

OTTAWA ZIBI DEVELOPMENT – REDEVELOPMENT OF FORMER INDUSTRIAL LANDS TO NET ZERO CARBON



Project Snapshot

Project Name	Zibi
Developer	Windmill Development Group & Dream Unlimited Corp
Key development partners	City of Ottawa, City of Gatineau, & the National Capital Commission
Definition	Net zero carbon
Status	Redevelopment of former industrial lands
Site area	149,734 m ² - Project is in two municipalities: Ottawa (13 acres) and Gatineau (24 acres)
Number & type of residential units	1200 residential units (<i>townhouses, condos, & apartments</i>)
Floor area	92,900 m ² is proposed including approximately 1200 residential units, 6900 m ² of retail & 9500 m ² of office
Market Price	~ \$262,808 - \$806,157
Landscaped open space	Public and private parks: cumulative area approximately 15,300 m ² representing an area greater than 20% of total lands. ³
Maximum height	Ranges from 2 to 15 stories
Parking	2955 underground parking spaces are proposed
Non-residential units	Land uses permit mixed-use (<i>e.g. office, commercial, hotel, retail, and live-work</i>)
Pre-development use	Domtar Lands – Industrial
Certification	Buildings designed to LEED platinum standards
Sustainability framework	One Planet Living
Key energy features	District energy system, heat capture system, ultra-efficient appliances & smart devices, electric car charging stations, optimized building passive heating and cooling, solar generation, ultra-efficient building envelopes. ⁴
Key water features	Water metering w/ high visibility; 125L/person/day target by 2020; eliminate potable water use in landscaping; net-zero export of pollutants via storm-water outflow goal. ⁵
Key water features	Promoting sustainable food (<i>e.g. home garden space, increased access to local foods, and rooftop bee keeping</i>); transport (<i>e.g. bike share program & active transportation design</i>) + zero waste goal (<i>only 2% to landfill through various strategies</i>)

Municipal Snapshot

Municipal name	City of Ottawa
Municipal Status	Single tier
Land area	2,796 km ²
Population (2006 census)	812,129 ¹
Population (2011 census)	883,391
Growth rate	5.9% ²
Population density per km ²	1,395.4
Within Greater Golden Horseshoe	Yes



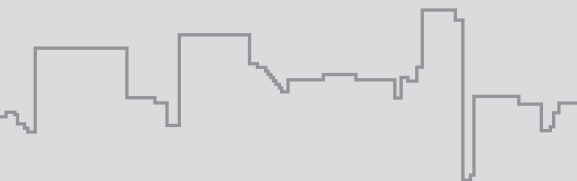
¹ List of municipalities in Ontario. (2017) Retrieved from https://en.wikipedia.org/wiki/List_of_municipalities_in_Ontario

² City of Ottawa. (2017). Retrieved from <http://ottawa.ca/en/city-hall/budget-and-taxes/financial-reports-and-statements/long-range-financial-plans/long-range-6>

³ Ontario Municipal Board. (2015, November). Retrieved from <http://www.windmilldevelopments.com/wp-content/uploads/2015/11/OMBCasePL141340-NOV-17-2015.pdf>

⁴ Bioregional. (2015, April). Retrieved from http://www.bioregional.com/wp-content/uploads/2015/06/Zibi-One-Planet-Action-Plan_2015.pdf

⁵ Ibid.





DESCRIPTION OF MUNICIPALITY

Over the years, the City of Ottawa has updated its environmental strategy to address new and persistent economic, social and environmental challenges presented by our changing environment. In 1991, the City of Ottawa joined the Partners for Climate Protection program⁶ — one of the first municipalities in Canada to participate. The program committed the city to reduce its corporate GHG emissions. In 1995, Ottawa's City Council approved the Corporate Plan for Greenhouse Gas Reduction. The plan consisted of five program components and two corporate policies focused on achieving an internal GHG reduction target of 20% by 2005.⁷ In October 2003, the City of Ottawa's 20/20 Environmental Strategy was approved as part of the city's Growth Management Strategy. The strategy aimed to provide the city with a sustainability blueprint based on four goals: A Green City; Development in Harmony with the Environment; A Focus on Walking, Cycling and Transit; and Clean Air, Water and Earth. On September 28, 2005, progress continued as City Council approved the Green Building Policy for the Construction of Corporate Buildings. This policy was based on LEED certification and utilizes Smart Energy programs to reduce energy consumption. The city also developed a green building promotion program to encourage private developers to consider energy saving strategies. Many of these programs and policies were captured in the City of Ottawa's 2007 report, *Getting Greener: On the Path of Sustainability - Directory of Environmental Initiatives*. The document was released by the city's Environment Working Group as step towards updating the city's environmental strategy.⁸

