



"Giving residents and businesses the information they need to do what they want."

What is Smarter Sustainable

Dubuque? Smarter Sustainable Dubuque is the research function of the Sustainable Dubuque initiative, which began in 2006 when Dubuque, Iowa Mayor Roy D. Buol and the City Council made it a top priority for the City.



Sustainable Dubuque seeks to make Dubuque a community that meets the environmental, economic, and social equity needs of its residents today without reducing the ability of future generations to meet their needs. This approach is unique in Dubuque in that it is a citizen-driven process guided by a vision and principles developed by citizens.

Smarter Sustainable Dubuque is a public/private partnership between the City of Dubuque and a diverse group of partners, including IBM Research, the division of IBM responsible for its "Smarter Planet" campaign. The project was initiated in September 2009 when the City of Dubuque and IBM announced their intentions to make Dubuque one of the first "smarter" sustainable cities in the U.S. The first \$30,000 in "seed" money was provided by the Greater Dubuque Development Corporation. It has grown into a collaboration that includes over two dozen industries and eight state and federal agencies.

In a nutshell, it is the development of new "smarter" technologies coupled with community outreach and implementation strategies to create a replicable, international model of sustainability for communities of 200,000 and under, where over 40 percent of the U.S. population resides. The model will integrate community engagement and education, more energy-efficient ways of operating municipal services and buildings, decreased carbon emissions, new job creation, increased financial savings, resource conservation, and a higher quality of life for the entire community. It will also document the improvement to competitive opportunities that comes through "smarter" resource utilization.

Smarter Sustainable Dubuque is providing Dubuque residents and businesses what they need (information and tools specific to their circumstances) to do what they want (save money, conserve resources, and improve the local economy and environment). The initiative is engaging Dubuque residents and businesses who, through advanced technology, are better managing their use of resources like water, electricity, and oil. The program is expanding to improve the health and wellness of the community through collaboration with efforts such as the Green and Healthy Homes Initiative.

HOW IS DUBUQUE GETTING SMARTER?

With the support of public and private partners, Dubuque is exploring and using new "smarter" technologies and strategies to deliver or better utilize vital services such as water, energy, and transportation to its citizens while reducing the community's impact on the environment. These new technologies digitize and connect city systems, sense, analyze and integrate data, and allow Dubuque to respond intelligently to the needs of citizens. It also provides consumers and businesses the information specific to their households or businesses that they need to make informed decisions about how they can reduce consumption and improve their economic bottom lines. Collecting and analyzing this information is giving consumers and city policymakers new insights on how to conserve Dubuque's resources, become more sustainable, and improve their opportunities in an increasingly competitive world economy.

PARTNERSHIPS

SUSTAINABILITY INNOVATION CONSORTIUM

Facilitated by Greater Dubuque Development Corporation, this regional cluster initiative is designed to research, analyze, and implement regional efforts to grow the "sustainability and innovation industry" in the region. From traditional manufacturing to internet technologies, these companies are documenting hundreds of jobs created or retained through expansion of the sustainability industry in Dubuque.

DUBUQUE 2.0

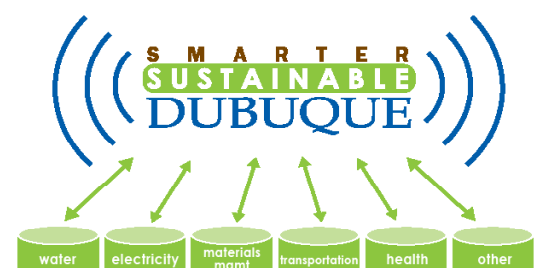
Dubuque 2.0, an initiative of the Dubuque Area Chamber of Commerce and the Community Foundation of Greater Dubuque, led the community engagement and dialogue around Smarter Sustainable Dubuque. It was a venue where sustainable ideas were presented, best practices shared, and results from the community's efforts were measured.

PETAL PROJECT

Sponsored by the East Central Intergovernmental Association, this green business certification program recognizes organizations dedicated to reducing their energy, water, and natural resource use to benefit the environment and their bottom line.

DUBUQUEWORKS

This seven-organization partnership was formed to analyze and revitalize existing workforce strategies, identify and address workforce gaps, and seamlessly provide workforce solutions for local companies. DubuqueWorks also addresses workforce issues through Project HOPE, the Bridges Initiative, and other programs to develop the whole person to meet employers' workforce needs.



