

## Document 2: Summary of Short-Term Actions, Energy Evolution: Ottawa’s Community Energy Transition Strategy, Phase 1

The following short-term actions were identified by stakeholders during a series of targeted workshops held at City Hall from June to August, 2017. Stakeholders were invited to participate in these workshops based on their perceived sector expertise as well as their organization’s ability to undertake projects or initiatives within one or more of the Energy Evolution “Pathway” analyses (e.g., Solar, Wind and Water Power; Biogas; Heat Pumps; etc.). Workshop participants were given the opportunity to select potential project recommendations from an existing list prepared by Leidos Canada or to propose new actions not featured on the list. In both cases, participants were instructed to identify projects they perceived to be the most “*actionable*”—that is, projects with relatively low barriers to implementation that could be undertaken within the next three years (2017-2020). Each proposed action was then reviewed by the Energy Evolution project team to assess the action’s potential contribution to the eight Energy Evolution project goals. The table below therefore represents stakeholder-identified actions that have been assessed and refined by City staff where applicable.

#	Action	Timeframe	Lead	Project Readiness	Contribution to Energy Evolution Goals <sup>1</sup>	Resource Requirements <sup>2</sup>
<b>Solar, Wind and Water Power</b>						
1	Develop a framework for virtual net-metering (VNM) in collaboration with Hydro Ottawa	2017-2018	Hydro Ottawa, City of Ottawa (PIED)	<ul style="list-style-type: none"> <li>• The Independent Electricity System Operator is expected to issue a ruling on future VNM opportunities in late 2017</li> <li>• Hydro Ottawa is aware of the City’s interest in pursuing a VNM framework within its service area and is currently advancing discussions internally</li> </ul>	2, 3, 4, 5, 7, 8	Existing

<sup>1</sup> See Section 3.2 Community-Approved Vision and Approach.

<sup>2</sup> Identifies whether “*Existing*” City resources will be allocated or if “*Additional*” City resources are required to implement the Short-Term Action. “*Existing/Additional*” indicates that existing City resources are to be allocated for review, investigation and further development or refinement of the Action, and that additional City resources are required for implementation. “*Existing/Community*” indicates that existing City resources are to be allocated to facilitate dialogue and the sharing of information in support of the Action, and that community resources are required for implementation. “*External Funding*” indicates that funding opportunities external to the community (e.g., senior government funding programs) will be pursued to advance or implement the Action.

2	Build an 11-megawatt (MW) solar park at the Trail Road Waste Facility (to offset the annual electricity consumed by 25 City library facilities)	2019-2020	City of Ottawa (PIED/BEEM), Energy Ottawa	<ul style="list-style-type: none"> <li>• This project may be contingent upon the establishment of a VNM framework with Hydro Ottawa (Action #1)</li> <li>• Plans for the 11 MW solar park have already been designed and prepared by Energy Ottawa</li> <li>• Construction of a large solar park at the Trail Road Waste Facility has been deliberated and approved by two separate terms of Council</li> <li>• Council has declared three parcels of land required for the project as surplus to the City's needs</li> <li>• Under the current provincial framework, the City may need to finance, build and own the solar energy system itself as opposed to entering into a lease agreement with a third party, such as Energy Ottawa</li> <li>• Costs associated with this project are significant but could be offset considerably through the annual electricity consumption of 25 City library facilities at roughly 18,100,000 kWh of electricity generated by the solar park each year. This project is eligible for up to \$10 million in grant funding through the provincial Municipal GHG Challenge Fund, for example</li> </ul>	2, 3, 5, 7, 8	Additional/ External Funding
3	Pilot a small-scale virtual net metering project where the VNM credits can be purchased by one or more organization	2018-2020	Ottawa Renewable Energy Coop (OREC)	<ul style="list-style-type: none"> <li>• This project is contingent upon the establishment of a VNM framework with Hydro Ottawa (Action #1)</li> </ul>	2, 3, 4, 5, 7, 8	Existing/ Community
4	Build a 500-kilowatt (kW) mini-hydropower system at the Burritts Rapids dam	2017-2020	Burritts Rapids Renewable Energy Association (BRREA)	<ul style="list-style-type: none"> <li>• This project may be contingent upon the establishment of a VNM framework with Hydro Ottawa (Action #1)</li> </ul>	2, 3, 4, 5, 7, 8	Existing/ Community