⁶ Federation of Canadian Municipalities. (2017, January). Retrieved from <http://www.fcm.ca/home/programs/partners-for-climate-protection.htm>

⁷ Corporate Plan for Greenhouse Gas Reduction Second Annual Progress Report. (1997). Retrieved from <http://www.csaregistry.ca/registry/out/C1121-03APR98-RPT.PDF>

⁸ Planning and Environment Committee. (2009, July). Retrieved from <http://ottawa.ca/calendar/ottawa/citycouncil/ec/2009/08-25/18-ACS2009-ICS-CSS-0029%20-%20Environmental%20Strategy.htm>



Municipal Policy Framework

In 2012, the City of Ottawa partnered with the City of Gatineau and the NCC to develop three plans focused on steering the National Capital Region towards a more sustainable and prosperous future. The *Choosing our Future* initiative is designed to achieve multiple goals, e.g., enhanced economic prosperity and environmental health via the Sustainability and Resilience plan, the Energy and Emissions plan, and the Risk Prevention and Mitigation plan. Together the documents provide a common framework for future decision-making, planning processes and policy development. The *Energy and Emissions Plan*, or Community Energy Plan (CEP), was developed to provide greater depth to the issues of energy demand and greenhouse gas emissions (GHG). The document provides strategies to increase renewable energy integration in the region, as well as comprehensive energy conservation strategies to mitigate GHG emissions in multiple sectors.⁹ The plan also commits the City to “look for opportunities to develop a Net Zero Block as a pilot project in a partnership with municipal, federal, and private partners”.¹⁰ On May 28th, 2014, Ottawa city council approved an updated Air Quality and Climate Change Management Plan, a framework that provides a 20-year mitigation and adaptation strategy on climate change. The plan targets a reduction in per capita GHG emissions by 20% between 2012 and 2024.¹¹

The City of Ottawa is currently drafting a new renewable energy transition strategy called Energy Evolution (EE). This draft document was developed by a diverse group of stakeholders consisting of approximately 100 contributors from more than 50 organizations.¹² The plan is set to seek endorsement before council in 2017. EE’s vision is simple and straightforward: Ottawa is a thriving city powered by clean, renewable energy. The strategy seeks to propel Ottawa towards a fossil-free future by reducing energy use through conservation and efficiency; increasing the supply of renewable energy through local and regional production; and prioritizing the procurement of clean, renewable energy.¹³



⁹ *Framing Our Future: Energy and Emissions*. (2012). Retrieved from http://ottawa.ca/calendar/ottawa/citycouncil/ec/2012/02-21/03-Document%20-%20CoF_Energy%20Plan_FINAL%5B1%5D.pdf

¹⁰ *Ibid.*

¹¹ City of Ottawa. (2014). Retrieved from <http://ottawa.ca/en/city-hall/planning-and-development/official-plan-and-master-plans/air-quality-and-climate-change>

¹² Chernushenko, D. (2016, September). Retrieved from <http://capitalward.ca/index.php/columns/1680-ottawa-feeling-the-heat-must-seize-the-moment>

¹³ *Ibid.*





DESCRIPTION OF PROJECT

Zibi is proposed as a 15-hectare mixed-use master planned community consisting of 13 development blocks straddling Ottawa, ON and Gatineau, QC. This redevelopment of the Chaudière area and Albert Islands will include 1200 residential units (townhouses, condominiums, & apartments), combined with commercial, retail and park space spread out over eight districts. Community gardens, bio-swales, electric car charging stations, dedicated bike lanes, and a district energy system are a few key sustainability features. The adaptive reuse of heritage buildings is also planned to decrease waste and material required, and maintain the properties' heritage value. The community will be connected via a network of pedestrian friendly shared streets (narrow right-of-way), which prioritize sustainable and active transport over vehicles. The community is promoted as a transit oriented, socially engaging community that is situated close to the Ottawa and Gatineau downtown cores.¹⁴

Zibi developers—Windmill Development Group and Dream Unlimited Corp—are committed to the One Planet Action Plan, a set of sustainability goals that is far more ambitious than the industry's standard LEED rating system. This includes a commitment to zero waste, sustainable transport, and NZC. There will be no fossil fuel energy supplies onsite except as backup to a renewable supply.

