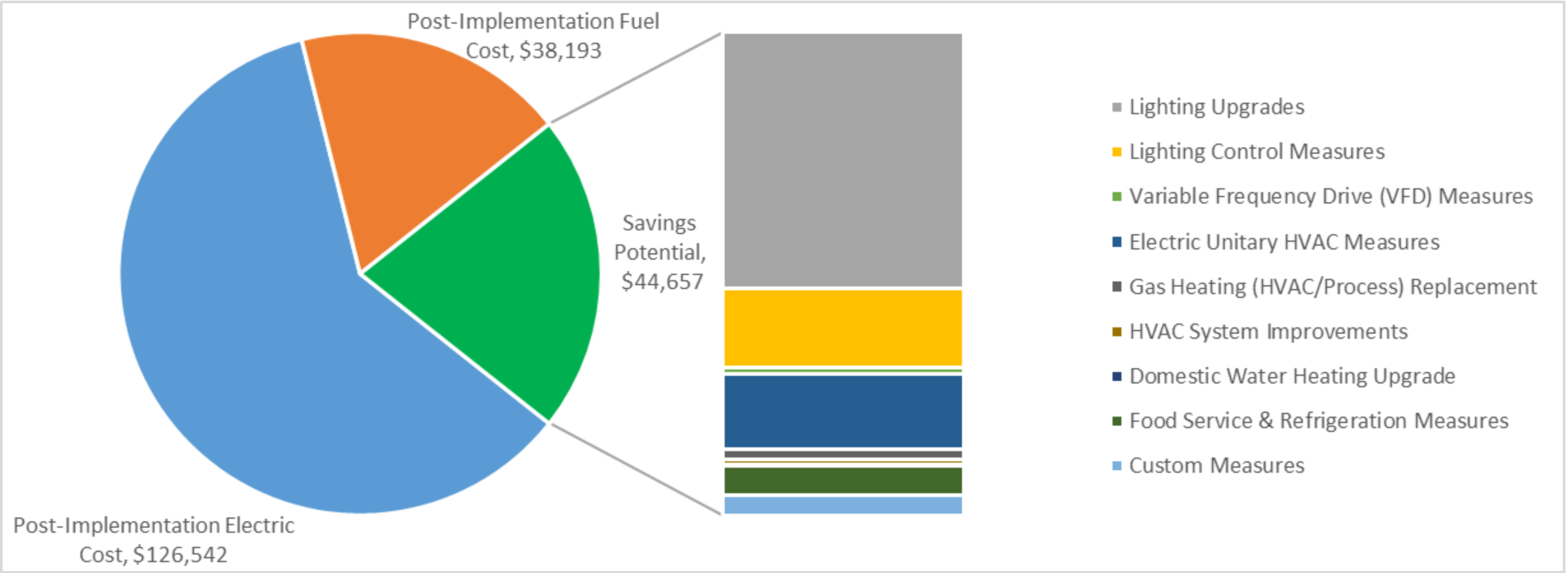


ENERGY STAR® scores are percentile ranking from 1 (least efficient) to 100 (most efficient). It compares your building's energy performance to similar buildings nationwide.

