

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF MAY 16, 2017

Item 3, Report No. 19, of the Committee of the Whole (Working Session), which was adopted without amendment by the Council of the City of Vaughan on May 16, 2017.

**3 REGIONAL ELECTRICITY SYSTEM NEEDS AND
COMMUNITY-BASED ENERGY SOLUTIONS
FILE #22.30.1**

The Committee of the Whole (Working Session) recommends:

- 1) That the recommendation contained in the following report of the Deputy City Manager Planning and Growth Management and the Director of Policy Planning and Environmental Sustainability, dated May 8, 2017, be approved; and
- 2) That the presentation by Ms. Bernice Chan, IESO (Independent Electricity System Operator), and Ms. Neetika Sathe, Alectra Utilities, and Communication C3, presentation material titled “Electricity Planning in York Region”, dated May 8, 2017, be received.

Recommendation

The Deputy City Manager Planning and Growth Management and the Director of Policy Planning and Environmental Sustainability recommend:

1. THAT the presentation from the Independent Electricity System Operator (IESO) and Alectra providing an update on regional electricity system needs in Vaughan be received;
2. THAT staff continue to work with stakeholders to promote conservation and reduction measures, and to better understand energy corridor options and the feasibility of community-based energy solutions in the City and York Region; and
3. THAT energy planning described in this report and City input into Provincial and Federal energy and infrastructure projects inform the Growth Management Strategy update, the Municipal Comprehensive Review and the Vaughan Official Plan 2010 update.

Contribution to Sustainability

The Vaughan Municipal Energy Plan (MEP), which was approved by Council in 2016, identifies actions to reduce greenhouse gas (GHG) emissions to 2031 in support of the Province’s Climate Change Action Plan. As part of implementing the MEP, it is important to understand the emerging regional electricity system requirements in relation to urban growth in Vaughan, recognizing that the City will be planning for a new round of growth to 2041. This also provides the opportunity to identify opportunities for community-based energy solutions that the City may play a role in to better manage demand and control greenhouse gas emissions. The MEP is consistent with the following priorities previously set by Council in *Green Directions Vaughan*, the Community Sustainability and Environmental Master Plan:

- Goal 1, Objective 1.2: To reduce greenhouse gas emissions through actions such as working with the community to implement the local action plan and undertaking energy conservation initiatives.
- Goal 2, Objective 2.3: To create a City with sustainable built form by considering recommendations outlined in the local action plan to integrate smart energy planning in new developments and retrofit opportunities.

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Economic Impact

There are no budget implications resulting from the review of the presentation. The presentation by IESO and Alectra broadly discusses the longer-term electricity infrastructure requirements in York Region and potential opportunities to defer electricity infrastructure investment in York Region by using community-based energy solutions.

Communications Plan

N/A

Purpose

The purpose of the report and presentation is to update Council on the potential need for a new electricity infrastructure corridor in the Kleinburg area around the mid-2020s and potential methods to defer this infrastructure requirement to a later date. The presentation by the Independent Electricity System Operator (IESO) and Alectra (the utility entity following the merger of PowerStream and several other utilities) provides an overview of the Integrated Regional Resource Plan (IRRP) process and an update on the electricity planning activities in York Region. This is a useful strategic planning exercise. It provides an opportunity for the City to understand electricity planning issues of relevance to the City's Growth Management Strategy Update to 2041 (VOP 2010, Green Directions Vaughan and other Master Plans), including:

- Opportunities to improve the alignment of energy planning with land use and infrastructure planning;
- Identification of municipal policy tools to support energy conservation and greenhouse gas (GHG) emission reductions that can be incorporated into an updated VOP 2010, Green Directions and the Municipal Energy Plan;
- Identifying alternative energy and/or distributed energy technologies for possible evaluation and potential incorporation into City assets and to inform community planning;
- Where necessary, reinforcing the benefits of consolidating linear infrastructure in single unified corridors;
- Reflecting the implications of energy planning in the Municipal Comprehensive Review by minimizing the impact of electricity infrastructure on the City's land budget, as it affects future Employment Areas.