¹⁴ Ontario Municipal Board. (2015, November). Retrieved from <http://www.windmilldevelopments.com/wp-content/uploads/2015/11/OMBCasePL141340-NOV-17-2015.pdf>



Rationale for selecting as a case study

The City of Ottawa's CEP commits the City to look for opportunities to develop a Net Zero Block as a pilot project in a partnership with municipal, federal, and private partners. The Zibi project represents a realization of this commitment. It was chosen because it is promised "to be one of the most socially sustainable, environmentally-friendly and innovative developments in Canada," and is referred to as a "world-class prototype for 21st Century design and development."¹⁵ Moreover, the project is committed to achieving zero carbon through the One Planet Action Plan.

The Zibi project is referred to as a world-class prototype for **21st Century** design and development.

Existing policy/tools at time of planning application

Official Plan (OP)

The OP is just one of several municipal plans designed to contribute to environmental quality throughout the City of Ottawa. The OP addresses environmental issues in multiple sections. The following were integrated into the municipality's Official Plan through OPA 76 (2011):¹⁶

- 2.4 – Maintaining Environmental Integrity: the OP protects and enhances environmental quality by improving air quality and reducing greenhouse gas emissions
- 2.4.1 – Air Quality and Climate Change (AQCC): The objectives presented in the OP aim to reduce GHG emissions in the development and building sector and provide measures to adapt to the effects of climate change.

For greater detail of the enabling policies associated with each objective, see Appendix.

- 2.5.1 – Urban Design and Compatibility: Maximizing energy-efficiency and promoting sustainable design to reduce resource consumption, energy use, and carbon footprint of the built environment are the objectives goals.

Principles of design should:

- Orient development to maximize opportunities for passive solar gain, natural ventilation, and use energy efficient development forms and building measures.
- Consider use of renewable energy and alternative energy systems.
- Utilize green building technologies and rating systems such as Leadership in Energy and Environmental Design (LEED).¹⁷

Air Quality and Climate Change Management Plan (AQCCMP)

The AQCCMP was approved by Ottawa City Council on May 28th, 2014. The document is a 20-year framework to guide the city in climate change mitigation and adaptation strategies. The new plan builds on the Choosing our Future Energy and Emissions plan by setting guiding principles, goals, objectives, and an updated GHG target (per capita reduction of 20% from 2012 emissions by 2024). The following mitigation goals are outlined in the plan:

Mitigation: (1) reduce energy demand; (2) reduce dependence on fossil fuels; (3) reduce other sources of GHG emissions (e.g. landfills and sewage treatment plants); (4) reduce other sources of air borne pollution; (5) improve carbon capture and storage (e.g. protecting forests and wetlands that capture carbon).¹⁸

¹⁵ Zibi. (2017). Retrieved from <http://www.zibi.ca/sustainability/>

¹⁶ City of Ottawa. (2003, May). Retrieved from <http://ottawa.ca/en/city-hall/planning-and-development/official-plan-and-master-plans/official-plan/volume-1-official-7>

¹⁷ Ibid.

¹⁸ City of Ottawa. (2014). Retrieved from <http://ottawa.ca/en/city-hall/planning-and-development/official-plan-and-master-plans/air-quality-and-climate-change>

2012 Green Building Promotion Program

In April, 2009, the City of Ottawa approved the pilot Green Building Promotion Program (GBPP) with aims to increase and support green building projects throughout the city. The program had multiple objectives: (1) build an integrated approvals process and understanding of green building projects among development review staff; (2) promote green building in the City of Ottawa; and (3) recommend a green building projects program to the City of Ottawa which promotes and assists building projects and integrated green design processes.¹⁹ Mitigating climate change through the promotion of reduced energy use and CO₂ emissions is another key objective.²⁰ In 2012, the project became permanent.

