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Electric vehicle technology converges with on-site renewable energy generation at Cummings Center

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The former site of the United Shoe Machinery Corp. factory in Beverly was once a neglected Brownfield until Cummings Properties purchased it in 1996. Since then, it has been the focus of an \$80 million redevelopment and a number of sustainable initiatives. Cummings Properties has proactively pursued energy conservation measures and the development of roof-mounted solar photovoltaic (PV) arrays onsite atop four parking garage facilities. Meridian Associates, Inc., a tenant at 500 Cummings Center, was an early adopter of electric vehicles (EV) and has been relying on the emission-free solar power generated on premises to recharge their company electric vehicles and offer free EV "fill-ups" to its Cummings Center neighbors.

The interests of the two organizations aligned as Meridian, a socially responsible engineering firm that offers sustainable land development design and renewable energy consulting services, provided early stage support to Cummings Props. In addition to Cummings' energy conservation measures at this property, four large solar arrays totaling more than 5,000 panels with a capacity of almost 2MW have been installed. The energy produced offsets the equivalent CO2 emissions from the electricity use of 158 homes per year.

Meridian was one of the first companies to incorporate EVs such as the Chevy Volt, Nissan Leaf and plug-in Prius in the State of Massachusetts. Their aggressive early support of EV technology and renewable energy has led the way for others, influencing procurement practices of businesses and the purchasing practices of consumers throughout the region. The Nissan Leaf is 100% electric achieving a range from 75 miles to 120 miles per charge. The Chevy Volt combines its lithium-ion battery with an onboard gas generator for a range of 380 miles on a full charge and a full tank of gas. Meridian's experiences with Chevy Volts have yielded mileage ranging from 200 to 250 MPG. With a hybrid/electric fleet that includes Toyota Prius hybrids, Toyota plug-in hybrid vehicles, and Ford Escape hybrids the firm has reduced its fuel consumption by nearly 40%. The firm is realizing additional economic benefits including fewer oil changes, and most importantly a significant reduction of carbon emissions creating less impact on the environment.

Following its purchase of electric vehicles, Meridian, with the assistance of Cummings Props., installed four EV charging stations at its main office located at 500 Cummings Center. The charging stations are available for use without charge; they allow employees and guests of companies located at Cummings Center, who drive plug-in hybrid electric vehicles (PHEVs) and all-battery electric vehicles (BEVs), to recharge while at work or visiting.

Cummings and Meridian have integrated solar photovoltaic renewable electricity and EV technology, facilitating zero carbon emission transportation. As battery technology rapidly improves the EV market continues to gain traction, but utilizing renewable energy generation to directly charge a vehicle is still a unique combination of emerging technologies that will be expanding in New

England. Meridian's leadership continues to provide guidance for businesses and individuals to the benefits of emerging technologies that are socially, economically and environmentally advantageous. Cummings Props.' dedication and commitment to its sustainable initiatives help facilitate the advancement of a greener future. Reducing greenhouse gas emissions has become increasingly important as the evidence for climate change continues to become more frequent and intense, and it is vital that transparent relationships and role models lead the way.

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