				<ul style="list-style-type: none"> <li>• A detailed engineering feasibility study conducted at the dam site by Genivar Inc. (now WSP Global Inc.) in 2013 found the project to be feasible from an engineering perspective</li> <li>• BRREA obtained preliminary permission via Survey Permits from Parks Canada to use the waterway and dam for a small hydro generation station as part of a previous submission to the provincial Feed-in-Tariff (FIT) program. Parks Canada has indicated it is open to renewing these permits as part of future project developments</li> <li>• BRREA has partnered with a hydropower project developer, Equinox Hydro Inc., to form Burritts Rapids Hydro Inc.</li> <li>• City Council approved a Municipal Council Support Resolution for the project in October 2016 in the context of the FIT program (version 5.0).</li> <li>• Next steps include completing an Environmental Assessment for the project and finalizing the project design</li> </ul>		
5	<p>Convene stakeholders from the development industry and renewable energy sector to facilitate dialogue and solutions for making grid connections easier (e.g., addressing grid capacity and constraints, identifying opportunities to integrate renewable energy in new developments, etc.)</p>	2018	<p>City of Ottawa (PIED)</p> <p>Support: Hydro Ottawa</p>	<ul style="list-style-type: none"> <li>• There are little or no barriers to implementation for this action</li> </ul>	1, 2, 3, 4, 5, 6, 7, 8	Existing

**Biogas and Heat Pumps**

6	Undertake a technical and economic analysis to assess current as well as leading-edge practices for the production and utilization of biogas at the Robert O. Pickard Environmental Centre and in other relevant municipal applications (e.g., collection and treatment of household organics, potential for CNG fleet vehicles, etc.). Develop and issue a Request for Information (RFI) or Expression of Interest (EOI) to gather information on commercially-viable products and companies with expertise in biogas and renewable natural gas	2018-2019	City of Ottawa (PIED)	<ul style="list-style-type: none"> <li>• This project may be eligible for grant funding (up to 80 percent of total costs to a maximum of \$175,000) from FCM's Municipalities for Climate Innovation Program. Applications are accepted year-round until January 31, 2020</li> <li>• A preliminary scope of work has already been prepared for the study</li> <li>• Staff at ROPEC believe it would be worthwhile to examine the feasibility of converting digester gas (biogas) into renewable natural gas</li> </ul>	1, 2, 3, 5, 7, 8	Existing/ External Funding
7	Undertake a scan of propane-fueled municipal buildings where existing heating equipment is due for replacement. Use Natural Resources Canada's RETScreen software to assess and identify facilities that can economically be converted from propane to biomass (i.e., wood pellet) heating systems	2017	City of Ottawa (BEEM) Support: Ontario Ministry of Agriculture, Forestry and Rural Affairs, CanmetENERGY	<ul style="list-style-type: none"> <li>• Staff from CanmetENERGY (Natural Resources Canada) are available to support City staff in undertaking RETScreen analyses</li> <li>• Staff from OMAFRA are available to support City staff in identifying and pursuing relevant external funding programs</li> <li>• There are little or no barriers to implementation for this action</li> </ul>	2, 5, 7	Existing
8	Investigate the opportunity to develop a Community Improvement Plan (CIP) in a rural area of the city to promote fuel switching (e.g., propane to biomass heating systems) and to stimulate economic development	2018	City of Ottawa (PIED) Support: Ontario Ministry of Agriculture,	<ul style="list-style-type: none"> <li>• The provincial Ministry of Environment and Climate Change is expected to announce details of its Wood Stove Exchange Program in October 2017. The program will likely offer rebates or incentives to support rural residents with the replacement of low-</li> </ul>	2, 4, 5, 6, 7, 8	Existing/ External Funding

