



Electric Vehicles and the City of Brockton

BACKGROUND

Brockton is a city with a 2016 population of 95,630, and an area of 21.5 square miles. The Brockton Area Transit Authority has been in operation since 1974 providing public transportation for its constituents. The City decided to acquire its first EV and charging station with MassEVIP assistance after learning of the program from a postcard sent by MassDEP to all 351 Massachusetts communities.

Brockton chose to acquire electric vehicles (EVs) based on the economic benefit and to promote its sustainable directives. Brockton operates on a mileage reimbursement system in which city employees are compensated for the use of personal vehicles for city related work. The City determined via a cost benefit analysis that switching to city-owned EVs would provide significant cost savings. The City acquired thirteen Battery Electric Vehicles (BEVs) with the help of the Massachusetts Department of Environmental Protection's (MassDEP) Electric Vehicle Incentive Program (MassEVIP).

Brockton started with a pilot of one EV and one charging station and was very pleased. City officials, including a new Department of Public Works commissioner and a new mayor, encouraged procuring more EVs and charging stations. Brockton acquired two more EVs, and after a MassEVIP sponsored workshop featuring test drives, vendors and other area towns, Brockton partnered with MassEVIP for ten additional EVs. The City has earned the Green Community designation in the Commonwealth in February 2017.

EQUIPMENT AND SITE SELECTION

Brockton leased thirteen Nissan LEAF EVs with its \$97,500 MassEVIP incentive. The Nissan LEAF met the City's requirements of a Battery Electric Vehicle (BEV), a hatchback style, and a minimum of an 80-mile range. Brockton conducted their own procurement for the EVs and received bids from all over the nation, with Enterprise Rent a Car selected based on the vehicle price and delivery timeline. The EVs serve many functions for Brockton, including use by engineers, inspectors, assessors and numerous city departments.

Brockton chose the charging stations based on the features offered, appearance, and cost. The stations are located in various parts of the city based on highest vehicle traffic and lowest installation costs. The first two chargers Brockton obtained were installed in the City's Recycling Center by a local electrician and four more stations acquired through MassEVIP are located in a downtown city parking garage. Brockton heavily promotes station usage via newspaper articles upon installation, and on an ongoing basis through signage, websites and apps. The parking garage chargers have seen an increase in consumer EV usage and currently do not charge a fee to users to charge.

RESULTS AND EXPERIENCES

Brockton's procurement processes went flawlessly for the acquisition of the first three EVs, however, the bulk order proposal of ten vehicles required a longer timeframe for city government approval. Once the proposal was approved and the bidder was determined, the rest went as planned. However, Brockton's switch from mileage reimbursement to city owned vehicles resulted in some initial pushback from drivers as they were used to the prior system. The City also worked with the union to address union rules related to mileage reimbursement.

Brockton was able to justify the switch to EVs versus gasoline vehicles by: 1) receiving MassEVIP incentives to cover lease costs; and 2) showing the economic benefit the EVs would provide through gasoline savings. The City is also saving on maintenance costs as the EVs require less maintenance than their gasoline powered counterparts that could have been acquired instead. Users love the fast and fun ride and are pleasantly surprised at how powerful the LEAFs are and how quickly they accelerate. The EVs are commonly seen around the city and the City's Contract Administrator even gives interested residents a ride in his EV at the recycling center. The only downside users find is the extra coordination required to find chargers on long highway trips.

The minimal cost to operate the EVs is impressive, totaling \$179.15 a month to charge all thirteen vehicles and \$780 on maintenance costs for all EVs since acquisition. Brockton's thirteen EVs have travelled 65,132 miles over the past two years eliminating \$6,470 on approximately 2,850 gallons of gasoline if the City had acquired similar gasoline powered vehicles. The estimated gasoline savings translates to a total of 55,841 pounds of greenhouse gas (GHG) emissions avoided. Brockton has weighed the costs between purchasing the vehicles outright or renewing the lease on the EVs and has decided that purchasing is the best option. In the future Brockton would like to add more EVs to its fleet with the help of MassEVIP.

Brockton Fast Facts

- Population: 95,630
- Median Household Income: \$43,206
- EVs: 13
- Municipal Charging Stations: 6
- Estimated Gas Savings \$6,470 over 3 years
- Estimated GHG Emissions Avoided: 55,841 pounds over 3 years

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