Background - Analysis and Options

Executive Summary

A new electricity infrastructure corridor is projected to be required in the Kleinburg area of Vaughan around the mid-2020s. This is a result of electricity demand growth being expected to exceed the capability of the regional electricity system supplying Northern York Region/Vaughan, despite ongoing energy conservation efforts and near-term infrastructure actions (e.g. Transformer Station #4 in Kleinburg is expected to come into service in 2017). Furthermore, the recently released Climate Change Action Plan and potential shift to a low carbon economy could further increase the electricity demand in York Region.

More assertive action on the part of local municipal governments in the areas of energy conservation, alternative energy and distributed energy has the potential to defer this infrastructure upgrade. Community-based energy solutions (e.g., small scale solutions that help the community manage and supply their electricity needs) can defer this longer-term need for a few years while contributing to the Province's goal of creating low carbon communities.

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Opportunities to co-locate infrastructure and rationalize setbacks will be important to minimize impacts and limit land requirements. Electricity system and infrastructure requirements will need to be considered in the City's Municipal Comprehensive Review process and the Master Plan updates.

York Region Regional Electricity Planning and Community Engagement

A regional electricity planning Working Group for York Region, consisting of the Independent Electricity System Operator (IESO), Newmarket-Tay Power Distribution Ltd., PowerStream Inc. and Hydro One Networks Inc., has been active since 2011. In 2013, the planning process was restructured to conform to the timelines and requirements of the Ontario Energy Board's (OEB) formalized Regional Planning Process. In April 2015 the IESO released an Integrated Regional Resource Plan (IRRP) for York Region, documenting a 20 year plan developed by the Working Group. This plan provided forecasts of electricity demand growth in the region, identified electricity needs and priorities, discussed potential solutions, recommended near-term actions, including a new transformer station serving the City (Transformer Station #4 in Kleinburg is expected to come into service in 2017) and laid out longer-term supply and demand outlooks for the region.

Even with the near-term actions and on-going energy conservation efforts identified in the 2015 York Region IRRP, electricity demand growth is expected to exceed the capability of the regional electricity system supplying Northern York Region/Vaughan around the mid-2020s. Furthermore, the recently released Climate Change Action Plan (e.g., electrification) and potential shift to a low carbon economy could further increase the electricity demand in York Region. Reinforcement of the electricity system may eventually be required given the magnitude of the growth. A number of system reinforcement options are being considered to address the longer-term electricity needs in Vaughan and Northern York Region, including new electricity infrastructure in the Kleinburg area/GTA West Corridor. Details related to these options will need to be examined. Since the need is not expected to arise within the next 10 years, there may be an opportunity to use community-based energy solutions (e.g., small scale solutions that help the community manage and supply their electricity needs) to defer this longer-term need for a few years.

To better understand the extent to which community-based solutions can defer the longer-term needs and to align the local planning assumptions (e.g., population, land use) with York Region electricity planning activities and infrastructure development, the IESO initiated a community engagement process for York Region in September 2015 by forming a Local Advisory Committee. The Local Advisory Committee consists of 16 volunteers from community and municipalities, including a representative from the City of Vaughan. The discussion and feedback at the Local Advisory Committee and community engagements will be an important input into the next iteration of York Region Electricity Plan, which will be initiated at the end of 2017.

Action on the part of local municipal governments in the areas of energy conservation, alternative energy and distributed energy has the potential to defer this infrastructure upgrade. Electricity system and infrastructure requirements will need to be considered in the City's Growth Management Strategy Update to 2041 and Municipal Comprehensive Review process.

Provincial Energy Planning Context

In parallel, energy planning is also underway at the provincial level. The Long Term Energy Plan (LTEP) is the Province's road map setting out the direction for Ontario's energy future for the next 20 years. In starting the revision of the 2013 LTEP, the IESO issued the Ontario Planning Outlook (IESO 2016) examining the province's future electricity needs and how they might be met while the Ministry of Energy released the Fuels Technical Report examining the supply and demand projections for oil, gasoline, propane and natural gas in Ontario.