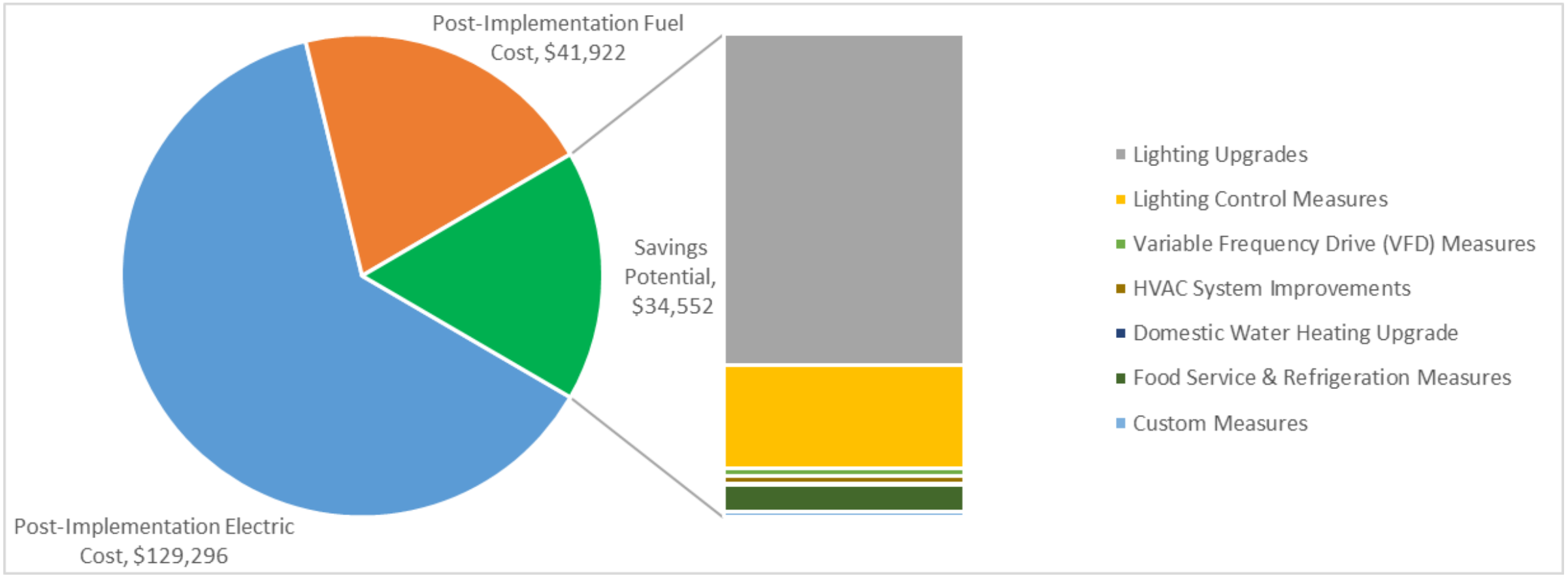
All Opportunities

Savings Potential



Cost Effective Opportunities

Savings Potential



DePaul Catholic High School Campus

#	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			**121,927**	**25.2**	**-25**	**$23,695**	**$51,660**	**$10,250**	**$41,410**	**1.7**	**119,817**
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	2,628	0.5	-1	$511	$1,480	$160	$1,320	2.6	2,582
ECM 2	Retrofit Fixtures with LED Lamps	Yes	102,263	23.4	-21	$19,874	$45,550	$10,090	$35,460	1.8	100,497
ECM 3	Install LED Exit Signs	Yes	17,036	1.3	-4	$3,311	$4,630	$0	$4,630	1.4	16,738
Lighting Control Measures			**37,702**	**8.2**	**-8**	**$7,326**	**$42,330**	**$11,930**	**$30,400**	**4.1**	**37,042**
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	27,244	6.3	-6	$5,294	$27,690	$3,340	$24,350	4.6	26,767
ECM 5	Install High/Low Lighting Controls	Yes	10,458	1.9	-2	$2,032	$14,640	$8,590	$6,050	3.0	10,275
Variable Frequency Drive (VFD) Measures			**2,996**	**0.4**	**0**	**$588**	**$5,100**	**$200**	**$4,900**	**8.3**	**3,017**
ECM 6	Install VFDs on Heating Water Pumps	Yes	2,996	0.4	0	$588	$5,100	$200	$4,900	8.3	3,017
Unitary HVAC Measures			**32,906**	**37.4**	**58**	**$6,999**	**$449,000**	**$24,500**	**$424,500**	**60.7**	**39,899**
ECM 7	Install High Efficiency Air Conditioning Units	No	32,906	37.4	58	$6,999	$449,000	$24,500	$424,500	60.7	39,899
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**92**	**$861**	**$33,800**	**$1,700**	**$32,100**	**37.3**	**10,778**
ECM 8	Install High Efficiency Hot Water Boilers	No	0	0.0	92	$861	$33,800	$1,700	$32,100	37.3	10,778
HVAC System Improvements			**993**	**0.0**	**35**	**$523**	**$1,770**	**$260**	**$1,510**	**2.9**	**5,111**
ECM 9	Install Pipe Insulation	Yes	993	0.0	35	$523	$1,770	$260	$1,510	2.9	5,111
Domestic Water Heating Upgrade			**0**	**0.0**	**15**	**$144**	**$2,320**	**$450**	**$1,870**	**13.0**	**1,797**
ECM 10	Install Low-Flow DHW Devices	Yes	0	0.0	15	$144	$2,320	$450	$1,870	13.0	1,797
Food Service & Refrigeration Measures			**13,810**	**1.4**	**0**	**$2,711**	**$22,910**	**$760**	**$22,150**	**8.2**	**13,907**
ECM 11	Refrigeration Controls	Yes	2,249	0.0	0	$441	$5,400	$260	$5,140	11.6	2,265
ECM 12	Replace Refrigeration Equipment	No	4,429	0.5	0	$869	$15,900	$300	$15,600	17.9	4,460
ECM 13	Vending Machine Control	Yes	7,132	0.8	0	$1,400	$1,610	$200	$1,410	1.0	7,182
Custom Measures* **			**-21,090**	**0.0**	**249**	**-$1,811**	**$10,100**	**$0**	**$10,100**	**-5.6**	**7,917**
ECM 14	Replace Electric Water Heater with Heat Pump Water Heater	Yes	2,216	0.0	0	$435	$2,900	$0	$2,900	6.7	2,231
ECM 15	Replace Gas Fired Water Heater with Heat Pump Water Heater***	No	-23,306	0.0	249	-$2,246	$7,200	$0	$7,200	-3.2	5,686
TOTALS (COST EFFECTIVE MEASURES)			**175,215**	**34.6**	**17**	**$34,552**	**$113,090**	**$23,550**	**$89,540**	**2.6**	**178,464**
TOTALS (ALL MEASURES)			**189,245**	**72.5**	**416**	**$41,035**	**$618,990**	**$50,050**	**$568,940**	**13.9**	**239,287**