			Forestry and Rural Affairs	<p>efficiency wood stoves and fossil fuel heating systems</p> <ul style="list-style-type: none"> <li>• Opportunities to promote fuel switching and biomass heating systems in rural areas are likely available through the federal government's Green Infrastructure Phase II – Promoting Clean Energy for Remote Communities program. A Request for Proposals is anticipated in late fall 2017</li> </ul>		
9	Seek opportunities to expand rebate programs for air-source heat pumps. Current programs could be expanded to include all types of fossil fuel heating (e.g., propane, oil, natural gas) and could provide rebates for new buildings as well as retrofits	2020	City of Ottawa (PIED/BEEM), Hydro Ottawa or other	<ul style="list-style-type: none"> <li>• Hydro Ottawa currently offers rebates for electrically heated homes, including up to \$4,000 to upgrade electric furnaces or baseboards to air source heat pumps</li> </ul>	1, 2, 3, 4, 5, 7	Existing/ Community
10	Undertake an economic analysis to determine the feasibility of integrating air-source heat pumps into City facilities currently heated by natural gas	2017	City of Ottawa (BEEM)	<ul style="list-style-type: none"> <li>• There are little or no barriers to implementation for this action</li> </ul>	1, 2, 3, 7	Existing
11	Implement the Ottawa Community Housing ECO <sup>2</sup> Plan to pilot green energy technologies and programs that benefit OCH tenants, the city and the environment. Continue to aim for the highest, most financially feasible energy performance in new affordable housing developments by taking inspiration from leading energy certifications like the Passive House standard	2017-2020	Ottawa Community Housing (OCH)	<ul style="list-style-type: none"> <li>• OCH recently partnered with the Carlington Community Health Centre to build a new Health Hub for seniors—a four-storey building with a ground-floor health clinic and 40 units for seniors housing above. Currently under construction, the project is being built to Passive House standards and will use approximately 85 percent less energy compared to a typical building of similar size</li> <li>• OCH intends to apply for provincial funding earmarked for improving energy efficiency in Ontario's social housing sector</li> </ul>	1, 2, 3, 6, 7, 8	Community

12	Develop a training manual or reference document for developers on how to integrate low-carbon thermal energy systems into new buildings	2019-2020	City of Ottawa (PIED/BEEM)	<ul style="list-style-type: none"> <li>The City has experience developing a variety of guidelines for developers, including urban design guidelines, etc.</li> </ul>	1, 2, 3, 6, 7, 8	Existing
13	Consider opportunities to integrate geothermal systems in the design and allocation of park space in new City parks, and update policies where required	2019-2020	City of Ottawa (PIED/RCFS)	<ul style="list-style-type: none"> <li>Criteria will be need to be established to determine where and under what circumstances this could happen.</li> </ul>	2, 3, 4, 6, 7, 8	Existing
14	Work with a developer and possibly a district energy specialist or a natural gas or electricity distributor to develop a ground source heating system in a new subdivision	2019-2020	City of Ottawa (PIED) / TBA	<ul style="list-style-type: none"> <li>There are several developers and home builders in Ottawa with expertise in low-carbon housing. The “Beaver Barracks” located at 464 Metcalfe Street is one example of a sustainable housing development that incorporates geothermal heating. Similarly, the <i>Arcadia</i> community in Kanata includes five homes that incorporate air-source heat pump technology</li> </ul>	1, 2, 3, 4, 6, 7, 8	Existing/ Community
15	Advocate for the return of federal or other incentives to support ground source heat pumps, such as those previously available through the ecoENERGY program	2018	City of Ottawa (PIED)	<ul style="list-style-type: none"> <li>There are little or no barriers to implementation for this action</li> </ul>	2, 3, 4, 7	Existing
<b>District Energy</b>						
16	Advocate to provincial government for a low-temperature design standard as part of the Building Code amendments	2017-2020 (Ongoing)	City of Ottawa (PIED)	<ul style="list-style-type: none"> <li>Many changes effecting renewable energy and conservation are being proposed.</li> </ul>	1, 2, 3, 4, 5, 8	Existing
17	Hook up cooling in City Hall to the district energy network in the short term and make plans for a heating hook-up.	2017-2019	City of Ottawa (BEEM)	<ul style="list-style-type: none"> <li>City Hall was built with provision for hook-up with a district energy system</li> <li>Some City Hall equipment is approaching its end of life and hook-up might avoid a capital expenditure</li> </ul>	1, 3, 6, 8	Existing

