

IBM's Smarter Cities Challenge

Burlington

Summary report

Introduction

The City of Burlington, Vermont, USA was one of 31 cities selected to receive a Smarter Cities Challenge® grant from IBM in 2013, as a part of IBM's citizenship efforts to build a Smarter Planet®. During three weeks in April 2013, a team of six IBM experts worked to deliver recommendations on a key challenge identified by Burlington's Mayor, Miro Weinberger, and his leadership team.

Burlington has made great strides toward sustainability. But some of the City's efforts to move forward, including the increased use of electric vehicles and of solar and wind sources to generate electricity, have created new challenges. Mayor Weinberger and the City council have published greenhouse gas (GHG) reduction targets in Burlington's Climate Action Plan (CAP) and are committed to making them a reality. Burlington Electric Department (BED) is committed to minimizing its environmental footprint in a cost-effective manner and wants to leverage the Smart Grid infrastructure investment it has already made. This is in line with the State of Vermont's GHG reduction objectives and targets.

The challenge

Burlington's challenge is to:

Plan and implement broad-based greenhouse gas (GHG) reductions that take advantage of Smart Grid infrastructure and other investments the City has already made, while strengthening Burlington's economy and financial position.

BED has stated a goal to supply 100% of the city's electrical needs from renewable resources. Today, 80% of BED's supply is from renewable sources, and a key challenge is to maintain competitive rates.

GHG emissions come from a variety of sources. Burlington's largest contributor is transportation, which has shown the largest increase during the period 2007-2010.

The City's current efforts to reduce GHG emissions mostly address each source separately (in "silos"). GHG data is at aggregate levels, and reliable and granular data across all categories is not available. This level of data is a prerequisite to understanding patterns, trends and the impact of initiatives and to optimizing the energy mix to achieve objectives.



Highlights:

- Capitalize on Smart Grid investment, and expand to include a total energy usage portal
 - Make Burlington synonymous with green technology through a strong vision, integrated technologies and effective branding
 - Enable EV car sharing, integrated with regional transportation, that provides a positive user experience and supports the "green tech city" brand
 - Possible biomass gasification pilot
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Burlington needs to effectively execute GHG initiatives and provide broader environmental benefits for citizens through coordinated investments. It needs a focused approach and plan that will align the capabilities of government, business, education and community; take funding and affordability into account; strengthen the local economy; and improve Burlington's financial position.

Findings and recommendations

The Smarter Cities Challenge team identified the following:

- Many initiatives with strong community involvement
- Separate programs being executed in silos; limited integration and lack of alignment
- City budget constraints
- Mayor Weinberger (in office since April 2012) focused on financial stability and viability of initiatives
- Strong higher education sector with a large number of students
- Young talent with skills in software development, green energy and healthcare
- Entrepreneurial spirit and start-up companies (gaming, web services, renewable energy)
- Aged and limited housing stock, low vacancy rate, 57% rentals

The team made the following four focused (2-5) and two (1 and 6) overarching recommendations:

1. Make Burlington synonymous with green technology

Ensure alignment with and reinforce the key initiatives and entrepreneurial spirit of Burlington by agreeing to and communicating a clear vision that establishes the city as a leader for sustainability, based on distributed GHG emission reduction technologies. This is the overarching recommendation that provides a foundation for all other recommendations.

2. Leverage the Smart Grid

Leverage the city's Smart Grid to inform citizens' options and drive actionable insight toward conservation of all important resources by providing a consolidated resource consumption portal, combined with an event messaging system.

3. Optimize the Joseph C. McNeil Generating Station

Request that the McNeil owners establish a project team, fully empowered and with access to all resources needed, which will provide a firm recommendation within 12 months on how to optimize use of the power plant.

4. Enable electric vehicle (EV) sharing

Spearhead a sizeable EV sharing program and integrate it into the existing public transportation system with links to nearby cities, helping to address traffic, parking and GHG emissions challenges and make Burlington more attractive as a result.

5. Promote energy efficiency execution (E3)

Create an E3 team of trained community and student volunteers who proactively encourage a higher adoption rate of efficiency solutions among property owners, specifically relating to structural energy loss.

6. Create a coordinated communication plan for "Burlington – the green tech city"

Effectively communicate the vision for becoming "Burlington – the green tech city" with effective and consistent messaging and engage the Burlington community in an open dialog.

Conclusion

The team's recommendations focus on harnessing the local talent pool and the abundance of renewable resources to enable Burlington to achieve its GHG emission reduction goals. The overarching recommendation – to establish Burlington as a leading "green tech city" – ensures alignment of all initiatives, energizes the community, retains talent and inspires the development of new technologies and businesses. The result is a strengthened economy, new ways to attract tourists through demonstrations of green technology and a more attractive city.

The ultimate outcome is for Burlington to become an integrated, data aware, thriving city that is recognized as a leader in green technologies.

For more information

To learn more, send an email to ccca@us.ibm.com or visit smartercitieschallenge.org

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