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MTC Renewable Energy Trust offers programs for energy use at public facilities

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Many municipalities are now actively exploring wind energy systems to hedge against escalating utility costs and fluctuating fossil fuel prices while at the same time reducing their carbon emissions and positioning themselves as environmental stewards. Wind power provides a clean source of energy that reduces greenhouse gas emissions generated by traditional energy power plants, protects natural areas from mining and oil drilling, reduces water pollution and does not disturb farming or forestry operations.

The Massachusetts Technology Collaborative (MTC) Renewable Energy Trust offers an array of programs that address energy use at public facilities, as well as a program that helps communities explore the possibility of installing wind turbines on public land. The Commonwealth Wind Incentive Program (CommWind) provides rebate, grant, and loan funding for the installation of wind projects in Massachusetts.

Funding is available for public facilities that are customers of investor-owned electric distribution utilities or Municipal Light Plant Departments that pay into the Renewable Energy Trust.

CommWind provides financial and technical support to wind projects through the different development stages. The three stages of support include: 1) services for high level site screening (public projects only); 2) grant support for in-depth technical and economic feasibility analysis; and 3) grants for design and construction support.

Under these programs, wind projects with a faceplate value of 100KW to 599 KW are eligible to receive \$30,000 for a basic feasibility study and up to \$50,000 for a study that includes a meteorological (Met) tower. For those projects in excess of 600KW, \$65,000 in eligible funding is available for a basic feasibility study and up to \$85,000 for a study that includes a Met tower. For design and construction, public entities are eligible for a zero cost share incurred below the maximum funding level. Funds for systems starting at 100KW, up to and beyond 600KW, range from \$225,000 to \$600,000.

At the federal level, the Clean Renewable Energy Bonds (CREBs) program creates attractive financing options for wind projects for both borrowers and lenders. A qualified buyer is given access to 0% interest bonds (a formal contract to repay borrowed money at 0% interest for a fixed period) for projects that both generate electricity and are created from clean or renewable sources. The lender will receive a tax credit from the Federal Government instead of an interest check from the borrower. The maximum maturity for the CREB is set by the US Treasury on a monthly basis. The wind project also creates Renewable Energy Credits (RECs) which can be sold on the open market becoming a new source of revenue.

A wind project can be a complex effort. As a first step to assessing the feasibility of a wind turbine generator (WTG), a municipality may consider a preliminary appraisal to determine whether the

project has potential merit. Topographical and wind resource data combined with a financial analysis of existing and future energy costs can be used to generate a preliminary "desktop" evaluation to reveal if potential sites are viable candidates for a WTG and deserving of an in-depth study to more conclusively assess technical and economic feasibility.

WTG feasibility can only be determined after site-specific data collection and analysis, studies of past electric consumption, energy and construction costs, and financial incentives. Variables include: measured wind resource quality and regularity, land topography and surrounding land use, site-access issues, capital cost for construction, electric consumption and savings from on-site electrical generation, state and federal grant funding incentives, the local, state and federal regulatory framework, and local disposition towards WTGs.

Several municipalities in Massachusetts are taking advantage of the benefits of state and federal programs and have turned to Meridian Associates for assistance with their wind projects. Meridian is a Beverly, MA based multi-disciplinary consulting firm offering services in renewable energy, sustainability and public infrastructure. Meridian is experienced in managing wind projects from the initial planning stages including the preparation of grant applications through study, design and construction.

The town of Hamilton has joined forces with the US Air Force to share the output produced through a wind turbine to be located on USAF land on Sagamore Hill. After nine months of wind data collection, the Meridian team is correlating the data to determine the scale and feasibility of a wind turbine. A \$40,000 MTC grant was secured to conduct a feasibility study.

The city of Beverly, in an effort to power its "green" high school, has concluded nine months of wind data collection after having secured \$40,000 in MTC grant funding for a feasibility study.

Beverly high school houses an existing 100KW solar array (one of eight solar systems created in 1980 as part of President Carter's Photovoltaic Demonstration Project) and a 10KW wind turbine. Meridian Associates is continuing ongoing analyses and correspondence with the FAA and the town to site the turbine. Current initiatives for city energy independence are underway.

The town of Ipswich Utilities Department is driving development of a wind project in collaboration with Ipswich School Department which secured and contributed \$1.6M in 0% interest Clean Renewable Energy Bonds. Wind data collection was conducted by UMass. Meridian Associates has conducted a fatal flaws analysis, feasibility study, bat and avian study, and secured permitting through the zoning board, Conservation Commission and FAA. The project is in its final design phase and the 1.5 MW General Electric wind turbine has already been purchased. The total cost is \$4.2Million including transmission line upgrades from the substation to the turbine, and design and construction. Construction will start in the fall.

After receiving preliminary indications from MTC that adequate wind velocity was available at several identified city-owned land parcels, the Peabody Municipal Light Plant is considering the feasibility of a large scale wind turbine. With Meridian's assistance, the Light Plant has pre-screened several potential sites, assessing the available wind resource; identifying evident land-use, topographic and environmental constraints; and performing preliminary pro-forma for a range of turbine sizes. Meridian is in the process of performing a fatal flaws analysis prior to conducting wind data collection and an in-depth feasibility study.

With state and federal programs making the study and implementation of wind power more

accessible and affordable, communities across the state are positioning themselves to benefit from the power of wind and helping move the Commonwealth towards Governor Patrick's goal of having 2,000 MW of wind power capacity installed by 2020.

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