* - 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).

*** - Negative payback explained in section 4.9

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

BPU New Jersey's cleanenergy program™

WATER BEST PRACTICES

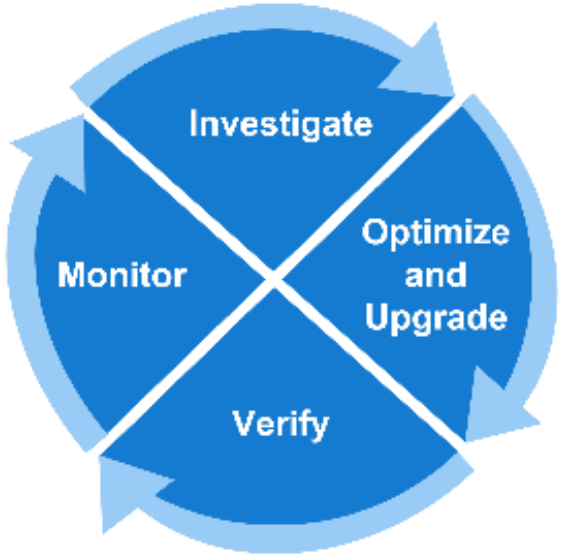
- Leak Detection and Repair
- Toilets and Urinals
- Faucets and Showerheads
- Commercial Kitchen Equipment
- Laundry Equipment
- Cooling Towners
- Steam Boiler System
- Pools and Spas
- Laboratory and Medical Equipment
- Water Metering and Submetering
- Vehicle Washing
- Single Pass Cooling System
- Landscaping and Irrigation
- On-Site Alternative Water Sources

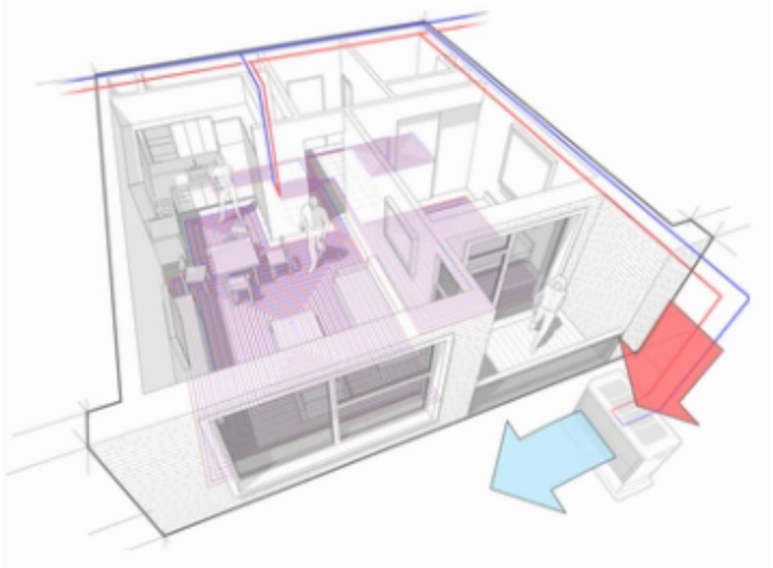
See individual reports for specific Water Best Practices by building