18	Develop a Memorandum of Understanding (MOU) between the City and the federal government to explore and encourage district energy connections in both new and existing City facilities	2017-2018	City of Ottawa (PIED, BEEM), Public Services and Procurement Canada (PSPC)	<ul style="list-style-type: none"> <li>•PSPC's Energy Services Acquisition Program is in the process of upgrading the central heating and cooling plants owned by the federal government in the National Capital Area (i.e., conversion from steam to hot water)</li> <li>•PSPC has expressed an interest in working with the City of Ottawa and Ville de Gatineau to expand its district energy systems to other buildings in the downtown area</li> </ul>	All	Existing
19	Develop a low-carbon district energy system that can be promoted as a high-priority economic impact project. This will generally be in a high growth node or corridor which includes district energy system installation and connections	2020	City of Ottawa (PIED), Enwave	<ul style="list-style-type: none"> <li>•This could be considered as part of TOD planning in a high density area of the City.</li> </ul>	1, 2, 3, 6, 7, 8	Existing/ Community
20	Undertake a scan of waste heat sources available for thermal use across Ottawa	2019	City of Ottawa (PIED)	<ul style="list-style-type: none"> <li>•This project may be eligible for grant funding (up to 80 percent of total costs to a maximum of \$175,000) from FCM's Municipalities for Climate Innovation Program</li> <li>•This project may be eligible for grant funding from the Ministry of Energy's Municipal Energy Plan Program</li> </ul>	1, 2, 3, 5, 7, 8	Additional/ External Funding
21	Investigate the requirements for access to the City's road right-of-ways for the purposes of district energy infrastructure	2018	City of Ottawa (PIED)	<ul style="list-style-type: none"> <li>•Criteria will be need to be established to determine where and under what circumstances this could happen.</li> </ul>	2, 3, 4, 6, 7	Existing
22	Consider opportunities for the installation of underground district energy infrastructure in the design and allocation of park space, and update policies where required	2019-2020	City of Ottawa (PIED/RCFS)	<ul style="list-style-type: none"> <li>•Criteria will be need to be established to determine where and under what circumstances this could happen.</li> </ul>	2, 3, 4, 6, 7	Existing

23	Advocate for Building Code amendments that require buildings of a certain size and location to be built to be compatible for future district energy connections	2017-2020 (Ongoing)	City of Ottawa (PIED)	<ul style="list-style-type: none"> <li>• Advocacy for a “district energy ready” requirement for new buildings</li> </ul>	2, 3, 4, 5, 6	Existing
24	Pilot a local community energy planning process where renewable energy generation and conservation can be integrated into different scales of the community	2019-2020	City of Ottawa (PIED)	<ul style="list-style-type: none"> <li>• Local community energy plans consider energy early in the land-use and infrastructure planning process for an area, and identifies opportunities to integrate local energy solutions at the building and neighbourhood-scale.</li> <li>• With local, Provincial and Federal GHG reduction targets already set, net zero is also becoming an inevitable reality in Ontario by 2030 (and net zero “ready” even earlier). Low carbon energy solutions will be imperative for new communities to consider energy planning as part of planning for communities at the neighbourhood and building scale.</li> <li>• Energy resilience including back-up power solutions can mitigate vulnerability to area-wide power outages in the case of extreme weather. Improved energy systems will also keep energy jobs and energy dollars in the community.</li> </ul>	All	Additional
<b>Electrification of Transport (Cars and Light Trucks)</b>						
25	Establish an Electric Vehicle Discovery Centre in Ottawa	2018	Plug ‘N Drive Support: City of Ottawa (PIED)	<ul style="list-style-type: none"> <li>• Plug ‘N Drive currently operates an EV Discovery Centre in Toronto. The Centre is the first of its kind in the world and focuses on providing an experiential learning environmental for EVs</li> <li>• Plug ‘N Drive can leverage observations and lessons learned from the Toronto model to inform</li> </ul>	5, 8	Existing/ Community

