WR COMMUNITY ENERGY

Community Energy Considerations for Municipal Climate Change Policy Development on New Buildings



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The work of WR Community Energy is directed by an innovative Governance Committee which includes high-level representatives from the Region of Waterloo, its three urban municipalities, and five local gas and electric utilities.



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Introduction

In 2021, WR Community Energy was invited to provide comments on the Region of Waterloo's "Policy Direction Paper on Climate Change" as a part of the Regional Official Plan review. This report provides a summary of the key themes that emerged from three years of community energy work in Waterloo Region and 12 targeted semi-structured interviews with industry leaders. It includes an overview of connections between the Community Energy Investment Strategy and the Regional Official Plan (ROP) as described in Policy Direction Paper on Climate Change.

Waterloo Region Context

All municipalities within Waterloo Region have set a target to reduce community greenhouse gas emissions (GHG) by 80% below 2010 levels by 2050. To reach this target, the Region of Waterloo – as the upper tier of municipal government and one of the largest energy consumers in the community – is positioned to lead with policy and their own corporate energy management. As Waterloo Region continues to grow, there is both a need and an opportunity to ensure that future buildings, both private and public, are built to a high standard of energy performance and integrate a low carbon energy supply.

The Region is currently updating its Regional Official Plan (ROP) with a climate and energy lens. In particular, the Policy Direction Paper targets net-zero carbon, resilient, and green buildings in a section called, "How We Build". This paper focuses on this section of the Paper and refers to these buildings as 'high-performance new construction' (HPNC).

The Region's proposed policy directions would have direct and long-term impact on community energy objectives. Guided by the established priorities of the Community Energy Investment Strategy, WR Community Energy hired a consultant, Alex Benzie, to work with the Community Energy Program Manager to comment on the proposed policies that relate to stationary energy (natural gas / electricity) and HPNC. In reviewing the policy directions, we considered, *"How might policies support developments in Waterloo Region to increase energy efficiency and generate more local energy"*.

Our interviews showed us that successful implementation of these policy directions requires a balance between public and private collaboration and municipal leadership.

Collaboration. The Region writes in the paper: [We] "need to change our relationship with energy and our community" (p.6). Successful implementation will require both Regional and City-level policy tools combined with increased knowledge resources and collaboration with industry. Work is needed to build this collaboration. While we are not planners do not claim to understand the nuances of planning tools, we believe the ROP is an ideal collection point for these ideas provided there is ample and meaningful support from area municipalities and industry.

Leadership is mentioned several times in the policy directions paper. We're glad the Region has identified this need. Strong leadership is essential to bring all relevant industries and

departments together under a science-based vision of a sustainable future. It's our hope that the ROP will ensure our GHG targets translate to GHG reductions.

In the Policy Direction Paper on Climate Change, the Region describes its role in addressing climate action as, "providing leadership; coordinating among stakeholders; developing and monitoring a clear and consistent policy framework; setting region-wide standards; and facilitating Regional and local action." (p.4) The Region must **allocate resources to maximize these roles** if we are to meet our climate change targets.

Review Approach

To provide informed feedback to the Region on these proposed policies, 12 interviews were completed with targeted engineers, public and private planners, developers, architects, and energy professionals from Waterloo Region and the GTHA. The scope of this position paper was focused on the proposed policies that most directly relate to the construction of high-performance new construction and, to a lesser extent, those items which could have the largest impact on local utilities.

ROP and CEIS Overlap

The Region's Regional Official Plan (ROP) will play a significant role in the success of the Community Energy Investment Strategy (CEIS). Since WR Community Energy is directed to implement the CEIS, the connection between both documents is important. The success of the CEIS is measured through 9 Key Performance Indicators (KPIs). The chart below identifies the connections between the KPIs of the CEIS and the ROP's proposed Policy Directions.