Planning Primer Program

To support and improve the planning process, a Planning Primer Program was developed by the City of Ottawa's Planning and Infrastructure Department.²¹ The program consists of educational programs to help residents, e.g., community representatives and developers, understand the land-use planning process better to mitigate confusion and increase efficiency and effectiveness. This knowledge is also key towards achieving flexibility in zoning-by-law, an important factor in net zero community development.

Choosing our Future initiative

The Choose our Future initiative consists of three integrated and long-term plans that deliver a vision for a sustainable future. With a focus on net zero communities, the Energy and Emissions Plan is of particular importance:

Energy and Emissions plan: This CEP was produced to lead the region on a common path towards a more sustainable energy future that reduces fossil fuel reliance and GHG emissions. The plan presents three persuasive reasons on a rationale for action: (1) energy security, (2) climate security, and (3) integrated security. The plan also provides strategic direction that encourages the use of high performance buildings and sustainable mobility, promotes low carbon and renewable energy supply, and manages growth and development, materials, and solid waste.²²

Policy amendments precipitated by the planning application

In April 2014, the development applications for the proposed Zibi project were submitted. A Zoning By-law Amendment and Stage 1 Site Plan Control application were included. Shortly after, an Official Plan Amendment—initiated by the City of Ottawa—was also entered to address proposed site policy.

On October 8, 2014, the proposed amendments were adopted by Ottawa City Council as by-laws 2014-396 (OPA 143) and 2014-395. Under the Central Area Secondary Plan (Schedule Q), the Zoning By-law Amendment (2014-395) changed zoning from "Parks and Open Space subzone" to "Mixed-Use Downtown Zone."²³

- OPA 143: Designates lands as "Central Area", allowing for mixed uses. "City Council has established land use designations and policies for Chaudière and Albert Islands to provide direction for the future development of the Islands as part of the larger Zibi development."²⁴

¹⁹ City of Ottawa. (2012). Retrieved from http://ottawa.ca/calendar/ottawa/citycouncil/occ/2012/07-11/pec/15%20-%20ACS2012-PAI-PGM-0127_Green%20Building_DOC%201.pdf

²⁰ Ibid.

²¹ The Planning Primer Program. (2014). Retrieved from <http://fca-fac.ca/wp-content/uploads/2014/11/Primer.pdf>

²² Framing Our Future: Energy and Emissions. (2012). Retrieved from http://ottawa.ca/calendar/ottawa/citycouncil/ec/2012/02-21/03-Document%204%20-%20CoF_Energy%20Plan_FINAL%5B1%5D.pdf

²³ Fotenn. (2015, August). Retrieved from http://webcast.ottawa.ca/plan/All_Image%20Referencing_Site%20Plan%20Application_Image%20Reference_D07-12-15-0158%20Zibi%201A%20-%20Planning%20Rationale.PDF

²⁴ Ibid.

- Section 1.11.5: new language added to guide the vision and principles of Island development. Eight development principles added to Master Plan.
- Section 1.11.7: Land use policies added for the islands to guide transformation into “a world-class, sustainable, complete community.”
- Section 1.11.8: On-site heritage resource policies added. This includes a planned Heritage Interpretive Plan to celebrate Algonquin history and culture, historic rights-of-way streets, and rules mandating new additions or construction near heritage sites to be “in harmony” with existing historical structures.

Emerging policy/tools precipitated by the development

A joint design review panel process—consisting of representatives from the City of Ottawa Urban Design Review Panel, the City of Gatineau, and the National Capital Commission (NCC) Design Review Panel—was created to simplify the approval process for Zibi initiatives. The process placed a conscious lens on the place-making attributes of the proposed project.

On major municipally planned initiatives, the City of Ottawa is encouraging the industry to engage with the local community to build early buy-in before official applications are submitted. Windmill invested significant time and resources conducting community engagement initiatives via consultations with stakeholders before applying.