BPU New Jersey's cleanenergy program™

Measures for Future Consideration

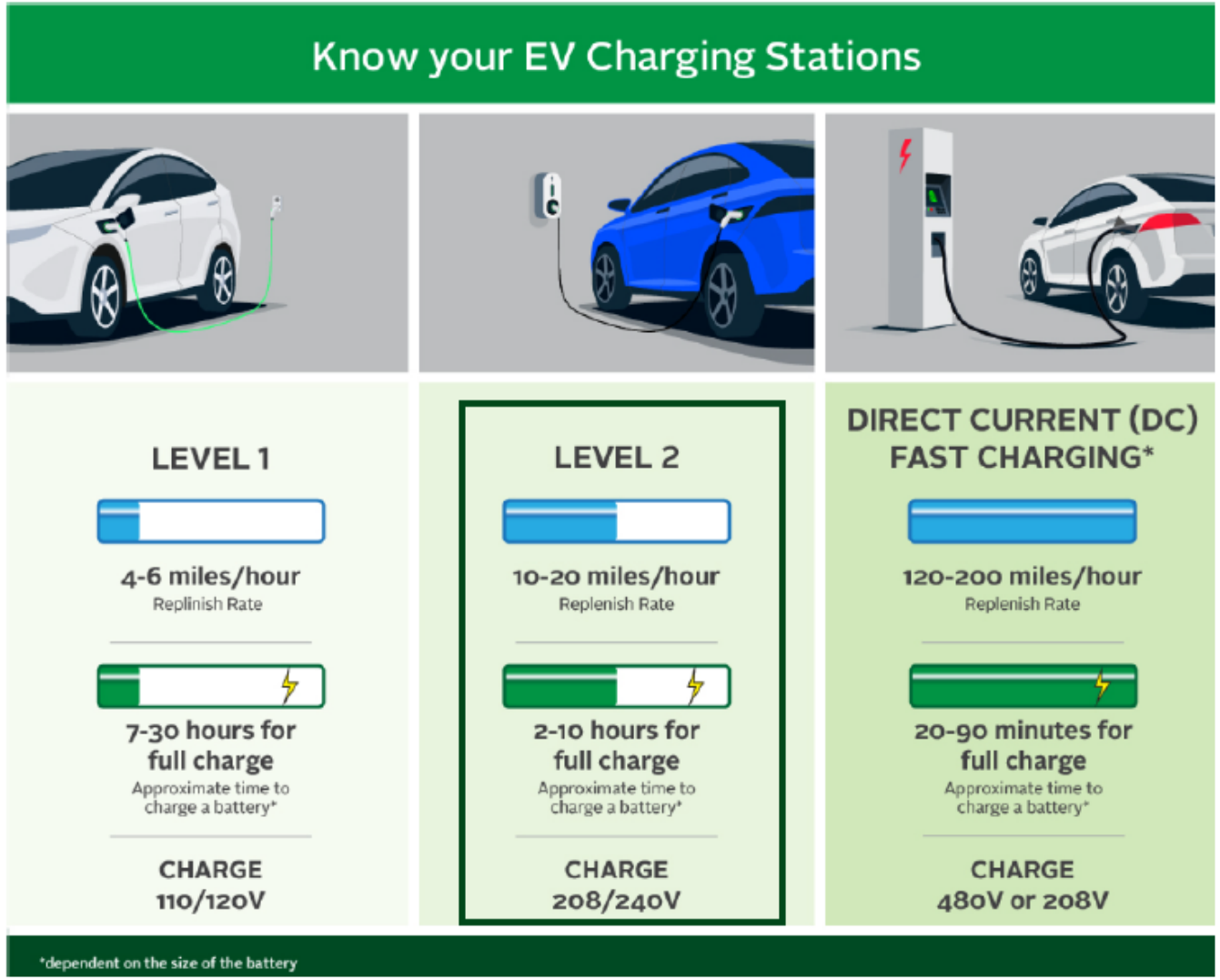
- Retro-Commissioning Study
- Upgrade to Heat Pump System





EV Charging Station Potential

NJCleanEnergy.com/EV



	DCHS Campus
Potential:	**Medium**

Solar Energy Generation Potential

NJCleanEnergy.com/renewable-energy

	Campus
Potential:	**HIGH**
System Potential: (kW)	215
Electric Generation: (kWh per year)	256,145
Displaced Cost: (per year)	$50,280

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

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

PSE&G

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THANK YOU