ACCELERATE ENERGY PRODUCTIVITY 2030

Energy Efficiency in the Upper Midwest

As part of our *Accelerate Energy Productivity 2030* initiative, a collaborative effort to help achieve the President's goal of doubling U.S. energy productivity by 2030, we are hosting our final State and Local Dialogue in St. Paul, Minnesota, on July 16 at 3M's Innovation Center. The half-day event will bring together leaders from state and local government, utilities, business, academia and nonprofit organizations to discuss the importance of increasing energy productivity in the region, with a focus on growing industrial competitiveness through advanced manufacturing and smart manufacturing processes.

This event could not come at a more appropriate time, as strides are being made toward a more energy efficient community at the local, state and regional levels of the Upper Midwest area. Government clunkers are being traded in for fuel efficient hybrids and charging stations, St. Paul citizens are witnessing their city being transformed into the "Most Livable City in America," and private businesses are seeing growing returns on their investments in retrofitted buildings. Learn more about why we're so excited to visit St. Paul to discuss ways to improve upon the foundation the Upper Midwest community has built for an efficient future.

Innovative Progress for St. Paul

As part of the American Recovery and Reinvestment Act, in 2009 the Department of Energy (DOE) awarded the city of St. Paul $2.7 million in funding from the Energy Efficient and Conservation Block Grant. The city of St. Paul has since been able to invest millions of dollars in energy efficiency projects. Among these have been improved efficiency of municipally-owned facilities, LED retrofitted streetlights and investments in 23 electric vehicle charging stations with plug-in electric fleet vehicles. The city government has been able to provide homeowners with loans to conduct energy audits and make energy management system installations. The city has projected that it will achieve $395,705 of aggregate yearly energy savings solely through replacing lights and installing new energy management systems in local libraries, parking ramps and recreational centers.

The federal stimulus has also enabled a partnership between the St. Paul Port Authority (SPPA), the Center for Energy and Environment (CEE) and Xcel Energy through the Trillion BTU program in which SPPA uses the grant funding through the Minnesota Department of Commerce to create a business loan program. Businesses first voluntarily agree to energy audits paid for by Xcel Energy, then engineering studies are performed on facilities with conservation opportunities — 25 percent of the cost paid for by the participating business and 75 percent paid by Xcel. Based on these studies and audits, installation of necessary physical improvements is implemented and covered by a Port Authority loan and an Xcel Energy rebate, making the loan repayment less than estimated energy savings.

St. Paul also has the nation's largest wood-fired Combined Heat and Power plant to serve a district energy system. St. Paul Cogeneration produces approximately 65 megawatts of heat and up to 33

megawatts of electricity, making it more than twice as efficient as a conventional electric power plant. The system is fueled by clean urban wood residue and primarily uses wood from storm events, commercial tree trimmings and removals, and municipal and private tree and brush sites. The plant's reduced impact on the environment includes a 70 percent reduction in the use of coal, a 50 percent reduction in particulates, and a reduction of up to 280,000 tons of greenhouse gases yearly.

To promote further efficiency in an area with projected population growth of 34 percent between 2000 and 2030, the state-of-the-art Energy Innovation Corridor was established in 2010 along the 11-mile light rail transit route between downtown St. Paul and downtown Minneapolis. The Corridor not only features "one of the most sophisticated energy and transportation infrastructure systems ever developed," but also serves residents with smart energy technologies, renewable energy sources and advanced efficiency programs. Between 2010 and 2014, the Corridor avoided about 3.3 billion pounds of carbon emissions, equating to over $66.2 million in economic savings.

Minneapolis a Top City for Efficiency

This year, the American Council for an Energy-Efficient Economy ranked Minneapolis seventh in the country for having strong energy efficiency policies. Minneapolis has been rising in the ranks for its progress in energy efficiency, largely due to its strides in promoting energy efficient buildings and new efforts in reducing carbon emissions. According to data in Minneapolis' Sustainability Indicators, the city reduced it greenhouse gas emissions from local government operations by 18 percent between 2008 and 2012, an average annual reduction of over 4 percent.

Regarding transportation, The Green Fleet Policy requires the city of Minneapolis to obtain highly efficient vehicles that emit the lowest levels of pollutants. The city also has an anti-idling policy to deter city fleets and other automobiles from unnecessarily polluting the air. Public lighting has also undergone updates, particularly in the last months of 2014 when the city purchased 1,000 LED fixtures for replacing HID street lights. For building standards and energy codes, Minneapolis continues to raise the bar. LEED silver standards must be implemented in every phase of the building or significant renovation process for city municipal complexes. City financed buildings must also be outfitted with ENERGY STAR appliances if applicable under the Environmentally Preferable Purchasing Policy.

Among all of these excellent programs, the city's Climate Action Plan and Clean Energy Partnership are perhaps the most exceptional. The Climate Action Plan aims to reduce greenhouse gas emissions 30 percent by 2025 with 2006 as a baseline. As a part of this goal, Minneapolis intends to use renewable sources for 10 percent of its electricity, raise the bicycle commute mode share to 15 percent, double regional transit ridership and reduce overall energy use by 17 percent. Additionally, the Climate Action Plan will commit to recycling half of all waste with an added composting rate of 15 percent.

To work toward achieving the city's Energy 2040 Vision of providing "reliable, affordable, local and clean energy services for Minneapolis homes, businesses and institutions," and "sustaining the city's economy and environment and contributing to a more socially just community," Minneapolis has established the Clean Energy Partnership with natural gas and electric utility companies Xcel Energy and CenterPoint Energy. Through these utility franchise agreements, Xcel and CenterPoint will have access to run distribution lines on the public right of way under an assurance that their services will meet the city's energy efficiency goals.