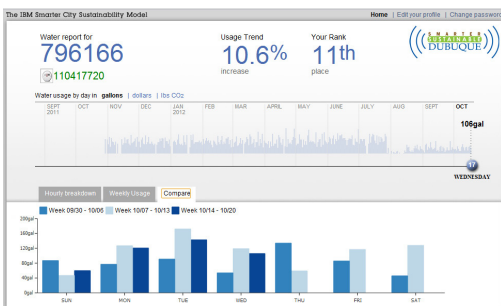
SMARTER WATER

Dubuque's Smarter Water pilot study was conducted in conjunction with the City's community-wide water meter replacement project. It was a unique partnership of local, state, and federal funding partners and private sector vendors to implement innovative technologies and empower citizens and businesses with the information and tools needed to reduce water costs and use.

IBM technology interfaced with the City's system to process water consumption data and provide near real-time visibility into the overall city water consumption. More than 300 households participated in this 12-month study which helped reduce water utilization by 6.6 percent and increased leak detection and response eight-fold among participants.

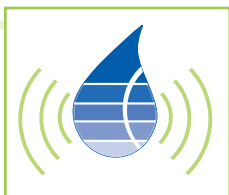
The Smarter Water Portal provides a customer-specific, integrated view of water usage. The data is collected hourly and transmitted daily. Usage data can be displayed in gallons, cost, or by carbon footprint. The portal also provides leak detection and notification, historical usage data, and comparative data.

Smarter Water Portal



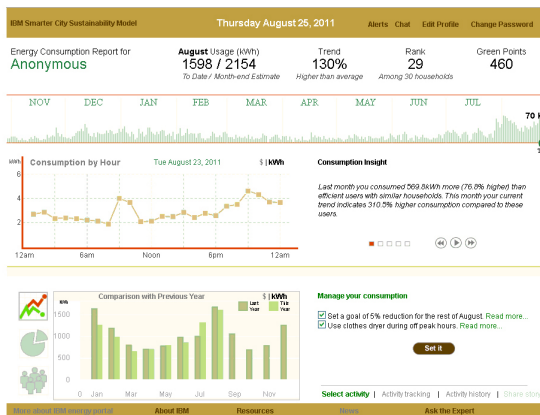
How do these Smarter Pilot Studies become a Smarter System?

Dubuque is integrating all the individual resources or "silos" of energy into an Integrated Sustainability System. Giving citizens the power to use real-time water information to help reduce their electricity consumption is new. Giving citizens the ability to use their travel and data to improve their health and wellness outcomes is new. This ability to view all personal energy interactions within the community is unique.



SMARTER ELECTRICITY

Working in partnership with IBM, Alliant Energy, and the Iowa Office of Energy Independence, the community conducted a multi-million dollar Smarter Electricity pilot study. Involving nearly 1,000 volunteer households, Alliant Energy installed new Advanced Metering Infrastructure (AMI) meters and provided anonymous customer electricity usage data to the City and IBM for analysis. IBM used the data to develop a consumer interface system, or portal, enabling study participants to better understand their electricity use in real-time so they could consider changes to save energy, reduce costs, and reduce carbon emissions.



By reviewing historical and real-time current data and analyzing the opportunity for energy savings through the Smarter Electricity pilot, IBM Research has determined that roughly 26 percent of average household usage in Dubuque is presently "phantom power" (electricity which is being consumed by appliances when not in use). The savings opportunity is significant.



SMARTER TRAVEL

Analyzing how people move within the community and identifying opportunities to reduce vehicle miles traveled is also a high research priority. Dubuque, along with several national and local companies, is conducting a Smarter Travel pilot and is collaborating with IBM on its City-In-Motion project. The innovative research enabled over 1,000 volunteers to provide data on how, when and where they travel within the community. This was accomplished by the deployment of unique radio-frequency identification devices (RFID) and a smart phone application developed by IBM Research. The anonymous data collected is being analyzed to identify ways to save money, conserve resources, and improve the environment through travel choices. Lastly, the aggregate data will be used by the City and its transit partners to implement policies that incorporate lower impact options sought by citizens.

One component of the Smarter Travel pilot was the deployment of newly created IBM smart phone technology that was easily downloaded at no cost to volunteers and used to provide data to the supporting Cloud computing environment for analysis.



SMARTER HEALTH & WELLNESS

In addition to saving money, conserving resources, and improving the environment, Dubuque residents are also interested in improving their quality of life and health outcomes for themselves and their families. Incorporating data on how an individual's health and wellness is affected by their interaction with resources is also a critical vision. For example, how does reduction in vehicle miles traveled through biking or walking improve personal health outcomes? How does incorporating local foods decrease carbon footprints and improve key health indicators? How does the adoption of Green and Healthy Homes programming not only improve energy efficiency, but also reduce chronic childhood health conditions? The link between income, environment, and health is undeniable.