

# Electric Vehicles and the City of New Bedford



## BACKGROUND

New Bedford is a south coast Massachusetts city with a 2016 population of 95,032, and an area of 20 square miles, which faces the dangers of sea level rise. New Bedford has received the largest number of Electric Vehicles (EVs) and charging stations through the Massachusetts Department of Environmental Protection's (MassDEP) Electric Vehicle Incentive Program (MassEVIP), of any other city or town.

In 2015, City officials decided to work with MassEVIP to replace their aged vehicles, such as the 1990 Chevrolet Corsicas, for example. These old vehicles were spending more time in the repair shop than on the road, and users were unhappy about their condition. With its 23 Nissan LEAFs, approximately 30 percent of New Bedford's passenger fleet is full battery electric and supports the City's initiatives to incorporate clean energy technology. This includes solar panels providing over 16 megawatts per year of power, and the creation of a Wind Energy Center to support installations of off-shore wind turbines.

## EQUIPMENT AND SITE SELECTION

New Bedford obtained its 23 EVs and 25 charging stations in four stages for various departments with \$229,000 in MassEVIP incentives. The Nissan LEAFs are perfect cars for New Bedford based on their features, and range concerns are not an issue since the vehicles are largely used for in-city driving. New Bedford chose to lease all of its vehicles because it made financial sense, and allowed the new technology to be introduced more gently to an unfamiliar workforce. The cars have been even more cost effective because Nissan covers almost all maintenance, which has been minimal.

### New Bedford Fast Facts

- Population: 95,032
- Median Household Income: \$36,813
- EVs: 23
- Charging Stations: 30
- Estimated Gas Savings \$17,329 over 3 years
- Estimated GHG Emissions Avoided: 149,567 pounds over 3 years

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New Bedford already had eight charging stations from a prior Department of Energy Resources (DOER) initiative. New Bedford acquired an additional 25 charging stations through MassEVIP, of which six are accessible to the public. The City installed multiple brands of charging stations to determine the right combination of cost effectiveness, toughness to withstand New England weather, and desired customer service they are looking for. The units themselves and some of the installation costs were covered by the MassEVIP incentives, but the City did have some out of pocket costs for electricity infrastructure upgrades in some locations. The chargers are located in strategic locations such as parking garages, New Bedford's North End, and its busy Downtown. These locations all benefit from easy access to the interstate highway system, as well as close proximity to local shops, restaurants, ferry services, and tourist destinations.

## RESULTS AND EXPERIENCE

New Bedford had a positive purchasing experience with the Nissan dealership in Milford MA, and was able to find a closer dealer for the twice a year battery check service. Employees love the EVs for their enjoyable ride and the City appreciates the cost savings they provide. To charge the entire 23 vehicle fleet for one month costs \$620, which is significantly less than the thousands of dollars in maintenance costs and upkeep the old vehicles required.

Some of the LEAFs do not get charged every night and can go 2-3 days without being plugged in, but require planning for the occasional longer trips. The EVs have been driven a total of 176,849 miles, which has saved New Bedford the equivalent of about 7,634 gallons of gasoline over three years, translating to \$17,329 saved at the pump, and avoiding the release of 149,567 pounds of greenhouse gas (GHG) emissions.

With the rapid and constant improvements of EVs each department will decide whether to purchase or return at the end of their lease periods and has already signed new 3 year leases to upgrade 10 of the original EVs. The City has made it a priority to make its constituents aware of its EVs, for example, participating in the annual Cape Verdean Parade. With its pronounced EV presence, New Bedford can demonstrate to its residents that it is continuing to become cleaner in all its activities. The City installed two DC fast chargers located at the City's Pier 3 Lot and International Marketplace Lots in 2016 to broaden their public EV infrastructure. City officials have noticed an increase in charging station use for personal cars, of residents and out of town visitors alike. The City does not charge for station use and advertises the stations through signage, websites and apps. Going forward, New Bedford plans to acquire more EVs and more charging stations.