

Envisioning Sustainable Energy for Hamilton

On October 9 2013, 50 people came together to envision a sustainable Hamilton in the year 2025. The attendees were city staff, representatives of energy companies, government and industry professionals. The vision below will assist to inform and set some of the parameters for a revised corporate energy policy.

Hamilton is a Model of a Sustainable City; the Envy of Others.

Hamilton has become a sustainable community by protecting and developing its resources. It is a more engaged, greener, more prosperous, safer and healthier community than ever before, a place where people want to live, work, invest, raise families and have fun.

- Hamilton is a low carbon city, a leader that other cities want to emulate.
- Hamilton is a centre of excellence and recognized as a leader in all matters of energy and environmental health and management. We are a leader in the new energy technologies and energy management systems. We have deployed proven technologies in new and innovative ways to achieve greater results. Our universities, colleges and hospitals have played a key role. We share our expertise and experience.

Our communities and resource systems are resilient, withstanding emergencies. Climate change mitigation is built into all changes to the built environment. Consideration to green walls, green roofs, permeable paving is engrained in building design

We Have Integrated Sustainability into Planning and Development and Operations.

Our energy and environmental policies are aligned. Energy and environmental initiatives are developed based on objective analyses of technical, scientific and economic factors.

- We account for and communicate the full social, environmental and economic costs of resource development and utilization. Our approach to sustainability balances social, economic and environmental factors using the principles of triple bottom line analysis.
- We use life cycle costing to analyse investments incorporating externalities and societal benefits and it is embedded in planning, development, operations and procurement decisions.
- In the absence of a national or provincial pricing mechanism for carbon, we have set a nominal price for carbon and facilitate a local network for carbon trading.

Sustainable Energy is the Norm in Hamilton

We have developed and implemented a sustainable energy action plan. Integrated energy planning has reduced capital investments, energy consumption and environmental impacts.

- The wider and decentralized application of renewable energy and cogeneration linked through our smart grid has improved energy affordability. We have developed low cost, efficient energy systems that sustain the population, businesses and corporations. Everybody buys and sells into the local energy market.
- We have expanded our district energy systems and the use of cogeneration. New buildings are mandated to use accessible district energy; existing buildings are incentivized to connect at time of heating and cooling equipment replacement. We have developed energy systems using new

and prudent energy sources (e.g. ground source, sewers, Ethernet power delivery) based on life cycle analysis and environmental benefits

- Price decreases and productivity improvements for decentralized and renewable energy have made it competitively advantageous with the average price available from the Ontario electricity system.
- We make greater use of renewable fuels such as biomass, biogas, solar thermal, ground source heat pumps. All methane is captured and used as a fuel.
- We have ensured a strong link between our community energy planning and regional electricity planning.

Energy Use and its Supply is Treated as a Single System.

Energy is considered as a system thereby efficiency opportunities at each point in the supply chain and at the point of use are identified and captured. All forms of energy are addressed.

- The electricity grid is truly bi-directional allowing for economic and reliable distributed energy. It is resilient, flexible, adaptive, clean, open to all generators, easy to access, based on distributed clean and renewable energy and benefits from significant levels of demand response.
- Our smart grid links our building automation systems to decentralized energy generation and storage systems. Micro grids enable use of waste energy for heat and generation. Monitoring and reporting energy consumption is in real time and incorporates carbon measurements as a base for local carbon trading.
- Our energy systems and buildings benefit from advanced technological innovations such as remote control systems, material science.

All Energy Efficiency Opportunities That Make Sense Are Captured.

We integrate energy planning with development plans. Our new waterfront development projects are energy efficient and sustainable.

We have improved energy efficiency in new construction and retrofits through municipal targets and standards. We have implemented integrated energy design in all city projects.

Our Five year Energy Management Plans for municipal facilities include targets for energy and water which we have surpassed every year. We have consistently managed our energy and water use based on policy, practices and behaviours that identify and correct the unique system and operation inefficiencies found in every building. We maintain our buildings' performance as if it was a physical asset.

Continuous energy improvement, benchmarking, recommissioning is standard practice in our buildings.

- The average energy intensity of all of our buildings is below 20 ekWh/square foot.
- All existing buildings are Energy Star.
- Our employees are engaged and encouraged to think about energy conservation at work and at home.

Hamilton Considers Waste and Water as Valuable Resources

We achieve resource efficiency by closing the loop on water, waste, energy and food systems.

- We have maximized our recycling efforts. We are using waste that can't be recycled to produce electricity and heat; improving resource efficiency and increasing productivity, competitiveness and lowering costs.
- We think of water as a system and manage it accordingly. We have reduced our per capita use of water and deployed technologies to harvest rainwater. Successful water conservation programs have created incentives to conserve water and use it more efficiently.

Hamilton Has An Efficient, Convenient, Affordable And Reliable Transportation System.

Our road and transit network offer a broad range of travel modes that support sustainability and improve health.

- Our efficient transportation systems allow citizens to choose easily from among a variety of choices: walking, cycling, transit, carpooling, and single occupancy vehicles.
- Hamilton has reduced its use of fossil fuels for transportation dramatically. CNG and NGV for fleets and transit have been used in transition to electric vehicles. Emissions are dramatically lower.
- We deployed LRTs and other enhanced transit services. As a result, public transit use has surpassed personal vehicle use. Car sharing has increased. Electric vehicle charging stations are readily available at home, work, and in parking lots.
- Transportation efficiencies have been realised through virtual living; efficient and affordable mass transit is ubiquitous and accessible.

The Citizens of Hamilton Are Engaged and Energy Literate.

Increased energy costs have driven improved efficiency.

We have used community mobilization, public education and utility programs to help people make their homes more efficient. Financing mechanisms for home energy retrofits are readily available and sustainable through local improvement charges.

People are proud of conserving. They have access to and understand tools to manage their energy use and respond to price signals. They understand the cost of energy just like they do a carton of milk or a litre of gasoline.

Communities are engaged in energy and environmental solutions, reducing the NIMBY effect.

Hamilton's Green Space Is Flourishing

Urban and design and infrastructure minimizes energy use, maximizes green energy sources and encourages active, healthy living. Our urban areas are intensified and neighbourhoods are self-contained: live, work play. Our land base is utilized to its optimum capacity including the production of energy from biomass.

Hamilton's increased tree coverage improves air quality and reduces heat island effect.

We make maximum use of localized food systems – Gardens are everywhere: schools, backyards, parks, rooftops and in neighbourhoods.

Hamilton has preserved the natural beauty of the escarpment and revitalized the lakefront area. We have remediated brownfield sites and improved access and enjoyment of our natural resources with special focus on our lakefront. We swim in our harbour.