



MEADOWLANDS BEB SOLAR CHARGING FACILITY

Technical Appendix

Submitted by:

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Appendix C Technical Appendix

The projects annual BEB GHG reduction was calculated using EPA Diesel Emission Quantifier (DEQ) Tool <https://cfpub.epa.gov/quantifier/> The inputs included:

Type Onroad

Target Fleet Transit Bus

Class Class 6-7

Quantity 175

Engine Model Year 2010

Upgrade Year 2023

Remaining Life 12

Fuel Type ULSD (diesel)

Annual Fuel Gallons 7,343

Diesel-equivalent Gallons 7,343

Annual Miles Traveled 26,144

Annual Idling Hours 340

Upgrade Vehicle Replacement - All-Electric

The final output was converted from short tons to metric tons in CO₂e.

The project's annual solar GHG reduction was calculated by first obtaining the annual estimated solar array output of 3,582,307 kWh per year for the site. This was calculated using the National Renewable Energy Lab PVWatts® Calculator <https://pvwatts.nrel.gov> and methodology to calculate a 180,000 Sq Ft solar array at the facility address 2600 Penhorn Avenue, North Bergen, NJ 07094. First the system size was calculated using the formula $\text{Size (kW)} = \text{Array Area (m}^2\text{)} \times 1 \text{ kW/m}^2 \times \text{Module Efficiency (\%)}$. Once the system size was obtained, it was then entered into PV Watts to calculator, using the assumptions below to obtain the output of 3,582,307 kWh.

Assumptions:

Area 180,000 sq feet or 16,722.55 m²

System Efficiency 16 %

System Size 2,675.6 kW

Module Type Standard

System Loss 14.08 %

Optimum Tilt 31.5 Degrees

Azimuth 180 Degrees

3,582,307 kWh per year was then converted to Annual GHG Reductions in Metric Tons (MT) CO₂e using EPA GHG Equivalencies Calculator <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator> to get 2,503 MT CO₂e.

To calculate the project's Total Annual GHG Reduction in MT in CO₂e the annual BEB GHG reduction was added to the annual solar GHG reduction. This number was then multiplied by 5 to estimate the Total GHG Reductions from 2025 to 2030 and multiplied by 25 to estimate the Total GHG Reductions 2025 to 2050. This was replicated for the remaining project options. See Appendix D File Name: GHGcalcs_NJTRANSIT_Meadowlands.xlsx