TOWARD PLANNING ALIGNMENT

Six Recommendations for the IESO, Electric Utilities, Natural Gas Utilities, and Local Governments in Ontario

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QUEST

Clean Air Partnership

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QUEST

QUEST is a national non-government organization that works to accelerate the adoption of efficient and integrated community-scale energy systems in Canada by informing, inspiring, and connecting decision-makers. QUEST undertakes research, communicates best practices, convenes government, utility, private-sector and community leaders, and works directly with local authorities to implement on-the-ground solutions. QUEST grounds all its activities in the "Smart Energy Community"–a concept that encapsulates the ideal end state of the organization's work.

Clean Air Partnership

Clean Air Partnership (CAP) is a charitable environmental organization launched in June, 2000. CAP's mission is to help municipalities become sustainable, resilient, vibrant communities where resources are used efficiently, the air is clean to breathe and greenhouse gas emissions are minimized.

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EXECUTIVE SUMMARY

In Ontario, the Independent Electricity System Operator (IESO), local distribution companies (LDCs), natural gas utilities, and local governments are increasingly engaging in localized and integrated forms of energy planning.

Within these planning processes lies significant overlap and interdependencies, and thus there are many opportunities where these organizations can better align their efforts to achieve their respective objectives.

This report presents the findings from a combination of semi-structured interviews and facilitated workshops with participants across Ontario, and provides six recommendations to foster stronger alignment between energy planning processes and practice:

1. Enhance Engagement and Plan Review
2. Identify and Converge Around Common Objectives
3. Increase Focus on Peak Demand
4. Improve Data Sharing and Assumption Consistency
5. Collaborate on Energy Mapping
6. Leverage Incentives and Financial Mechanisms

Toward Planning Alignment was funded by the Independent Electricity System Operator (IESO)'s Education and Capacity Building Fund.

On March 21, 2019 the Ontario Government introduced Bill 87, Fixing the Hydro Mess Act, 2019 and corresponding Orders in Council and Directives. This proposed legislation and directives call for uploading electrical conservation and demand management programs from LDCs to the IESO, and move funding for these programs from the rate base to the tax base. Though it is anticipated that the roles and responsibilities of some organizations in this report may change - and as a result, the proposed actions may be adopted by different stakeholders - the six recommendations outlined in this report remain highly relevant. By aligning the energy planning efforts of the IESO, LDCs, natural gas utilities, and local governments, there are greater opportunities to minimize implementation delays, earn long-lasting trust and community buy-in, and ensure provincial and local energy priorities are achieved.

INTRODUCTION

Energy planning in Ontario is a long-established process to ensure safe and reliable electricity and natural gas supply, and to ensure citizens and businesses have the energy they need for power, heating and cooling, and industrial processes.

Current policy and market drivers are shifting where, when and how energy is used, delivered, and supplied, with generation co-located with sources of energy demand. Drivers include changing consumer demands, decreasing costs for distributed energy resources (DERs), greater recognition and use of demand management for achieving corporate goals, a push for decarbonization (leading to fuel-switching), and the pursuit of social license.

In tandem with systems change are shifts in goals and approaches to energy planning and practice. A localized approach to planning allows for solutions that are sensitive to the unique needs of communities or regions. An integrated approach encourages a diversity of methods for achieving goals.

This report provides recommendations and associated steps for IESO, LDCs, natural gas utilities and local governments to align their planning approaches to more effectively respond to the changes occurring in the energy marketplace, to experience efficiencies through collaboration and economies of scope, and to continue to provide safe and reliable electricity and natural gas supply.

[1] IESO. Regional Planning Overview. Retrieved from http://www.ieso.ca/Pages/Ontario%27s-Power-System/Regional-Planning/regional-planning-process.aspx

[2] Ontario Energy Board. Framework for the Assessment of Distributor Gas Supply Plans. 2018. Retrieved from: https://www.oeb.ca/sites/default/files/Report-of-the-Board-Gas-Supply-Plan-Framework-20181025.pdf

[3] Ontario Energy Board. Natural Gas Demand Side Management. Retrieved from: https://www.oeb.ca/industry/policy-initiatives-and-consultations/natural-gas-demand-side-management-dsm

[4] Calvert, K. 2017. Toward First Principles of Community Energy Planning. Retrieved from: http://www.cekap.ca/blog/toward-common-first-principles-of-community-energy-planning/

[5] Government of Ontario. Ontario Places to Grow Act, 2005. Retrieved from: https://www.placestogrow.ca/index.php?option=com_content&task=view&id=4&Itemid=9

ORGANIZATIONAL APPROACHES TO ENERGY PLANNING

The following organizations conduct energy planning with a localized or integrated approach required or embraced by provincial policy and regulation. A summary of these policies is found in Appendix A.

- The IESO coordinates Regional Planning through working groups with regional electricity transmitters and distributors to address specific electricity capacity and reliability needs over a 20-year horizon for 21 planning regions across Ontario.[1] This ongoing process was formalized by the Ontario Energy Board (OEB) in 2013. During this process, the IESO facilitates the development of an Integrated Regional Resource Plan (IRRP) with the regional working groups, if the needs and scoping assessments conducted in a particular region or sub-region determine that a mix of different options, such as conservation, generation, distribution, or DERs, can be integrated as potential solutions to address needs.
- LDCs (also referred to as electric utilities) are required by the OEB to conduct Distribution System Planning for their service territories. LDCs are also required to meet energy savings targets through the development and implementation of Conservation and Demand Management (CDM) plans and programs.
- Similarly, natural gas utilities are required by the OEB to develop and submit Gas Distributor Supply Plans[2] for their franchise areas, and Demand Side Management (DSM) plans as required as part of the DSM Framework for Natural Gas Distributors.[3]
- Local governments in Ontario are increasingly engaging in community energy planning - a process that emerged to capture opportunities and reduce a community's risk to the changing energy landscape.[4] A Community Energy Plan (CEP) is a tool that helps define community priorities around energy with a view to improve efficiency, reduce emissions, enhance resiliency, and drive economic development. The Ontario Places to Grow Act,[5] the Growth Plan for the Greater Golden Horseshoe,[6] the Provincial Policy Statement,[7] and Ontario Regulation 397/11,[8] as well as the Ontario Ministry of Energy

Municipal Energy Plan program,[9] each contain policies or programs that encourage or require local governments to take an active role in managing community energy consumption and production.

Between these planning processes there are areas of overlap (such as geographic coverage), interdependencies (outputs of one process impacting inputs, goals, outputs of another), and elements that are out of sync (timeframes). An overview of planning goals, geographic coverage, timeframes, inputs, and outputs are described below in table 1.

Table 1 – Overview of localized and/or integrated energy planning processes in Ontario

Organization; Process/Plan	Planning Objectives	Geographic Coverage	Timeframe	Inputs	Outputs
IESO (in collaboration with local transmitters and LDCs) Regional Planning	Transmission electricity supply = electricity demand Limited # and duration of electrical interruptions (reliability) Cost effective investments	Planning Regions[10] (areas identified for growth with limited electricity capacity)	Conducted every five years through an 18-month process with a 20-year timeline	Load Forecasts - historical loading, expected CDM, Distributed Generation, current asset conditions, system reliability or operational issues Community engagement	Needs assessment ⌄ Scoping Assessment ⌄ IRRP (Integrated Regional Resource Plan) and/or Regional Infrastructure Plan (RIP) Local Achievable Potential Study Project to meet near-term (3-5 years), medium term (5-10 years), and long term (10-20 years) electricity needs, including wire-solutions such as new transmission lines and transformer stations, and/or non-wires alternatives such as demand response, conservation, or DERs (renewable generation, energy storage, combined heat and power, microgrids)
LDC Conservation and Demand Management Planning	Reduced kWh electricity (overall consumption) Cost effective investments	Service areas[11,12] (multiple LDCs able to collaborate and combine efforts)	Six-year plans, 2015-2020 (inclusive)	Allocated LDC CDM Plan Target (GWh) CDM Plan GWh Savings Allocated LDC CDM Plan Budgets	CDM Plan Programs to reduce electricity consumption Progress reports Investments ($, time) in delivering efficiency programs
LDC Distribution System Planning	Reduced # and duration of electrical interruptions (reliability) Power quality Cost effective investments	Service areas[13,14]	Every five years	Information on existing electrical distribution assets (ex. age, capacity)	Approve distribution System Plan Asset Management Plan Projects to upgrade and renew distribution infrastructure

[6] Government of Ontario. Growth Plan for the Greater Golden Horseshoe, 2017. Retrieved from: https://www.placestogrow.ca/index.php?option=com_content&task=view&id=9&Itemid=14

[7] Government of Ontario. Provincial Policy Statement, 2014. Retrieved from: http://www.mah.gov.on.ca/AssetFactory.aspx?did=10463

[8] Government of Ontario. Ontario Regulation 397/11:. Retrieved from: http://www.e-laws.gov.on.ca/html/source/regs/english/2011/elaws_src_regs_r11397_e.ht

[9] Government of Ontario. Ontario Municipal Energy Plan Program. Retrieved from: http://www.energy.gov.on.ca/en/municipal-energy/

[10] IESO. Ontario's Electricity System Map. Retrieved from: http://www.ieso.ca/localContent/ontarioenergymap/index.html

[11] IESO. Find your Local Distribution Company. Retrieved from: http://www.ieso.ca/learn/ontario-power-system/overview-of-sector-roles/find-your-ldc

[12] IESO. Ontario's Electricity System Map. Retrieved from: http://www.ieso.ca/localContent/ontarioenergymap/index.html

[13] IESO. Find your Local Distribution Company. Retrieved from: http://www.ieso.ca/learn/ontario-power-system/overview-of-sector-roles/find-your-ldc

[14] IESO. Ontario's Electricity System Map. Retrieved from: http://www.ieso.ca/localContent/ontarioenergymap/index.html

Organization; Process/Plan	Planning Objectives	Geographic Coverage	Timeframe	Inputs	Outputs
Gas Utility Demand Side Management (DSM) Planning	Reduced m^3/year natural gas (overall consumption)	Service areas[15]	Five-year plans	DSM Plan m^3 Savings Targets DSM Budget[16] Program Evaluation	DSM Plan Programs to reduce natural gas consumption
Gas Utility Distribution System Planning	Value to customers System reliability Cost effective investments[17]	Service areas	Ten-year plan	Information on existing natural gas distribution assets (ex. age, capacity) Stakeholder Engagement Framework for the Assessment of Distributor Gas Supply Plans[18]	Distributor Gas Supply Plans Projects to upgrade gas distribution infrastructure Annual Gas Supply Plan Updates
Local Governments Community Energy Planning	Reduced energy spending Reduced GHG emissions Varies by community but goals may generally include:[19] - Encourage Local Economic Development - Community Resilience Benefits - Health and Social Benefits	Municipal Boundaries (upper-, lower-, or single-tier)	No universal schedule for renewal, but typically takes 5-7 years[20]	Community Stakeholder Engagement Energy Use Data - Electricity consumption (electric utility) - Natural gas consumption (natural gas utility) - Fuel sales (Kent Group) Land-Use and Property Data - Planning Projections and Zoning (planning department) - Property Data (Municipal Property Assessment Corporation [MPAC]) Transportation Data - Traffic (transportation studies) - Car Ownership (Ministry of Transportation [MTO])	Community Leadership Team Energy use and/or supply maps Community Energy Plans that include a list of action items, ranging from: -Amending and/or developing new policy (ie. land use buildings, transportation, waste and water) - Promotion or development of new programs (ie. community-wide retrofit program, car-sharing, educational programs) - Development of projects (ie. DERs, energy retrofits) Progress Reports

THE RATIONALE FOR PLANNING ALIGNMENT

Because some planning processes take place independently of one another, particularly between electricity planning, natural gas planning and community energy planning, organizations have an incomplete understanding of:

- Each other's priorities and processes
- Linkages between each other's processes (how their planning impacts and/or overlaps with others)
- How other organizations' processes could work in tandem with and/or support their own processes

AS A RESULT:

- Information is not shared in a manner that is transparent or well understood
- Disconnects between organizations are maintained and/or created
- Actions implemented from planning can have unintended consequences - such as community opposition to an infrastructure projects, or increased grid constraints and infrastructure costs - that could be better understood or avoided

If IESO, LDC's, natural gas utilities and local governments continue to engage in energy planning in an unaligned and uncoordinated manner, the disconnect between organizations and their priorities could further erode trust, delay the implementation of energy infrastructure, and keep opportunities for energy conservation unrealized.

[15] Enbridge Gas. Enbridge gas service area. Retrieved from: https://www.uniongas.com/residential/start-stop-move-service/union-gas-service-locator

[16] OEB. Demand Side Management Framework for Natural Gas Distributors. Retrieved from: https://www.oeb.ca/industry/policy-initiatives-and-consultations/demand-side-management-dsm-framework-natural-gas

[17] Ontario Energy Board. Framework for the Assessment of Distributor Gas Supply Plans, 2018. Retrieved from: https://www.oeb.ca/sites/default/files/Report-of-the-Board-Gas-Supply-Plan-Framework-20181025.pdf

[18] ibid.

[19] QUEST and CEA. National Report on Policies Supporting Community Energy Plan Implementation, 2015. Retrieved from: https://questcanada.org/wp-content/uploads/2018/08/2015_National-Report-on-Policies-Supporting-Community-Energy-Plan-Implementation_Full_Report.pdf

[20] ibid.

To facilitate stronger collaboration and the mutual realization of objectives, Towards Planning Alignment provides six recommendations to foster alignment of planning process and practice, without amendments to provincial policy or regulation.

METHODOLOGY AND APPROACH

Toward Planning Alignment builds off the Energy Community of Practice (ECOP) initiative (2015-2016), which involved a pair of workshops in York Region - an area with high growth pressures and associated energy constraints - to discuss planning challenges and identify solutions. During these workshops, several opportunities to better align planning efforts emerged. These included:

- Spatially aligning distributed energy resources and conservation programs with intensification and growth areas
- Increasing focus on peak demand reduction and avoided cost planning
- Enhancing engagement processes, and improving forecasting and data through collaboration

In order to test and build on these opportunities, semi-structured interviews and a new series of workshops were conducted with representatives from IESO, LDCs, natural gas utilities and local governments in three areas of the province between 2017 and 2018. Each area was geographically defined using the IESO's Regional Planning boundaries. These regions were selected to explore if and how local circumstances (such as # of municipalities, municipal governance, # of utilities) impact opportunities for alignment.

Table 2 – Summary of Worshop Participants and Regions

IESO Region	Participants	Regional Characteristics
GTA North - York sub-region	Regional Municipality of York, the City of Markham, the Town of Newmarket, the City of Vaughan, the Town of Richmond Hill, the Town of Aurora, the Chippewas of Georgina Island First Nation, Alectra, Newmarket-Tay Power, Enbridge Gas Distribution, and the IESO	In the York sub-region, community energy planning is encouraged by the Regional Municipality of York's Official Plan, which requires that lower-tier municipalities undertake community energy plans for their growth nodes.[21] As a result, community energy planning has been led by the Region's lower-tier municipalities, including the City of Vaughan, the City of Markham, and the Town of Newmarket. However, the Regional Municipality is in the process of creating a Regional community energy plan that will leverage and build upon existing CEPs.
Kitchener / Cambridge / Waterloo / Guelph	City of Guelph, Guelph Hydro, the Region of Waterloo, the City of Waterloo, the City of Cambridge, the City of Kitchener, the Township of Centre Wellington, Centre Wellington Hydro, Energy+, Kitchener-Wilmot Hydro, Waterloo North Hydro, and the IESO	The Kitchener/Cambridge/Waterloo/Guelph Region includes the Regional Municipality of Waterloo, the City of Guelph, and sections of Wellington County and Oxford County. Both the Region of Waterloo and the City of Guelph are undertaking community energy planning, though this planning is largely done independently of one another.
Greater Ottawa - Ottawa Area sub-region	City of Ottawa, Hydro Ottawa, Enbridge Gas Distribution, and the IESO	The Ottawa Area sub-region represents an area where the IESO's regional planning boundary matches the boundary of a single-tier municipality - the City of Ottawa. Hydro Ottawa and Hydro One both have distribution service territories in this region, however Hydro One could not be reached for participation.

During the semi-structured interviews participants recognized the importance of, and need for, stronger coordination and alignment between organizations but had a limited knowledge on how to put this into practice. The workshops that followed were designed to provide each organization the opportunity to explain their planning objectives, provide an overview or update on their planning processes, and discuss their individual challenges; and to allow participants to identify opportunities to overcome challenges as a group.

Though each region has unique characteristics and energy needs, the challenges faced in each region are common. This report summarizes lessons learned from the interviews and workshops conducted between 2015 and 2018, and provides a list of actions that the IESO, LDCs, natural gas utilities, and local governments across the province can take to foster planning alignment.

[21] The Regional Municipality of York Official Plan, 2010, Policy 5.6.10. Retrieved from: https://www.york.ca/wps/wcm/connect/yorkpublic/0dc3cfc2-2e0f-49d2-b523-dc7c14b08273/15001_yropConsolidation2016AccessibleMay42016.pdf?MOD=AJPERES

SIX RECOMMENDATIONS FOR PLANNING ALIGNMENT

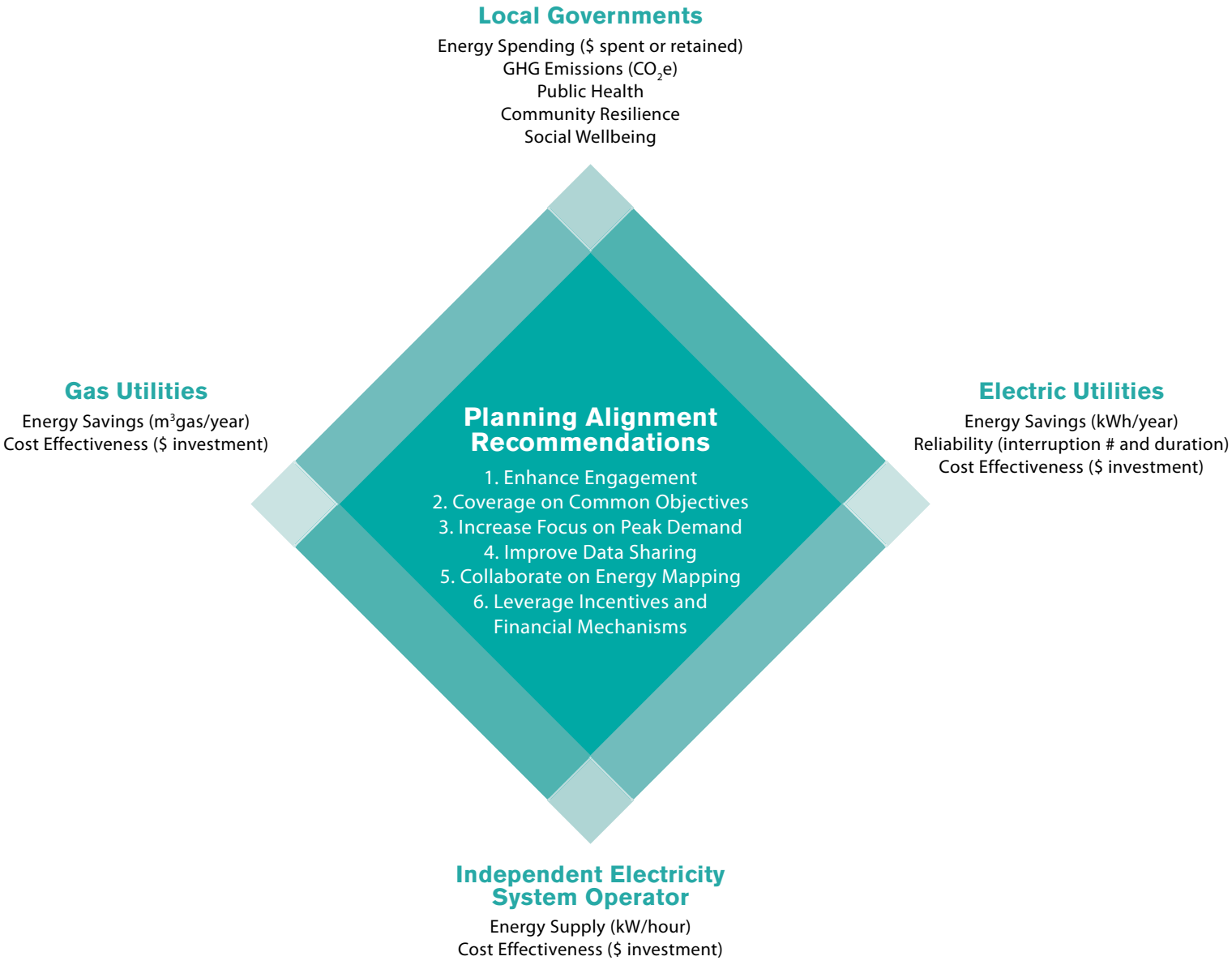

Figure 1 – Graphic depiction of each organization's planning objectives and recommendations for alignment.

1. ENHANCE ENGAGEMENT AND PLAN REVIEW

Background

The historically siloed and unidirectional nature of interaction between organizations (i.e. not interacting, or engaging only to inform or instruct) has led to missed opportunities to build local capacity and create synergies across planning organizations to achieve their respective goals. Establishing a process for enhanced and continued engagement is critical to facilitate stronger collaboration and trust between these groups.[22] It also sets a foundation for subsequent recommendations in this report.

[22] The IESO is in the midst of a review of the Regional Planning process at the time this report was published. In a presentation provided to the Regional Planning Review Advisory Group on March 1 2019, the IESO outlined 3 approaches to strengthen the organization's approach to community engagement: Broaden community engagement efforts, increase communication channels, and enhance the engagement process during regional planning. This presentation and other information related to review and update of the Regional Planning Process can be found at: http://www.ieso.ca/Sector-Participants/Engagement-Initiatives/Engagements/Regional-Planning-Review-Process

Steps for Implementation

ACTION 1: CREATE A CONTACT LIST FOR EACH ENERGY PLANNING ORGANIZATION

The first step toward enhanced engagement amongst organizations is to understand who needs to be involved in existing engagements (ie. IESO's Local Advisory Committee or a local government's CEP advisory group) or new engagement exercises, as there are multiple departments within each organization that play direct or indirect roles in energy planning. This may include individuals with roles outlined in Table 2.

ACTION 2: CONVENE ENERGY PLANNING ORGANIZATIONS WITH THE SPECIFIC PURPOSE OF MUTUAL UNDERSTANDING

In addition to the traditional stakeholder engagement activities, IESO, LDCs, natural gas utilities and local governments should convene regularly with the specific objective of better understanding the functions and activities of one another as plans are continually implemented and updated. As a group, organizations should determine who is best placed to lead the coordination of these meetings, and determine an appropriate venue, format, and frequency. The outcome of this engagement should be mutual understanding, rather than focusing on only one planning process in particular. This will facilitate dialogue and knowledge exchange that does not prioritize the voice and activities of one organization over another.

ACTION 3: INCORPORATE PARTICIPATION OF UTILITIES AND THE IESO IN LOCAL GOVERNMENTAL COMMUNITY ENERGY PLANNING AND OTHER PLANNING PROCESSES

Though energy planning is new to the purview of local governments, they have extensive experience with community engagement, a process integral to the development of CEPs. Engaging with local governments, through community energy planning or another format, can provide the IESO and utilities with insights into present and future needs of a community and the priorities that underlie them.

During the CEP development process, utilities and the IESO should provide technical expertise to ensure actions in a CEP are concrete and quantifiable, and that CEP targets are achievable. This will bolster confidence that CEP actions, such as encouraging local DERs, energy efficiency and conservation projects, can be verifiable opportunities to meet capacity needs identified in the IESO's IRRP and/or utility plans. Similarly, utilities may enhance the uptake of their CDM or DSM programs by promoting them through CEPs.

ACTION 4: ENCOURAGE LOCAL GOVERNMENT PARTICIPATION IN UTILITY AND IESO ENERGY PLANNING PROCESSES

Staff from local governments engaged in community energy planning should also aim to participate in utility or IESO led public engagement initiatives.[23] To encourage this, it is critical the utilities and the IESO considers the capacity, priorities, and political cycles that impact local government staff participation.

Table 2 – List of common roles at each organization to be considered for engagement

IESO	Utilities (Electric & Natural Gas)	Local Government
Regional planning	Conservation demand management or demand-side management	Community energy or sustainability planning
Program planners	Asset management and distribution system planning	Corporate energy management
Stakeholder engagement	Data management	Land use and development planning
	Innovation and/or business Development	Infrastructure planning/ Asset management
	Integrated resource planning	

[23] IESO. Engagement Initiatives [Webpage]. Accessed 2019, March 20. Retrieved from: http://www.ieso.ca/en/Sector-Participants/Engagement-Initiatives

Overview of Actions

Table 3 – Overview of actions to enhance engagement and plan review

Actions	Outcomes	IESO	LDCs	Natural Gas Utilities	Local Governments
Action 1 Create a contact list for each energy planning organization Key Considerations Relevant individuals to be listed may hold positions in: a. Local Governments: community energy planning, land use planning or development, environment or sustainability, corporate energy management b. Electric and Gas Utilities: conservation and demand management, demand side management, distribution planning or asset management, data management c. IESO: Regional planning, CDM/program planner for municipal sector, and ICI program planner for municipal purposes, consultation person	Facilitate and simplify ongoing engagement	✓	✓	✓	✓
Action 2 Convene energy planning organizations with the specific purpose of mutual understanding Key Considerations One organization should be assigned to take the lead act as a convening coordinator Meetings should be planned to occur regularly (ex. quarterly, semi-annually depending on the level of need)	Stronger trust between organizations Platform is created to discuss future planning alignment opportunities	✓	✓	✓	✓
Action 3 Incorporate participation of utilities and the IESO in local governmental community energy planning and other planning processes Key Considerations Beyond community energy planning, consider also including utilities and the IESO during growth planning and development processes.	Improved understanding of growth and development to support avoided cost infrastructure planning				✓
Action 4 Facilitate local government participation in utility and IESO energy planning processes Key Considerations Consider tailoring messaging and education to be accessible for local governments who are less familiar with existing energy infrastructure planning processes Participation may also be enhanced by considering municipal processes such as political cycles and approval or review processes, as well as continuing efforts to build capacity of non-energy expert staff	Greater institutionalization of local government participation and perspectives in broader energy planning	✓	✓	✓	

2. IDENTIFY AND CONVERGE AROUND COMMON OBJECTIVES

Background

Each organization has a unique mandate and set of priorities and objectives that guide their respective planning processes. For the IESO, LDC and natural gas utilities, mandates and objectives are set or heavily influenced by the provincial policy and regulatory framework.

Between organizations there are gaps in the understanding of functions and objectives primarily due to the historically siloed nature between some organizations, the novelty of localized and integrated planning processes, and changing provincial policy. Organizations assume that others' priorities are either aligned with, at odds with, or are of lesser importance to their own.

Enhanced engagement between organizations creates a space to establish a mutual understanding of each organization's objectives and priorities, as well as identify those that are held in common. It also allows for a dialogue around actions or priorities that are, or appear to be, at odds with each other, and to co-create solutions to address challenges that may arise as a result.

Throughout the workshops, participants gained a stronger understanding of each organizations' functions, and realized they are not mutually exclusive from their own. They also recognized that there is often a high degree of interrelation, both within an organization's priorities (e.g. energy spending can be reduced while also reducing GHG emissions, both of which are common goals of local governments), and between organizations'

priorities (e.g. improving cost effectiveness of infrastructure investments - a common goal of utilities and the IESO - can reduce energy spending in a community over time).

Recognizing that each community and/or region will vary, the priorities of each organization type are broadly summarized in Table 4 below.

Table 4 – List of general priorities of energy planning stakeholders.

IESO	Electric Utilities	Natural Gas Utilities	Local Government
Energy supply (hourly, annual kW demand)	Overall energy savings (kWh/year)	Overall energy savings (m^3 of natural gas / year)	Energy spending within the community ($'s spent or $'s retained in the local community)
Cost effectiveness ($'s invested) - regional/province wide perspective	Reliability of delivery (# and duration of interruptions)	Cost effectiveness (increased value for $'s invested)	Greenhouse gas (GHG) emissions (annual or per capita CO_2e)
	Cost effectiveness (increased value for $'s invested)	Peak demand (m^3 of natural gas at peak hour)	Public health/air pollution (micrograms/ m^3 of particulate matter)
		Innovative solutions	Community resilience
			Social wellbeing

Steps for Implementation

ACTION 1: IDENTIFY AND EMBED SHARED KEY PERFORMANCE INDICATORS (KPIs) INTO ENERGY PLANNING PROCESSES

Linking energy planning activities to a broader set of objectives, including from other organizations, can improve the salience of activities to a wider variety of decision-making or community audiences. This can serve to build resilience to political change and improve the social license for actions. For example, some of the participating local governments found that focusing their engagement messaging on resiliency and economic benefits resonated more strongly with the public and their council than messaging related to climate change mitigation.

Organizations can best embed objectives through KPIs for planning processes. This can help ensure that co-benefits, or confounding impacts, are considered at the outset of planning activities. Some examples for shared KPIs can be found in parentheses in Table 4 above, and may include GHG emissions (tonnes of CO2e) or energy consumption (kWh or m3 of natural gas).

Additionally, organizations may also wish to use provincial or federal objectives or targets for economic development, reducing provincial energy costs, or GHG emissions, as a basis for converging objectives if they are important to the community.

Overview of Actions

Table 5 – Overview of opportunities for action to develop common objectives for cooperation.

Actions	Outcomes	IESO	LDCs	Natural Gas Utilities	Local Governments
Action 1 Identify an Embed shared key Performance Indicators (KPIs) into energy planning processes Key Considerations Consider how provincial or federal objectives might be used and modified to better fit community contextmunicipal purposes, consultation person	Proactive consideration of co-benefits and impacts Identification of misalignments and how they can be minimized or addressed Increased social license and resilience to political change	✓	✓	✓	✓

3. INCREASE FOCUS ON PEAK DEMAND

Background

Addressing peak demand for energy, whether electricity or natural gas, is a specific example of how organizations can converge around a common objective. Actions to decrease peak electrical demand, such as demand response programs, may reduce GHG emissions and energy spending by reducing the need for peaking generation, which tends to be more carbon-intensive and expensive.[24] Addressing peak electrical demand can also defer or erase the need for future distribution and transmission infrastructure upgrades, and thus improve the value of existing infrastructure investments.

However, participants in the workshop noted that some actions that work toward other objectives have the potential to increase peak demand. While decreasing overall energy consumption often coincides with a decrease in peak demand, the implementation of smart thermostats, for example, may lead to overall energy savings but increase the winter peak for natural gas.[25] Similarly, electrification of vehicles may reduce GHG emissions, but increase electrical peak demand if policies/pricing are not put in place to encourage charging at off-peak times.

Currently, peak demand for energy is generally not considered in community energy planning, or conservation and demand management or demand-side management planning.[26] Actions therefore run the risk of unintentionally increasing peak demand and have the potential to increase supply and infrastructure needs, costs, and greenhouse gas emissions.

[24] IESO. Planning and Forecasting - 2018 Technical Planning Conference Presentation. 2018, September 13. Retrieved from: http://www.ieso.ca/en/Sector-Participants/Planning-and-Forecasting/Technical-Planning-Conference

[25] Regular thermostats keep homes warmer at night and thus require less gas for the 'morning lift' (i.e., raising the temperature of homes to the desired temperature in the morning), whereas smart thermostats allow homes to become colder at night, requiring more heating to raise the temperature to the desired temperature.

[26] The absence of peak demand consideration in CDM and DSM planning is largely a consequence of the regulatory framework that they operate under, which provides no direct incentive for reducing peak demand

Steps for Implementation

ACTION 1: EDUCATE LOCAL GOVERNMENTS ON IMPACTS OF PEAK DEMAND INCREASES ON SYSTEM (EX. ENERGY/INFRASTRUCTURE COSTS)

Peak demand for electricity and natural gas are interrelated with many local government objectives. However the significance of peak demand, both to local government objectives and more broadly, is not well understood. Efforts to educate local government staff about peak demand, and its significance in energy systems, will help ensure capacity exists to embed peak demand into CEPs.

ACTION 2: CONSIDER PEAK DEMAND WHEN ASSESSING CEP ACTIONS

Increasing the focus of municipal CEPs on peak demand, such as including it as a key performance indicator or having a reduction objective, can not only support the achievement of other CEP objectives such as reducing GHG emissions resulting from natural gas electricity peaker plants, but also support the objectives of the IESO and utilities.

ACTION 3: CONSIDER IMPACTS ON PEAK BETWEEN DIFFERENT FUELS

While off-peak electricity (i.e. nighttime baseload) should be considered as a low-carbon energy source when developing and modelling fuel switching options in GHG reduction initiatives, some initiatives may have unintended impacts. A holistic assessment of peak demands for energy - both electricity and natural gas - is needed to ensure converse impacts can be mitigated.

ACTION 4: CONSIDER HOW AVOIDED COST PLANNING MAY BE INTEGRATED INTO CDM OR DSM PLANNING

The current regulatory framework for CDM and DSM planning does not explicitly incent reducing peak demand, only overall consumption. However utilities would benefit from considering it as a form of avoided cost planning when deciding on CDM or DSM programs to implement. Further exploration of how this may be done will ensure programs better support cost effectiveness objectives of distribution system planning.

Overview of Actions

Table 6 – Overview of opportunities for action to develop common objectives for cooperation.

Actions	Outcomes	IESO	LDCs	Natural Gas Utilities	Local Governments
Action 1 Educate local governments on impacts of peak demand increases on systems (ex. energy/ infrastructure costs)	Increased understanding of what electricity use results in increased GHG/air pollutant emissions and infrastructure/ supply	✓	✓	✓	
Action 2 Integrate peak demand into CEPs	Increased understanding of the benefits and challenges of fuel switching				✓
Action 3 Consider impacts on peak between different fuels	Improved understanding of growth and development to support avoided cost infrastructure planning	✓		✓	✓
Action 4 Consider how avoided cost planning may be integrated into CDM or DSM planning. Key Considerations While the regulatory framework for CDM and DSM planning may not explicitly incent reducing peak demand, considering it as a form of avoided cost planning when deciding on programs to implement may ensure programs are better aligned with cost effectiveness objectives of distribution system planning	Enhanced distribution system benefits from CDM and DSM programming		✓	✓	

4. IMPROVE DATA SHARING AND ASSUMPTION CONSISTENCY

Background

Data is foundational for energy planning processes. It provides information on the energy needs of a community or local area, and guides the decision making process on the most suitable actions to address those needs. However, each organization has access to different primary data sets (ex. energy use), and this information is often used in combination with data collected from other stakeholders. Collecting data from other stakeholders imposes significant temporal and monetary costs for organizations, either delaying or prohibiting planning efforts.

Modelled data is also used to inform planning, though approaches between organizations can vary. There is often a poor understanding of the methodologies and assumptions that are used by each organization. As a result, there is no visibility into why discrepancies in modelling outputs exist, and how modelling can be adjusted if it is needed.

Limited collaboration between organizations is a barrier to making data and assumption sharing efforts more efficient. This is exacerbated by privacy issues and limitations on sharing data obtained from third parties (such as property data from Municipal Property Assessment Corporation, MPAC).

Steps for Implementation

ACTION 1: DISCUSS ENERGY PLANNING DATA NEEDS AND BARRIERS TO DATA SHARING

Organizations should first seek to understand what data is used in energy planning processes, where it comes from, who uses it, and how it is used. This will ensure each organization is aware of what data they may be requested to share, and how efficiencies in collecting data might be improved. A broad overview of some data inputs used by each organization can be found in Table 7 below.

While this table can provide a basis for general understanding, organizations should engage with one another to more clearly understand what data is specifically being collected within the community (or is intended to be collected), for what purpose, and any challenges that might be associated with data sharing.

Table 7 – Overview of select energy planning data used, and its sources, by organization

Stakeholder	Data Used	Data Source	Usage Notes
IESO	Electric Demand - historical peak demand, weather (temperature), future peak demand forecasts	Meters, electric utilities (needs assessments, local achievable potential studies), increasingly local governments	Used for determining short-, medium- and long-term infrastructure needs, increasingly non-wires alternatives.
	Local Resources - existing and committed local generation (renewables, energy storage, combined heat and power, etc)	Electric utilities, contracts	For determining short-, medium- and long-term electricity needs for the region
	Criteria and Codes - Ontario Resource and Transmission Assessment Criteria, NERC and NPCC reliability criteria, OEB Transmission System Code, OEB Distribution System Code	Corresponding regulating entity	Framework for identifying needs relating to reliability and load security criteria
	End-of-life Asset Information	Transmitter	For consideration in both needs identification and options analysis
Electric Utilities	Electricity Consumption - by sector and CDM program	Self	Used for CDM programming. NAICS codes used to classify commercial and industrial uses, as well as energy profile and rate class.
	Infrastructure Assets - age and/or health	Self	Used to balance proactive and reactive spending in distribution system renewal planning.
	Property	MPAC	Used in distribution planning.
Natural Gas Utilities	Natural Gas Peak Demand - bi-monthly, annual	Self	Used in twenty-year forecasts for distribution system planning. Uses analysis zones that contain approximately 4,000-5,000 people for spatial data aggregation.
	Land Use - population growth projections, building permits/ development proposals	Local government planning department (land use plans)	Used in forecasts and demand outlooks.
	Infrastructure Assets - existing infrastructure	Self	Used for least-cost planning to prioritize station/pipe optimization over new infrastructure
	Property	MPAC	Used in distribution planning.
Local Governments	Electricity and Natural Gas Consumption - annual, by sector and/or spatial distribution	Electric and natural gas utilities	Used in community energy and emissions inventorying, programming, and mapping/ modelling. Spatial aggregation typically collected at the municipal-boundary or five-digit postal code level.
	Fuel Sales - non-natural gas fuels	Kent Group	Used in community energy and emissions inventorying for non-natural gas fuels. Often contribute only a small proportion of energy use in grid-connected communities.
	Traffic and/or Car Ownership	Ministry of Transportation	Used as a proxy for transportation consumption data and electrification modelling

Stakeholder	Data Used	Data Source	Usage Notes
Local Governments (cont'd)	Property - floor area per unit	Municipal Property Assessment Corporation (MPAC)	Used in combination with energy consumption data to enhance programming and mapping/modelling.
	Land Use - zoning, population growth projections	Local government planning department (land use plans)	Used in community energy and emissions mapping/modelling.

ACTION 2: DEVELOP A MECHANISM TO ADDRESS PRIVACY CONCERNS FOR SENSITIVE DATA

Local governments universally collect and use electricity and natural gas consumption data from utilities as a primary component of community energy planning. This is performed regularly for community inventorying purposes. Discussing privacy concerns and applying aggregation methodologies occurs in a lengthy ad hoc fashion for electricity as there is no established standard for the format that consumption data is shared. A standard should be developed to ensure an efficient process for electricity consumption data sharing which might draw on an example set by Enbridge Gas (formerly Union Gas).[27]

ACTION 3: EXPLORE NAICS-BASED AGGREGATED FORMAT FOR COMMERCIAL/INDUSTRIAL ENERGY USE

Postal code aggregation provides a useful granularity of residential consumption data for community energy planning purposes. However, privacy concerns for large commercial/industrial energy users often requires energy use data to be aggregated to a level that is too coarse (i.e. covering too large of an area) for targeting initiatives. One local government is exploring the North American Industry Classification System (NAICS) for commercial/industrial aggregation, which is also what is used by electric utilities.

ACTION 4: EXPLORE COLLECTIVE PURCHASING/ SHARING OF MPAC DATA

One type of data that is consistently used by local governments and utilities, at a high monetary cost, is property data. Currently, each stakeholder individually purchases data from the Municipal Property Assessment Corporation (MPAC). While there are restrictions on how that data might be shared directly with other stakeholders, other opportunities for efficiencies of scale should be explored. This might include collective purchasing of MPAC data for an entire region by local governments within it, and/or how data might be transformed sufficiently (while remaining useful) to allow for sharing.

ACTION 5: PUBLICLY DISCLOSE ALL METHODOLOGIES AND ASSUMPTIONS USED IN MODELLING AND CALCULATIONS

While the data collected and used by stakeholders can directly measure specific stakeholder objectives (such as energy consumption or peak demand), other objectives may require data transformations to understand their impacts (such as for energy consumption into GHG emissions or energy spending, or peak demand and infrastructure costs). Stakeholders should ensure methodologies and assumptions used are available, ideally publicly, to enable more consistent modelling.

[27] Information on Union Gas' approach can be found here: https://www.uniongas.com/business/your-business/government/energy-planning/accessing-data

Overview of Actions

Table 8 – Overview of opportunities for action to improve data sharing and assumption consistency.

Actions	Outcomes	IESO	LDCs	Natural Gas Utilities	Local Governments
Action 1 Share information across stakeholders on inputs that are used within their energy planning processes, what key questions are being asked, and the issues that may exist to the sharing of data across stakeholders	Each stakeholder has a better understanding on access to inputs and the feasibility of or barriers to sharing inputs.	✓	✓	✓	✓
Action 2 For data that is able to be shared but privacy issues need to be addressed, develop a mechanism to do so such as establishing community-wide and postal code-based aggregated formats for electricity use Key Considerations Consider using the format adopted by Enbridge Gas for sharing community consumption data	Reduced burden for preparing data; reduced time for collecting/ analyzing data		✓		✓
Action 3 Establish NAICS-based aggregated format for commercial/industrial energy use Key Considerations Consider using existing NAICS aggregation used internally by electric utilities as a basis	Reduced burden for preparing data; reduced time for collecting/ analyzing data; increased ability for LGs to program for commercial/ industrial initiatives		✓	✓	✓
Action 4 Explore collective purchasing/sharing of MPAC data	Reduced cost / burden for LGs; could be transformed for utility use				✓
Action 5 Publicly disclose all methodologies and assumptions used in modelling and calculations	Consistency in data that informs decision-making; ability to re-adjust and increase the sophistication of existing modelling	✓	✓	✓	✓

5. COLLABORATE ON ENERGY MAPPING

Background

Local governments use the spatial data they have access to (Table 7) to create community energy maps, which provide a spatial representation of energy use, existing energy generation, and potential energy generation in a community. These maps are often used as a public engagement tool during the development of a CEP.

While the use of community energy maps has been primarily limited to public engagement purposes, workshop participants agreed that energy mapping can and should be enhanced as a powerful collaboration and decision-making tool between organizations.

For instance, LDCs and natural gas utilities could improve the effectiveness of their conservation and demand management programs by participating in community mapping exercises. The IESO and LDCs could also leverage information from community energy maps for Achievable Potential Studies.[28]

Overlaying land use, energy use, and energy infrastructure datasets into a community energy map opens the opportunity to enhance CDM and DSM programs, and target the siting of DERs for maximum system benefit. Participating organizations are currently exploring how to put this into practice using the steps outlined below.

[28] Achievable Potential Studies are triennially conducted, first commissioned in 2014 by the former OPA (now IESO) to inform electricity efficiency planning and programs (including the Conservation First Framework review, the Long-Term Energy Plan, and other short- and long-term planning and program design), that forecasts the achievable potential for electricity savings in residential, commercial, and industrial sectors province-wide and within LDCs' service areas. The Study also provides market characterization of key end uses of commercial lighting, refrigeration, and HVAC operations, residential home energy management systems, and industrial pump systems and process control optimization. Information and documents related to the Achievable Potential Study can be found at: http://www.ieso.ca/sector-participants/engagement-initiatives/%20engagements/completed/achievable-potential-study-ldc-working-group

Steps for Implementation

ACTION 1: IDENTIFY PRIORITIES OR CHALLENGES TO ADDRESS WITH MAPPING, AND CREATE AN INTEGRATED COMMUNITY ENERGY MAP

To scope the energy mapping exercise, organizations as a group should identify which common objectives to facilitate and/or challenges to address using spatial analysis, such as where to improve conservation programs, explore a demand response pilot, or site DERs such as energy storage or distributed generation, as well as the corresponding datasets required for the analysis. If there is a barrier to sharing or obtaining datasets, such as privacy or cost, the scope of the mapping analysis must be amended. Once the scope is determined and datasets are collected or shared, one organization should be tasked to produce an integrated community energy map.

ACTION 2: CONVENE STAKEHOLDERS FROM EACH ORGANIZATION AROUND THE COMMUNITY ENERGY MAP

Once the map has been created, organizations should convene a meeting (or set of meetings) to review the map and collectively identify opportunities that support the mapping objective, as well as considerations not captured in the map. Table 2 can be used to ensure each meeting involves appropriate representation from all departments with knowledge and/or decision making capacity.

In communities with high-growth areas or demand change, organizations should reconvene periodically, at a frequency determined by the group. Results from the meetings should be integrated as inputs into each organization's planning processes.

Overview of Actions

Table 9 – Overview of opportunities for action to improve data sharing and assumption consistency.

Actions	Outcomes	IESO	LDCs	Natural Gas Utilities	Local Governments
Action 1 Identify list of opportunities or challenges to address using energy mapping and create an integrated community energy map Key Considerations Identify any barriers to data access, such as privacy or cost, and amend mapping scope as required		✓	✓	✓	✓
Action 2 Convene organizations around an integrated community energy map to spatially target projects and programs	Enhanced CDM or DSM programs More proactive consideration of distributed energy opportunities to maximize infrastructure investments Enhanced opportunities to meet objectives	✓	✓	✓	✓

6. LEVERAGE INCENTIVES AND FINANCIAL MECHANISMS

Background

A commonly noted challenge raised by all workshop participants is finding the dollars to invest in projects for plan implementation, particularly for DERs and scaling-up conservation and demand management programs. In an ongoing study on barriers to these initiatives,[29] the IESO acknowledged a need to better assess the costs and benefits of DERs to the electricity system. The OEB's Stakeholder Advisory Group on Innovation came to similar conclusions, and made recommendations to the Board to "establish an empirical evaluation methodology for cost-benefit comparison" for innovative solutions.[30]

Though addressing market, and provincial-level policy change is out of scope of this project, there are a number of existing sources of funding and/or financial mechanisms available to local governments and utilities that can be leveraged to support the implementation of projects and programs that provide value to all organizations, such as those listed in Table 10.

[29] More information on the Barriers to Implementing Non-Wires Alternatives in Regional Planning study can be found at: http://www.ieso.ca/en/Sector-Participants/Engagement-Initiatives/Engagements/Regional-Planning-Review-Process

[30] Ontario Energy Board Advisory Committee on Innovation. Actions the OEB can take to advance innovation in Ontario's energy sector. 2018, April. Retreived from: https://www.oeb.ca/sites/default/files/Report-of-the-Advisory-Committee-on-Innovation-20181122.pdf

Table 10 – Sample of funding and finance opportunities to implement CEPs available to each organization

Local Governments[31]	Electric and Natural Gas Utilities
Development Charges Development charges may be designed in a way to encourage greater intensification in an area	**CDM/DSM program funding** Electric and natural gas utilities have approved budgets to allocate to specific conservation and demand management programs by energy-use sector, including large industrial, residential, and low income consumers
Local Improvement Charges (LIC) LICs are used when a local government wants to provide a new service to one or more private properties. The local government pays for the improvements and arranges for the work to be carried out. An LIC is assessed for the cost of the work and assigned to each property that benefits from the improvement. A set portion of the LIC is paid through an additional charge on top of the local government tax over a set number of years by the owner of the property	**On-bill financing** A program offered by a utility in which the utility finances the capital costs of energy efficiency or renewable energy improvements on a customer's property, and the customer pays a surcharge on their utility bill until the utility recovers the costs of the investment. These payments are a portion of the demonstrated energy savings, meaning the customer will see the remainder of those savings and none of the up-front costs. The improvements and the payments are associated with the energy meter on the property, regardless of whether or not the original customer sells the property, which ensures the utility will recoup its investments.
Public Private Partnerships P3s are financing arrangements that increase the involvement of the private sector in public service delivery, and transfer some risk and reward to the private sector. P3s for projects range from minimal private involvement (ie providing a service) to more comprehensive involvement (e.g., building and operating a facility)	**Equipment Leases** Users of specialized energy equipment systems financed with this mechanism pay a lease fee to an organization (in this case a utility) which owns and services the equipment
Tax Assistance/Tax Incremental Financing In areas covered by a Community Improvement Plan (CIP), local governments could cancel or defer municipal property tax (tax assistance); or provide financial assistance equal to all or a portion of the municipal property tax increase (increment) following the completion of a project, which has resulted in an increase in the assessed value of a property.	

Steps for Implementation

ACTION 1: CREATE A MATRIX TO IDENTIFY ALL OPTIONS FOR FUNDING AND FINANCING INITIATIVES

Once organizations have improved engagement, identified common objectives, and identified opportunities to site initiatives that meet those objectives, creating a matrix of funding and financing options will help each organization have a better understanding of the options available, and help prioritize projects for implementation that have a stronger business case or greater chance of being funded.

ACTION 2: SHARE LESSONS LEARNED FROM PILOT PROJECTS AND STUDIES, AND IDENTIFY OPPORTUNITIES FOR NEW PARTNERSHIPS

Many organizations are already exploring new approaches to funding and developing projects and programs, but lessons-learned from these initiatives are not shared with one another. This is critical knowledge that can be shared to help ensure decision-makers from other organizations are well- informed, and can better decide how initiatives might best be funded in the future. For instance, local governments have less familiarity with implementing community-wide financial mechanisms (such as LICs) for energy efficiency initiatives. Utilities could share their experiences on the implementation of tools such as on-bill financing, or partner with local governments to deliver these programs, as energy savings generated by such programs would help utilities meet their CDM or DSM objectives.

[31] Summary of tools available to local governments from QUEST. Community Energy Planning in Ontario. 2016, May. Retrieved from: https://questcanada.org/community-energy-planning-in-ontario/

Overview of Actions

Table 11 – Overview of opportunities for action to leverage incentives and financial mechanisms

Actions	Outcomes	IESO	LDCs	Natural Gas Utilities	Local Governments
Action 1 Create a matrix to identify all options for funding and financing initiatives	Organizations gain a more comprehensive understanding of tools to help match projects to the right financial options. Increased likelihood of project implementation	✓	✓	✓	✓
Action 2 Share lessons learned from pilot projects and studies, and identify opportunities for new partnerships	Decision makers at each organization are better informed Increased likelihood of project implementation	✓	✓	✓	✓

APPENDIX A – ENABLING POLICIES

The following is a summary of relevant policies that reflect an increased interest in integrating local and provincial energy planning activities within Ontario. At the time of the publication of this report, a number of these plans, policies, and regulations are under review and subject to change.

THE PLACES TO GROW ACT, 2005 AND THE GROWTH PLAN FOR THE GREATER GOLDEN HORSESHOE, 2017

The Places to Grow Act[32] was developed in 2005 to designate growth centres across Ontario and is used as the foundation of the Growth Plan for the Greater Golden Horseshoe, developed in 2006 and updated in 2017.[33] This plan contains population, employment, and density targets for 25 growth centres in Ontario, as well as language that encourages municipalities to consider energy conservation in land use and transportation policies.

PROVINCIAL POLICY STATEMENT, 2014

The Ontario Provincial Policy Statement (PPS)[34] was updated in 2014 to encourage municipalities to include greater considerations for energy in land use decision making. The PPS encourages municipalities to pursue land use and transportation opportunities that improve energy efficiency and conservation, and to consider new energy supply opportunities at the local level.

ELECTRICITY ACT, 1998 (FORMER ONTARIO REGULATION 397/11)

In 2011, Ontario Regulation 397/11[35] was developed under the Ontario Green Energy and Green Economy Act, requiring municipalities as well as other public agencies in Ontario to prepare and implement energy conservation and demand management plans (CDM), and update them every five years. While the Green Energy Repeal Act, 2018 repealed the Green Energy Act, 2009, the reporting requirements were re-enacted in the Electricity Act, 1998 under Part II.3 Conservation and Energy Efficiency.[36] The plan should include a summary of the agency's annual energy consumption and greenhouse gas emissions for its operations and a summary of measures being undertaken to lower energy consumption. The regulation also requires public sector organizations to report annually on the energy use and greenhouse gas emissions from facilities.

ONTARIO MUNICIPAL ENERGY PLAN PROGRAM, 2013

In 2013, the Ontario Ministry of Energy launched the voluntary Municipal Energy Plan (MEP)[37] program to provide an incentive for local municipal governments and communities to develop energy and GHG inventories, engage in stakeholder consultations, and identify opportunities for conserving energy and improving energy efficiency. Successful applicants must demonstrate support from local electric and natural gas utilities and must demonstrate a commitment to stakeholder engagement. MEPs are expected to contain a detailed energy and emissions profile, energy conservation opportunities, and local energy generation opportunities.

ONTARIO'S LONG-TERM ENERGY PLAN, 2018

In 2018, the Ontario Ministry of Energy released the Ontario Long-Term Energy Plan.[38] This Plan emphasizes community engagement in the energy planning process in determining cost effective, reliable and clean sources of energy. Some of the key elements of this updated plan include an emphasis on renewable energy, combined heat and power (incl. district energy), energy innovation (e.g. smart grid, advanced storage technology) and enhanced regional planning.

CONSERVATION FIRST FRAMEWORK

In 2015, the IESO began implementation of the 2015-2020 Conservation First Framework.[39] This framework requires local electric distribution companies to develop six-year Conservation and Demand Management (CDM) Plans. Through this program, local distribution companies will collectively work to reduce electricity consumption by 7 terawatt-hours by the end of 2020.[40]

[32] https://www.placestogrow.ca/index.php?option=com_content&task=view&id=4&Itemid=9
[33] https://www.placestogrow.ca/index.php?option=com_content&task=view&id=4&Itemid=14
[34] http://www.mah.gov.on.ca/AssetFactory.aspx?did=10463
[35] http://www.e-laws.gov.on.ca/html/source/regs/english/2011/elaws_src_regs_r11397_e.htm
[36] https://www.ontario.ca/laws/statute/98e15
[37] https://www.ontario.ca/page/municipal-energy-plan-program
[38] https://www.ontario.ca/page/ontarios-long-term-energy-plan
[39] http://www.ieso.ca/sector-participants/conservation-delivery-and-tools/conservation-first-framework
[40] http://www.ieso.ca/sector-participants/conservation-delivery-and-tools/conservation-first-framework

PROJECT SUPPORTERS