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The facts and analyses in these two reports will help guide the consultation process in the development of the next LTEP. Both reports take into account other government commitments made in the Climate Change Action Plan, the *Climate Change Mitigation and Low-Carbon Economy Act, 2016* and the *Vancouver Declaration* (the Pan-Canadian Framework on Clean Growth and Climate Change). The Ministry of Energy intends to publish the next LTEP in 2017. Care needs to be taken to ensure that these provincial priorities and directions are considered and reflected in our local and regional energy planning activities. For example, as noted in the Ontario Planning Outlook regarding the impact of climate change policy and electrification on electricity demand growth; the following is relevant to Vaughan and will need to be considered:

While the impact of electrification in space heating, water heating and transportation will increase electricity requirements across the province, the impact would be the most prominent in urban centres, with implications for regional transmission systems that will need to be considered as part of the regional planning processes.

IESO and PowerStream Presentation Outline

The presentation by the IESO and Alectra is made up of two parts. The first part of the presentation sets the context in terms of the policy background and IRRP process, including a discussion of integrating energy planning into land use planning. The electricity infrastructure requirements are broadly discussed in relation to the energy load forecast.

The second part of the presentation will address community-based energy solutions, such as articulated as “demand response resources” and “distributed energy resources”. This includes a more detailed discussion of the findings of PowerStream’s “Power.House” project, which is an example of distributed energy generation that can be harnessed as a micro grid (a miniature version of the main grid).

Relationship to Term of Council Service Excellence Strategy Map (2014-2018)

This report is consistent with the Term of Council priority to continue to cultivate an environmentally sustainable city as demonstrated by the previously approved Municipal Energy Plan. The Vaughan MEP was based on goals identified in the Community Climate Action Plan that work toward energy security, supporting local economic development, fostering a culture of social responsibility and sustainability, and identifying actions to reduce the community’s energy consumption and GHG emissions.

Regional Implications

This report and presentation is consistent with the York Region Official Plan (ROP 2010), which requires the development of Community Energy Plans at the following geographic scales:

- A municipal-wide Community Energy Plan (ROP 2010 policies 4.1.14 and 5.2.13);
- For each Regional Centre (ROP 2010 policy 5.2.24); and
- For each New Community Area (ROP 2010 policy 5.6.10).

Conclusion

The generation, transmission and distribution of electricity collectively constitute one of the main drivers of a sustainable society. It has largely been taken for granted in land use planning for the last half of the 20th Century. Over time, land use, development and energy planning has become increasingly linked due to matters such as cost, climate change and pollution mitigation and the consumption/visual effects of the infrastructure on communities. Understanding the opportunities and constraints will need to become a bigger part of both our land use planning process and municipal operations. This presentation will provide some of the background the City will need consider in conducting its planning processes.

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In terms of direct City actions, there may be opportunities for community-based energy solutions to play a role in addressing longer-term electricity needs at both the regional and the provincial level. Currently, the IESO is working closely with community and local utilities to explore opportunities to defer the need for new electricity infrastructure in Northern York Region/Vaughan using community-based energy solutions.

At the same time, provincial energy planning is underway. As noted in the IESO's 2016 Ontario Planning Outlook, community-based energy solutions can be part of the solution in addressing demand growth under higher demand outlooks and in enhancing the security of supply and resiliency:

In the IESO's higher demand outlook, electrification of end-uses in support of climate change actions could be met in a variety of ways. While Ontario would require additional electricity resources to meet the associated higher levels of demand growth, it has a variety of options available, including distributed energy resources and enhanced conservation. Higher demands could be served in ways that sustain recent reductions in electricity sector emissions while significantly reducing carbon emissions in the broader economy, including through the greater substitution of electricity for fossil fuels in residential and commercial space and water heating, light duty vehicles, public transit and in some industrial applications.

The City will need to stay apprised of, and help to create the opportunities for, community-based energy solutions to mitigate the City's energy costs and contribute to the fulfillment of the Province's climate change goals.

Attachments

1. Presentation by IESO and Alectra

Report prepared by:

Tony Iacobelli, Manager of Environmental Sustainability, ext. 8630

(A copy of the attachments referred to in the foregoing have been forwarded to each Member of Council and a copy thereof is also on file in the office of the City Clerk.)