CEIS KPIs	Climate Change Policy	
Decrease (D)	Directions	
D1. Energy Consumption (per capita / GDP ratio)	8,13,19,20, 22,24,25	
D2. GHG Emissions (tonnes / 2015)	1,2,13,19,20,21,22,24,25,27	
D3. Peak Demand (kW – Natural Gas)	13,19,22,23,24,25	
D4. Energy Density (GJ/km2)	13,24,25	
D5. Energy Intensity Cost (\$/MJ/m2)	8,13,19,21,22,24,25	
Increase (I)		
I1. Local Generation (GJ/source)	13,17,21,22,23,24	
I2. Low-carbon transit (ridership, active transit, lower vehicle		
registration / household)	1,2,6,8,9,10,11,12,13	
I3. Local Energy Expenditures (energy \$ staying local)	13,17,21,24,25	
I4. CDM / DSM (Value, ROI, and # of Initiatives)	19,22,24	

Conversely, below are the proposed Climate Change Policy Directions relating to HPNC in the CEIS.

Policy Directions 🖓	CEIS KPI	CEIS Action	Relevant Utilities 🕶
05. Strengthen and expand the assessment of goods movement, storage, and electric charging			
stations in the development review process. (Big Move 4)	D2	(L),M	Ele
06. Direct the Region, in collaboration with Area Municipalities and community partners, to			
develop an electric vehicle strategy. (Big Move 5)	12	м	Ele
07. Set an ambitious intensification target. (Big Move 6)	D4		Ele, Ngas
08. Identify an expanded set of intensification areas/corridors beyond Urban Growth Centres			
and Major Transit Station Areas. (Big More 7)	D1;D5; I2;	I	Ele, Ngas
13. Incorporate energy and resilience considerations into the selection of any future urban	D1; D2; D3; D4;		
expansion areas. (Big Move 11)	D5; I1; I2: I3	A, I,M,	Ele, Ngas
	D1; D2; D3; D5;		
19. Require an energy model in the development planning process. (Big Move 15)	14	B,C,D	Ele, Ngas
20. Explore opportunities to prioritize development applications that incorporate significant			
energy conservation and/or reduction of greenhouse gas emissions. (Big Move 15)	D1; D2;	A,B,C,D,I	Ele, Ngas
21. Require, when feasible, the development of adaptive buildings that are flexible to future			
needs (Big Move 15)	l1; l3; D2; D5	A,B,C,D,I	Ele, Ngas
22. Require all municipalities to address climate change mitigation and adaptation through			
Green Development Standards, incentive programs, and/or development design guidelines.	D1; D2; D3; D5;		
(Big Moves 15 & 16)	1; 4	A,B,C,D,I	Ele, Ngas
23. Commit the Region to evaluate how to identify and protect optimal areas for renewable	l1; l3; D3; D2;		
energy generation. (Big Move 17)	D1	B,C,H,I,J	Ele
24. Provide direction on the location of geothermal energy to facilitate geothermal energy	D1; D2; D3;D4;		
production in appropriate locations. (Big Moves 17)	l1; l3	B,C,I	Ele, Ngas
25. Require plans of subdivision to maximize orientation for passive and rooftop solar (Big	D1; D2; D3; D4;		
Moves 17 & 18)	D5; I3	B,C,I	Ele, Ngas
26. Require that community energy plans be completed as part of secondary planning			
exercises, including consideration of energy generation, distribution, and storage. (Big Move	D1; D2; D3; D4;		
18)	D5; I1; I2: I3;I4	B,C,I	B,C,I Ele, Ngas

Key Themes from Interviews

Seven key themes emerged from the interviews:

- 1. Barriers to HPNC
- 2. Importance of balancing collaboration and incentives with regulation
- 3. Importance of staff resourcing/training and internal processes
- 4. Celebrating success and sharing learnings
- 5. Understanding local context
- 6. Public interest and consumer demand
- 7. Political appetite and leadership

Barriers to HPNC

Through the interviews, participants identified key barriers to HPNC. These barriers include:

- Competition from other developers to keep costs low
- Risk avoidance of innovation from developers (new technologies/approaches are deemed risky, and developers and their financiers want a degree of certainty)
- Lack of customer awareness / market for energy efficiency (developers will only build HPNC if customers are willing to pay the premium)
- Knowledge gap regarding new/energy efficient technologies and approaches (in both private and public sectors)
- Perceived conflicts between policies and priorities (i.e.: urban design guidelines, affordability, energy efficiency, parking)
- Lack of skilled labour
- Lack of energy-focused / trained municipal staff able to engage in innovative solutions

• Increasing construction costs in a high-cost environment.

Takeaway: It is critical that interventions to improve building performance consider these barriers holistically to support the development of HPNC.

Collaboration vs. Regulation

Unsurprisingly, there was no consensus on the best way to facilitate HPNC. But all interviewees agreed some combination of collaboration and regulation would be helpful. Participants in the private sector generally preferred a more *collaborative approach*. Stronger collaboration was recommended in multiple areas:

- between municipalities and the development community,
- between municipalities and utilities,
- between developers and municipalities, and
- between departments in organizations.

Examples of collaboration included a more nuanced conversation between municipalities and developers around opportunities and trade-offs. The result could increase awareness of innovative solutions by all parties. These conversations could facilitate flexibility and adaptiveness that would accommodate unique site challenges and opportunities and changes in technology over time. This is difficult to achieve using a strict regulatory approach. Low energy literacy across sectors presents a challenge to this type of collaboration.

Incentives are another important consideration. While most interviewees mentioned the need for incentives, they can be employed with varying level of success. More work should be done to explore incentives that are well matched for HPNC in Waterloo Region. In addition to the popular incentive mentioned in Policy Direction 20, developers expressed a preference for the use of incentives at the beginning of the development process, incentives that could simplify process (there by reducing management fees and time) rather than added processes (e.g., grant applications).

Participants from the municipal sector were quicker to recommended a "regulatory" or policydriven approach to ensure all (not just the leading) developers are building HPNC, and to provide an even playing field. Some participants felt that the Ontario Building Code does not/will not go far enough to meet local climate objectives, even when harmonized with the forthcoming updates to the National Building Code.

Takeaway. Both carrots and sticks are required at the local level and contextualized to the community. More work will be needed to strike the right balance.

Box 1. Green Development Standards

The most common carrot-and-stick approach employed by Ontario municipalities is green development standards. Green development standards are a suite of required and voluntary standards applied to new development, which may include:

- objectives related to improving energy efficiency/performance
- reducing water use
- improving stormwater management
- facilitating active transportation and/or local food, etc.

Required standards (the sticks) are typically presented as the first *tier* of the standard. Above this, voluntary levels of performance are fiscally incentivized by the municipality. Incentives could include reduced development charges or greater density on the site. Currently, there is no conclusive evidence that incentives for voluntary, high-level performance drives or influences decision making. After all, incentive uptake occurs after developers have already considered sustainability for their own internal standards and/or marketing opportunities.

Adherence to green development standards is reviewed and assessed during the site plan or plan of subdivision process, as governed by Section 41 and 51 of the Planning Act. According to the act, the site plan process can dictate matters relating to sustainable design, but only matters relating to the exterior of the building or envelop. Matters excluded from site plan control include interior design and "the manner of construction and standards for construction". This presents a potential jurisdictional barrier for energy performance requirements, particularly if a highperformance energy standard, beyond the energy performance target in Ontario's Building Code (OBC), is required at the first tier/level. However, Tier 1 of the City of Toronto's Green Standard (TGS) requires that new buildings are 15% more efficient than the requirements in the OBC, and thus far, there have been no legal challenges brought to the City of Toronto by developers. This may have resulted from the strategic and long-term roll-out. The same is true with the many other communities who have implemented a form of green standards including Halton Hills and Whitby. It is their experience that while developers seek to reduce the stringency of green standards as they are being developed, once they are in place they follow along. The City of Toronto recognized that developers rarely think beyond the details of their next development (e.g., 5 years). As the tiers for energy codes are posted 10 or more years in advance, this is plenty of time for developers to plan. That being said, the first 'big' challenge of TGS is expected to come in 2022 when the TGS become significantly higher than code and condo towers, for example, will be unable to build glass curtain buildings.

It is a misconception by some planners that TGS is enabled by the City of Toronto Act. The City of Toronto does not use their unique authority for their Green Standards. The Whitby's Green Standard is further proof that the City of Toronto act is not necessary.

Importance of Staff Resourcing, Training, and Internal Processes

Appropriate staffing resources, knowledge, and skills are necessary for effective collaboration and regulation. Coordination among municipal staff at all levels and

departments is critical. Several interviewees noted the necessity of having staff with building/energy knowledge to review and provide comments on energy-related matters.

Potential opportunities could include:

- 1. Work with municipal asset management teams. They may have helpful building knowledge / energy modelling expertise.
- 2. Hire a shared staff person to work on behalf of Waterloo Region's area municipalities and perhaps neighbouring communities. Municipalities could explore subsidized training with The Canadian Association of Consulting Energy Accessors (CACEA).
- 3. Sustainable Buildings Canada (SBC) and energy consulting firm RWDI are partnering to create a software for non-energy professionals such as planners to confirm energy models conform to local energy standards. It is expected they will be looking for pilot communities in the next year to test this software.
- 4. The Region and cities could hire an external 'energy concierge' to support property and energy developments and work collaboratively with the developer's energy modelling team on behalf of the area municipality.

Takeaway: Ongoing support, through training, education, and development, is critical to the successful implementation of a regional proactive approach to community level zero-carbon, resilient, and green buildings. Sharing knowledge and expertise across municipalities would help to offset limitations.

Celebrating Success and Sharing Learnings

Several interviewees stressed the importance of sharing learnings and celebrating successes in green building achievements. There is a hesitancy in the building and development community to try new things as unfamiliarity with new technology or processes could delay a project and/or result in increased costs. Development is already a high-risk environment. Adding additional risks can raise financing costs which are ultimately passed on to home buyers. Opportunities to share learnings could include education campaigns, forums, communities of practice, and awards. These could develop familiarity with new approaches and contribute to a more innovative building culture in the community.

Takeaway: Establishing a consistent and coordinated design celebration in Waterloo Region could enhance the profile of sustainable buildings, encourage friendly competition, and shared lessons.

Local Context

Participants from Waterloo Region expressed concerns that additional regulations and costs to the development process may push out smaller, local firms who do not have access to patient capital or low interest financing and may also add additional barriers to the development of "missing middle" housing opportunities.

Takeaway: consultations should include all sizes of developers.

Public Interest & Consumer Demand

Participating developers were quick to point out that they provide a product and are often limited by market demands. Condo buyers, for example, do not seem to integrate the full cost of energy into their purchasing decisions. This dynamic helps explain why the highest performing buildings in Waterloo Region are designed, built, and owned by a single organization (ex: Evolv1, the Hub, Grander View, etc.).

As the public continues to understand the role that energy plays in their life, we should expect interest in HPNC to grow. Additional HPNC motivators could include: the carbon offset market, carbon pricing, air quality and health concerns, and the economics of energy resilience.

Takeaway: Consumers are often not able to understand or act on their long-term energy interests. Some potential motivators for HPNC are only now emerging. Policies should be flexible to incorporate additional motivators into HPNC regulation. Whitby and Toronto's Green Standard do this by including GHG metrics in their upper-tier targets.

Political Appetite & Leadership

Leadership is necessary to change how we build. Thankfully, councils across Waterloo Region have expressed interest in being leaders on climate change. Waterloo Region should move towards a four-part energy and carbon reduction strategies that include net-zero targets for transportation, existing buildings, new construction, and municipally owned corporate buildings. While our community continues to build on our successes in low-carbon transportation, we need to increase our efforts on building-level energy and greenhouse gas emissions reductions.

Elected officials have tools to achieve this goal. It will be important for community energy and energy efficiency groups to maintain open communication with them to ensure they are up to date on the opportunities and best practices across the province.

Takeaway: With many communities proactively working green standards (e.g.: City of Toronto, Ottawa, Mississauga, Whitby, Ajax, Burlington, East Gwillimbury, Halton Hills, etc.), and the Province of Ontario expected to become more involved via a 2023 building code, Waterloo Region must act now to claim leadership in this area.

Next Steps

This report highlighted key themes to consider when integrating energy considerations into new construction planning policies. The feedback generated from interviews provided meaningful insights from a range of local organizations and subject experts on the opportunity and challenges of incorporating energy systems into zero carbon, resilient, and green buildings.

Looking forward, the inclusion of energy considerations in the ROP should be integrated with as much rigour and consistency as possible in the Official Plans for each city in Waterloo

Region. Additionally, these recommendations should be integrated with broader municipalscale building energy strategies (existing builds, corporate standards). Collaboration with leading municipalities in Ontario could support the development energy strategies and green standards.

WR Community Energy will continue to support these activities. With the establishment of specific Working Groups (e.g.; including land-use planning, municipal / LDC leadership), increased focus can be given to ongoing energy considerations.

We would like to extend our sincere thanks to the interview participants for sharing their insights and experience with us and the Region of Waterloo for reading this report.



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