Minnesota Leads Midwest in Savings Programs

Minnesota leads the way in energy efficiency by offering technical, contractual and financial resources to institutions at each level of government as well as by instituting programs that incentivize efficiency, conservation and innovative technology. Through the Guaranteed Energy Savings Program implemented in 2010, school districts, universities, local governments and state agencies are enabled to engage in Energy Savings Performance Contracts through the state's Division of Energy Resources. These contracts not only create jobs and save on operational costs, but also effectively reduce overall energy consumption with the goal of a 20 percent aggregate reduction in state agencies. All investor-owned utilities in the state operate under a shared savings model in which they are incentivized to reach efficiency targets: utility companies receive an increased percentage of net benefits in direct proportion to their increased energy savings.

Since the EPA asserted that states should aim to reduce energy use by 1.5 percent each year leading up to 2030, Minnesota has been the role model for the Upper Midwest — cutting energy use in 2012 over 2011 by 1.12 percent. This compares to reductions of 1.05 percent in Wisconsin and Indiana, 1.01 percent in Michigan, .93 percent in Iowa, .87 percent in Ohio and .79 percent in Illinois. Overall, "Minnesota has been very progressive in terms of clean energy policy, promoting efficiency and renewables" said Kyle Aarons, senior fellow at the Center for Climate and Energy Solutions and producer of a study tracking energy savings and energy efficiency gains across the U.S.

Minnesota's government agencies have been intentional about creating projects and programs to meet federal goals. In response to the EPA's 1.5 percent recommendation, the Minnesota Department of Commerce, Office of Energy Security and Minnesota Environmental Initiative coordinated to form a stakeholder initiative called The 1.5 Percent Energy Efficiency Solutions Project. Through the initiative, nonprofit, environmental and public groups came together on a short term basis to connect with contractors, trade groups and utilities companies to brainstorm the policy barriers that were currently blocking the path to reaching 1.5 percent yearly energy efficiency savings. Since issuing a final report in 2011, stakeholders have continued to work with agencies to promote progress in energy efficiency and reach the goal of 1.5 percent annual savings.

Manufacturing is yet another sector in which Minnesota has promoted high standards of efficiency. With the help of grant funding, the Minnesota Technical Assistance Program (MnTAP) now helps two manufacturing facilities each year on a three year cycle to determine where energy efficiency opportunities exist and which strategies would be best for effective implementation. The impetus for this program came from a report by MnTAP in 2010 that revealed potential gas and electric savings in Minnesota's industrial sector of over 2.5 million MCF (8 percent) and 271.4 million kWh (7 percent). As a result, MnTAP's work with individual manufacturing companies each year could eventually lead to an effective statewide Conservation Improvement Program based on their case studies with individual companies about which strategies and implementation programs are most effective.

Minnesota's most recent initiative issues new state residential and building energy codes, effective last February and this June, respectively. The new state residential energy code alone has been projected to save over 880,000 MMBTU annually over the old code, according to the Midwest Energy Efficiency Alliance (MEEA) and DOE. This energy savings translates to about $540 less in utility bills each year for the average homeowner and over $8 million in aggregate savings for homeowners.

Upper Midwest Initiatives

In addition to the significant progress Minnesota has made in energy efficiency, surrounding states in the region have also taken measures to implement efficiency programs.

Illinois Energy Now, a program which offers grants for low income housing and public sectors programs as well as recommendations on market transformation and technical assistance programs, has now saved almost $585 million in aggregate energy costs through the Illinois Department of Commerce and Economic Opportunity. Since 2008, the program has created and sustained over 17,800 jobs, saved 7.8 billion kWh in electricity equipment, and conserved over 218 million therms in natural gas equipment. Looking ahead, Energy Now is expected to reach $1 billion in public sector savings in the next 10 years.

Wisconsin's Focus on Energy Program funded by the state's investor-owned energy utilities, has been instrumental in facilitating energy savings of more than $730 million for over 2.8 million residents and businesses. The incentive program focuses on renewable resources and energy efficiency for the state's many utilities companies and their consumers. Success stories so far include consumers ranging from school districts and apartment complexes, to breweries and pizza shops; each receiving incentives and expertise based on their own unique business models and industries.

Iowa in particular has had a focus on renewable energy sources with a program established in 2012 for solar tax credits available to residential and commercial consumers through the Iowa Department of Revenue. Just in the first five months of this year, the system has been able to provide over $1.15 million in credits. Additional efforts include Iowa's Alternate Energy Loan Program in which individuals or businesses are able to obtain one, low-interest loan (often zero percent) of half the cost of the project (up to $1 million) to help cut down on the costs of financing the construction of a renewable energy facility featuring solar, wind turbine, small hydro or biomass technologies.

Michigan has made clean energy a top priority as it reaches its goal of generating 10 percent of its total energy uses from renewable sources this year; however, Governor Rick Snyder continues to press for further conservation measures using efficiency methods for waste reduction. As of March, Snyder presented his plan for Michigan to meet up to 40 percent of its energy needs primarily through waste reduction, a shift away from coal, and the continued development of renewables. According to the governor, "The most affordable energy you can ever get is the energy you never use. You didn't need to build the power plant; you didn't need to buy the fuel; you didn't need the transmission system." Since Michigan residents use 38 percent more energy than the national average, there is significant potential for improvement through efficiency techniques.

The *Accelerate Energy Productivity 2030* team looks forward to engaging in meaningful conversations regarding the steps that state and local policy officials, business owners, industry and households have made in St. Paul and in the Upper Midwest.