Enabling Federal and/or Provincial interventions

The NCC mandate is focused on the planning and development of the Capital Region. On July 7, 2014, the Commission entered into a Memorandum of Understanding with Zibi developers Windmill Development Group²⁵ to ensure that:

1. Public benefits are provided, e.g., improved connectivity and new public parks;
2. On-going consultations (with inclusive approach) continue between Algonquin communities, the NCC, and developers;
3. Capital interests and principles are integrated into the project; and
4. The principles lead to land transactions.²⁶

Furthermore, a land transfer—between the NCC and the Windmill Development Group—of Chaudiere and Albert Islands is in development. The NCC’s board of directors unanimously approved the Zibi project in January 2015.²⁷

²⁵ Kitigan Zibi Anishinabeg. (2015, November). Retrieved from http://www.kzadmin.com/Flyers/885_Flyer_26112015.pdf

²⁶ National Capital Commission. (2016, September). Retrieved from http://www.ncc-ccn.gc.ca/sites/default/files/pubs/7_-_zibi_update_presentation_-_en.pdf

²⁷ Chianello, J. (2015, January). Retrieved from <http://ottawacitizen.com/news/local-news/0121-ncc>





STAKEHOLDER PERSPECTIVES

Municipal perspectives

Collaborative approach built key allies

The most common theme to arise in this case study was the importance of early collaboration and engagement with key stakeholders. Windmill Developments used a collaborative approach to build key allies throughout the public, private, and voluntary sectors. Engaging with senior administration and political leadership led to strong project support early in the planning process.

Due to the success of this approach, the City of Ottawa suggests this strategy be utilized for similar major infill developments. Early discussions on development principles should be initiated to build a primary understanding of how an area could be reinvigorated before planning applications are submitted. The project should then evolve through a collaborative engagement process, with the project vision consistently reinforced throughout.

Joint Urban Design Review Panel Process

Due to the development's unique location situated on a municipal boundary with federal lands, Zibi was subject to three separate approval processes from the City of Ottawa, the City of Gatineau, and the NCC. To increase the efficiency and effectiveness of the process, a joint urban design review panel (JUDRP) was formed to assess the concept master plan. The panel provided comments on land-use mix, view corridors of national symbols, massing and height of buildings, and the public realm strategy.²⁸ This cooperation and collaboration helped to (1) ensure a common and shared interest for public benefits were pursued as a key outcome, and (2) expedite the approval process. Due to the success of the JUDRP, it is recommended this joint process be utilized on similar projects when collaborating with neighbouring municipalities.

Flexibility to support integrated solutions

When planning large-scale projects, flexibility was identified as an important component to policy design and development. Integrating flexibility into policy direction helps to mitigate future problems and allows for project evolution, an important aspect when seeking NZC. Zoning changes focused on building a directional policy framework would allow for change to happen more efficiently. A framework that is directional instead of specific allows for answers to be identified over time as opposed to immediately.

The evolution of planning and policy

Emerging concepts such as net zero community have forced an evolution in planning to place a higher emphasis on understanding the function of the public realm and how it contributes to the experience of life in the city. Focusing efforts first to understand the places and spaces within the built environment is a strategy more commonly utilized in planning today. Once achieved, a proposed area development can then help to create, define, or redefine those places and spaces.

²⁸ National Capital Commission. (2015, January). Retrieved from http://www.ncc-ccn.gc.ca/sites/default/files/pubs/2014-p43e_-_windmill_proposal_for_the_development_of_chaudières_and_albert_islands_and_the_north_shore_of_the_ottawa_river_the_domtar_lands.pdf



During our research it was suggested that the implementation of NZC could be streamlined through the amalgamation of best practices and lessons learned into policy development and approval processes. For example, there may be a limited knowledge base for certain technologies within municipalities, which can lead to difficulties during the approval process. Deep water source cooling (DWSC) is one example. DWSC can significantly reduce power consumption in buildings—a major contributor to GHG emissions—but inadequate awareness of the technology, combined with a deficiency in past project tracking and knowledge retention, act as barriers to its application.

To assist and encourage aggressive decarbonization goals, regulatory bodies should attempt to decrease barriers for developers when pursuing NZC.

Developer perspective

Vision

The vision for Zibi was established early by Windmill Developments through a collaborative engagement process. Setting an aspirational vision early enabled flexibility and helped to build support from key municipal stakeholders and consultants; furthermore, it increased the ability to strengthen the project strategy, which is essential for the goal of NZC.