				<p>key decisions with regards to the centre's design, location and services in Ottawa</p> <ul style="list-style-type: none"> <li>• Plug 'N Drive has expressed an interest in working with the City to undertake this initiative and will seek access to provincial Cap and Trade funds to finance the facility</li> </ul>		
26	Continue to host Ottawa EV Day events and educational sessions to engage residents	2017-2020	EnviroCentre	<ul style="list-style-type: none"> <li>• The former Ottawa Centre EcoDistrict used to host an annual Ottawa EV Day event on Sparks Street. These were one-day community events to showcase the benefits of EVs and allow for test drives in the downtown core</li> <li>• The event is now being led by EnviroCentre and has expanded to three one-day events across Ottawa (i.e., beyond the downtown core)</li> </ul>	5, 8	Existing / Community
27	Install a 150 kW EV charging station in Ottawa as a pilot/demo project	2018	City of Ottawa (BEEM), external partner(s)	<ul style="list-style-type: none"> <li>• The City's Building Engineering and Energy Management (BEEM) unit will partner with an external energy provider and operator regarding this opportunity</li> <li>• This project would be the first of its kind in Canada (the technology is currently being piloted in California)</li> </ul>	5, 7	Existing
28	Explore an autonomous vehicle program in Ottawa that integrates EV technology	2019	City of Ottawa (PIED)	<ul style="list-style-type: none"> <li>• A competitive project proposal could likely be developed for this project and submitted to Canada's Smart Cities Challenge, a new \$300 million initiative recently announced by the federal government.</li> <li>• Winning proposals (primarily social benefits) from large municipalities will be eligible for up to \$50 million in prize funding. More specifics on program eligibility are expected in late 2017.</li> </ul>	5, 6, 7, 8	Existing/ Additional

29	Investigate the feasibility of an autonomous EV shuttle between the LRT and a large employment or large residential area	2019-2020	City of Ottawa (PIED)	<ul style="list-style-type: none"> <li>• The City has prepared a list of the top 150 employers in which to pursue possible partnerships</li> <li>• Funding through Canada's Smart Cities Challenge could be secured once a community partner is identified</li> </ul>	5, 6, 7, 8	Additional
<b>Advancing Energy Evolution</b>						
30	Establish a Community Energy Innovation Fund	2018	City of Ottawa (PIED, BEEM)	<ul style="list-style-type: none"> <li>• Terms of Reference will be brought to Committee and Council in 2018.</li> </ul>		Additional
31	Establish a corporate Smart Energy Office.	2019	City of Ottawa (	<ul style="list-style-type: none"> <li>• An expansion of the Building Engineering and Energy Management's (BEEM) function, this group will have a dual mandate to find energy savings through both conservation and demand management and to identify alternative local renewable energy opportunities for City facilities</li> </ul>		Additional
32	Develop Phase 2 Energy Evolution in collaboration with community partners, including the development of a long term governance model.	2018 - 2019	City of Ottawa (PIED)	<ul style="list-style-type: none"> <li>• Phase 2 will include an internal working group, external advisory working group, targeted subject matter experts and an informed Sounding Board.</li> </ul>		Existing
33	Work with community partners to establish a Low Carbon Innovation Centre for Ottawa as part of the Low Carbon Cities Canada (LC3) initiative being led by the Atmospheric Fund (TAF)	2017-2018	City of Ottawa (PIED) / LC3	<ul style="list-style-type: none"> <li>• The Low Carbon Innovation Centre (LCIC) will help accelerate multiple stages of the innovation process, whether those are technological, financial, policy, behavior change or combinations thereof.</li> <li>• LCIC's invest in demonstrating, de-risking, and unsticking local solutions. In other words, a dedicated capacity to support cities to create, refine and/or develop, eliminate barriers to, and scale up solutions that can achieve significant greenhouse gas (GHG) reductions and the multiple benefits associated with a low carbon urban economy.</li> </ul>		Existing