



Presentation to

MWRA Board of Directors

***Quabbin Maintenance Building
Design Contract 7677, Amendment 4***

July 10, 2026



Quabbin Maintenance Building



251 Blue Meadow Road, Belchertown, MA

- Vehicle maintenance bays and wash bay
- Advertised on portal June 24, 2026
 - Filed sub-bids due July 29th
 - General bids due Sept 4th
 - NTP December 1st - 18 month construction schedule



Design Contract 7677 expires September 17, 2026

Proposed Amendment 4

- 33 month time extension to cover bidding services, construction, warranty
- \$246,000 cost increase for escalation, project administration, and updates required due to Massachusetts Building Code changes

Contract 7677	AMOUNT	TIME
Original Contract	\$1,318,278	43 months
Amendment 1*	\$325,165	6 months
Amendment 2*	\$0	6 months
Amendment 3	\$0	9 months
Amendment 4	\$246,000	33 months
Total:	\$1,889,443	97 months

* Approved under delegated authority



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Climate Mitigation Projects Update

July 10, 2026



MassDEP Climate Mitigation Trust Grant

PROJECT SUMMARY

The Massachusetts Department of Environmental Protection (“MassDEP”) shall contribute **twenty million dollars (\$20,000,000.00)**, via a Best Value Grant (“BVG”) from the Commonwealth of Massachusetts Climate Protection and Mitigation Expendable Trust (“Trust”) in support of Climate Mitigation and GHG Emission Reduction Projects (collectively the “Program” or “Programs”) at MWRA facilities or properties. The Program shall include two components: **(1) Building Electrification projects; (2) Renewable Energy projects.**

- Fully Executed - 10/3/24
- Grant duration – 5 yrs w/ 1 yr extension option
- Proposed Project List
 - Renewable Energy
 - DITP Wind Turbine Replacement
 - DITP Solar Canopy
 - Norumbega Solar
 - Building Electrification