One Planet Living framework

Zibi's One Planet Action Plan guides the project towards its ambitious energy and environmental goals through ten sustainability principles. The framework was chosen for two overarching reasons:

1. One Planet Living (OPL) incorporates social impact. Various social indicators rate the development's success in achieving different factors, including the health and happiness of residents. Focus is placed on long-term human behavioural change, as this was found to have significant impact on overall sustainability including energy consumption; and
2. OPL allows for flexibility based on site conditions. For example, water conservation is not a pressing issue for the Zibi development because it is situated next to the Ottawa river. OPL's process-driven, flexible framework allows the focus to shift towards issues of greater relevance, such as energy conservation and renewable energy integration. In both aspects, OPL is preferred over LEED certification as an overall framework. LEED is prescriptive (e.g. point rating system is the same regardless of differing factors, such as environmental conditions) making OPL the preferred model for this project. In support of OPL, LEED certification will be pursued for multiple on-site buildings.

Net Zero Carbon: One key OPL goal is NZC. A low-carbon energy strategy was developed with the assistance of Hydro Ottawa and MaRS Cleantech—an advanced energy centre based in Toronto, ON. An integrated energy system was designed to incorporate “automated buildings, energy storage, electric vehicle sharing, energy efficiency programs, and demand response to enable on-site renewable energy.”²⁹ An Energy Innovation Design Charette—featuring a host

²⁹ Rocky Mountain Institute. (2016). Retrieved from http://www.rmi.org/elab_accelerator_2016_zibi_ottawa_zero_carbon_community



of innovators and industry experts—was held to further develop innovative low-carbon energy concepts. The session provided eighteen creative ideas, including an Energy Innovative District to “showcase and test next-generation clean technologies from Canadian entrepreneurs.”³⁰

Role of Local Energy Companies

A partnership between Windmill Developments and Hydro Ottawa was formed to create an on-site micro-utility. The micro-utility will deliver district thermal, district electricity, and hot water to residential and commercial buildings at Zibi. Potential energy sources include geothermal, biomass, sewage waste heat recovery, and heating and cooling from the Ottawa river. This public-private partnership represents an innovation in business model for municipally-owned Local Distribution Companies (LDCs) who are struggling to stay relevant in this disruptive era of distributed energy generation.

Marketability

Market attractiveness for an innovative, net zero community in the Ottawa region is encouraging. The demand for a low energy lifestyle has increased due to a growing public concern over climate change. Additionally, demographic trends for the region show steady population growth, strong employment gains, and low interest rates.³¹ These are encouraging signs. Marketing consumer benefits associated to living in a NZC increases property attractiveness and further enhances market potential.

However, research suggests there are significant marketing barriers associated with leading-edge developments. Uncertainty amongst consumers is one example. This barrier mitigates wide-scale adoption and deployment of similar low-impact community projects. Although interest and acceptance are growing rapidly for green initiatives, many consumers are still not prepared to pay a premium for sustainability. Reliability is another concern. A NZC project may be viewed by consumers as untested and high-risk, but fortunately these barriers can be mitigated.

For Zibi, these concerns are reduced by demonstrating (1) the key benefits to sustainable living, for example, health improvements due to pedestrian-friendly design, and (2) that no additional costs are associated with residing in this NZC community.

Achieving NZC at market rates is one of the primary challenges facing Zibi. Fortunately for the development, the site possesses unique characteristics, which make this goal possible. Capital expenditures will be significantly reduced through the provision of (1) district thermal via existing on-site district energy (DE) infrastructure, and (2) existing on-site renewable energy technology, including six run-of-the-river hydroelectric facilities. Maximizing solar gain through street design—east-west pattern—also contributes to the projects ability to achieve NZC without increasing costs. These low cost (and low carbon) energy supply options lower long-term operating costs for prospective buyers, and hence enhance marketability in an era of rising energy costs.

The partnership with Ottawa Hydro on the micro-utility assisted with marketability and consumer trust given the strength of the LDC brand.