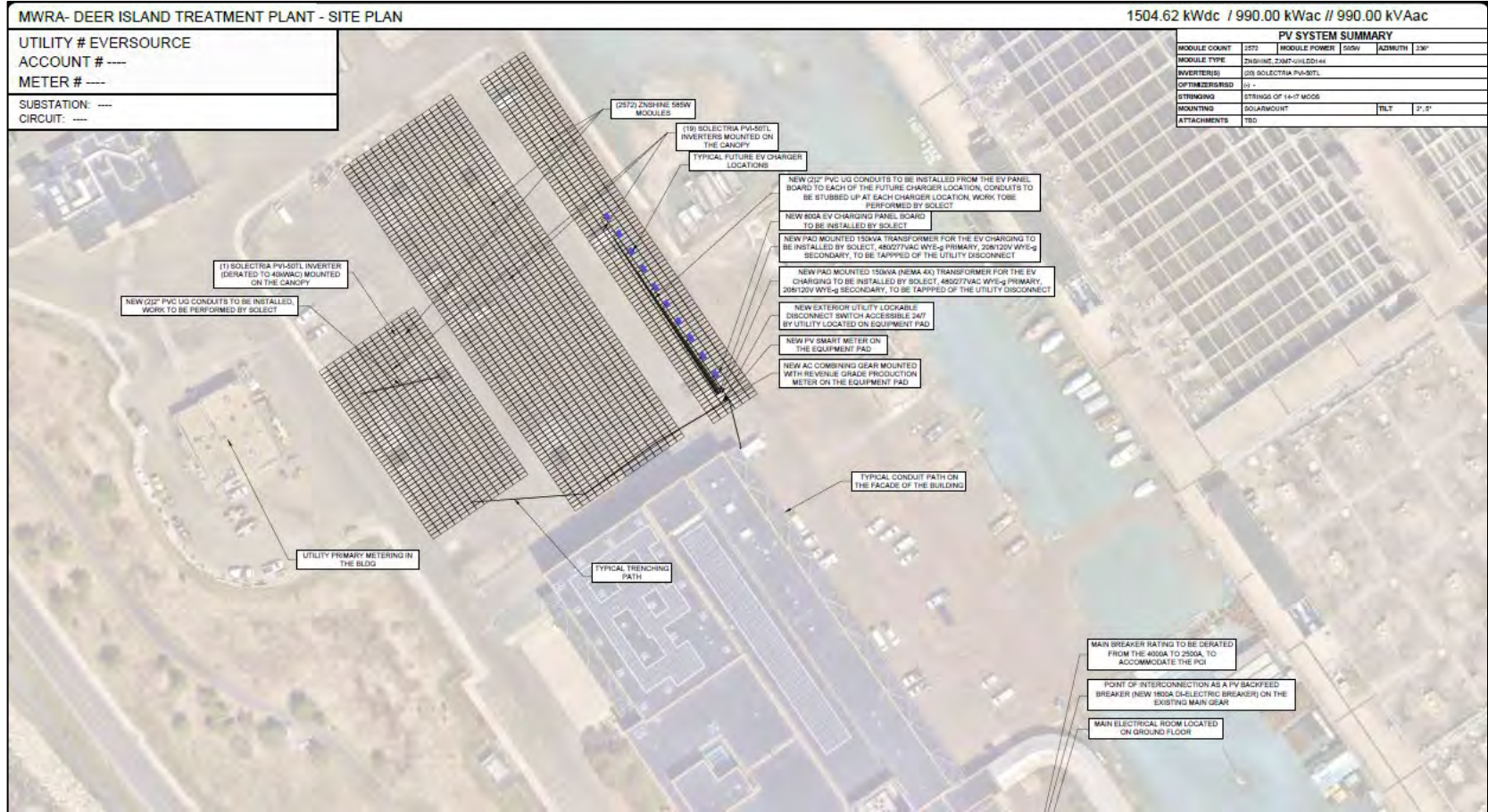


Deer Island Wind Turbine Replacement





Deer Island Solar Canopy – Preliminary Proposed Layout





Solar Canopy – Similar Projects



solectenergy

PARASOL
STRUCTURES

Medfield Elementary – 375 kWp DC



Bridgewater State University / 375 kWp DC



Cape Cod Regional Tech – 625 kWp DC



Framingham State University / 720 kWp DC





Norumbega Covered Storage Facility Solar





Building Electrification – Completed Projects

- Norumbega Headquarters (Weston)
- Spring St Pump Station (Arlington)





Building Electrification – Projects in Progress

Air-Source Heat Pumps

- o Belmont Water Pumping Station (Belmont)
- o New Neponset Pump Station (Canton)
- o Newton St Water Pumping Station (Brookline)
- o Braintree-Weymouth Wastewater Pump Station (Quincy)
- o Houghs Neck Wastewater Pump Station (Quincy)
- o Quincy Wastewater Pump Station (Quincy)
- o Squantum Wastewater Pump Station (Quincy)
- o Wachusett Dam Lower Gatehouse (Clinton)
- o Chelsea Administration Building (Chelsea)



Air and Water (Wastewater) - Source Heat Pumps

- o Clinton Wastewater Treatment Plant (Clinton)
- o Braintree-Weymouth Intermediate Pump Station (Weymouth)





FY27 Expected Climate Mitigation Project Implementation

Renewable Energy

- Deer Island Wind – project completion
- Deer Island Solar Canopy – *project construction. expected project completion FY28*
- Norumbega Solar – *interconnection study and scope refinement*

Electrification/Heat Pumps

- Belmont Water Pumping Station - project completion
- New Neponset Pump Station – project completion
- Newton St Water Pumping Station - project completion
- Braintree-Weymouth Wastewater Pump Station - project completion
- Houghs Neck Wastewater Pump Station - project completion
- Quincy Wastewater Pump Station - project completion
- Squantum Wastewater Pump Station - project completion
- Wachusett Dam Lower Gatehouse - project completion
- Chelsea Administration Building – *completion of design*



Massachusetts Water Resources Authority

Presentation to

MWRA Board of Directors

*2024 Greenhouse Gas Inventory Update
&
Progress on Emissions Reduction*

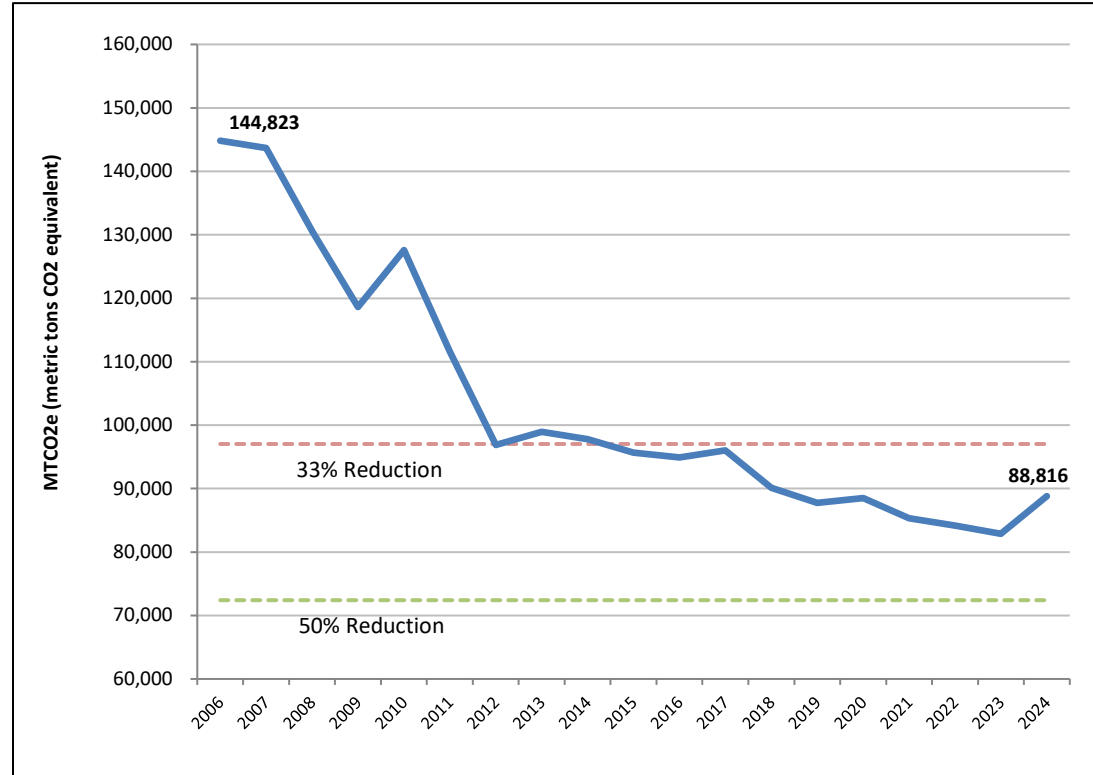
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Major Reductions Over the Past Two Decades

- Nearly 40% reduction since 2006
 - ~60,000 MTCO₂e = 13,000 vehicles off the road/year
- 7% rise in emissions in 2024
 - Factors that are beyond MWRA control
 - Rise in fuel oil use for boilers at Deer Island

GHG Emissions - Metric Tons of CO₂ Equivalent (2006 – 2024)

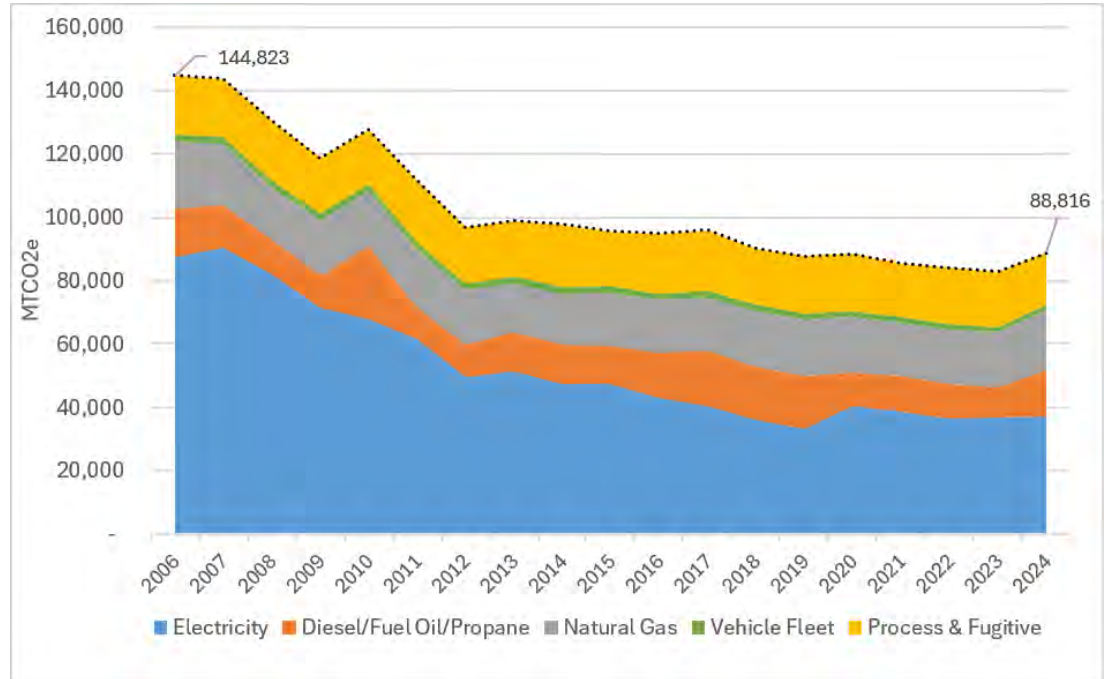




Five Categories of GHG Emissions

- **Electricity: 42.0%**
- **Natural gas: 21.5%**
 - Dryers at pellet plant and space heating
- **Process and fugitive: 18.3%**
 - CH_4 , N_2O , CO_2 emissions from biochemical reactions of wastewater treatment
- **Diesel/fuel oil/propane: 16.2%**
 - Emergency generators and space heating
- **Vehicle fleet: 2.0%**

MWRA GHG Emission Sources, 2006-2024

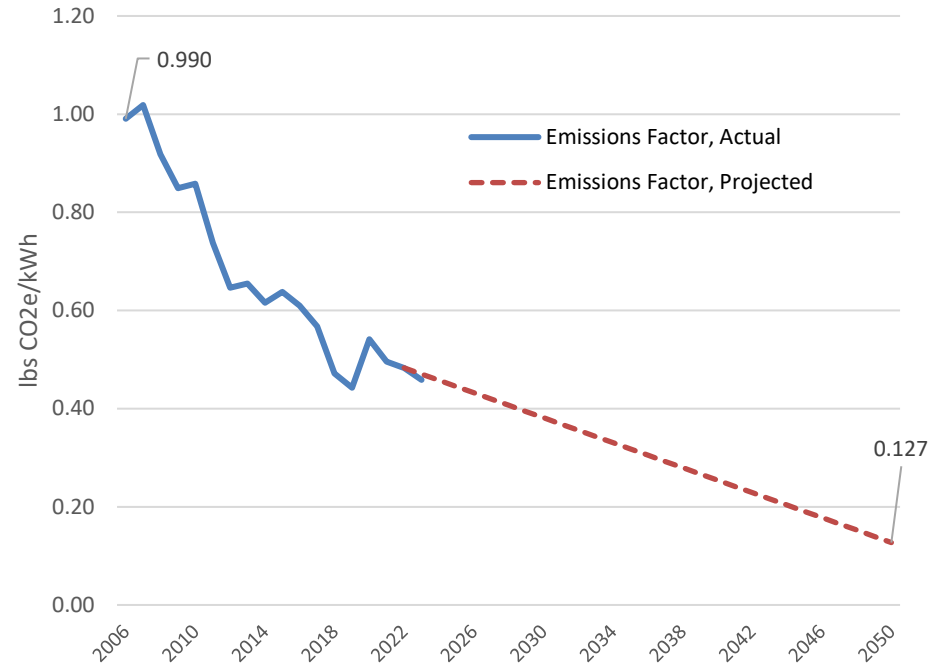




Majority of Emissions Reductions are Associated with Electricity

- Over 80% of MWRA's overall emissions reductions are from electricity
 - 9% reduction in purchased electricity
 - 57% emissions reduction
- Heavily linked to a greener grid and a declining emissions factor

Electricity Grid Emissions Factor, Actual & Projected





Causes for Higher Emissions in 2024

- 150% increase in fuel oil use at Deer Island
 - Fuel oil emissions up 51%, contributing to 80% of 2024 emissions increase
 - Recent decrease in the nutrient loading of wastewater = digester gas has less thermal content
 - Possibly due to historically low flow
 - Colder winter compared to 2023
- 10% increase in natural gas
 - Space heating and pellet drying due to colder winter



Boiler Units



Backpressure Steam Turbine Generator



Planned Emission Reduction Efforts

- Climate Mitigation Trust projects
- Currently designing a new combined heat and power facility at Deer Island
 - More than double existing electricity generation
 - 75% less fuel required
- Plans for energy storage battery at Deer Island