³⁰ MaRS Cleantech. (2015, July). Retrieved from <https://www.marsdd.com/wp-content/uploads/2015/07/AEC-MaRS-Hydro-Ottawa-Energy-Innovation-Design-Charette.pdf>

³¹ City of Ottawa. (2017). Retrieved from <http://ottawa.ca/en/city-hall/budget-and-taxes/financial-reports-and-statements/long-range-financial-plans/long-range-6>



Stakeholder and community engagement

Windmill utilized a collaborative engagement process as its core strategy to build early buy-in and support from a complex set of community and political stakeholders. Providing opportunities for early involvement in the plan-making process, and continually throughout, encouraged a host of citizen groups and community members (e.g. heritage and cultural advocates) to participate. Providing multiple venues to listen and respond to community interests, visions, and concerns was deemed a successful strategy amongst a diverse group of stakeholders. Citizen engagement is credited with building a more diverse and inclusive Zibi master plan. In fact, over 900 community members attended one public meeting to provide feedback on the land's proposed design principles.³²

Windmill's early engagement with First Nations representatives, the NCC, the City of Ottawa, and the City of Gatineau were essential steps towards moving this project forward.

Local energy infrastructure opportunities and challenges

Zibi's ability to achieve a zero carbon footprint by 2020 will require a district-wide energy system powered by on and off-site renewable energy generation. Unfortunately, DE systems often face typical challenges such as high upfront capital costs and rights of way, but due to the location's former status as an industrial site, three main areas are still equipped with DE infrastructure. A network of underground, insulated pipe and pipe-line bridges exist and are linked to a central steam boiling room; therefore, up-front capital costs will be heavily mitigated. Further challenges include sub-metering expenses, and the operation and maintenance of the system in a cost-effective manner.

Consumer testing was completed to understand the level of consumer acceptance regarding a Hydro Ottawa supported DE system—and the results were very positive. The partnership was shown to increase consumer support and deliver benefits to both parties. The developer benefited from the utility's internal strengths and capabilities (e.g. customer relationships), and the utility benefited from the opportunity to (1) demonstrate energy saving initiatives, (2) heighten consumer engagement, and (3) adapt to changes in the local distribution company (LDC) model (e.g., sub-metering, solar generation, etc.). Increased resource efficiency, distribution, and Wi-Fi opportunities are also possible. Being a solution provider is a major driver for Hydro Ottawa.

Enabling federal interventions

To assess the practicality of a development at the former Domtar industrial brownfield site, Windmill Developments applied for and received a Federation of Canadian Municipalities grant through the Green Municipal Fund (GMF) to partially fund a feasibility study. Private developers can access GMF funding if the municipality supports the proposed project. Although the City of Ottawa is not a partner in the development, the municipality has shown widespread support for the project through political leadership and administration.

In addition, Windmill Developments has applied for the Quebec Hydro grant, Urban Sustainable Development. If secured, the grant would be used to offset costs associated with on-site electricity use.

A Natural Resources Canada grant application was also submitted, which, if received, would help to fund a biomass solution to meet peak demand when waste heat from the neighbouring industrial supplier is insufficient, or when the facility is shutdown.

³² Windmill Developments. (2014, April). Retrieved from <http://www.windmilldevelopments.com/2014/04/windmill-submits-rezoning-application-windmill-envoie-sa-demande-de-changement-de-zonage/>



Lessons learned and replicability

- Early and ongoing stakeholder engagement & collaboration key
- Integrating energy needs early enabled flexibility and assisted the evolution of the policy and planning changes required to achieve energy goals (e.g. right-of-way agreements).
- The One Planet Living Framework is a highly ambitious energy and environmental strategy that can assist municipalities achieve net zero carbon.
- Joint urban design review panel process highly beneficial when working in collaboration with neighbouring municipalities.
- Overly prescriptive government policies can discourage low-carbon energy initiatives.
- Key stakeholder collaborations provide mutually beneficial opportunities, e.g., diversified business models. The micro-utility partnership between Hydro Ottawa and Windmill Developments is an example.
- Set vision early and reinforce through collaborative engagement process. This strategy also increases flexibility and mitigates resource waste.
- Political and community goodwill highly beneficial. Seek early support and endorsements.
- Municipalities should incorporate best practices and lessons learned into policy development and approval processes.
- Innovative energy supply options, combined with highly efficient buildings, can enable cost competitive net zero communities in some real estate markets



In partnership with:

