



c/o City of Edmonton
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City of Edmonton, Mayor and Council
c/o Councillors' Ben Henderson and Michael Walters
2nd Floor, City Hall,
1 Sir Winston Churchill Square
Edmonton AB T5J 2R7

Dear Mayor Iveson and Members of City Council:

RE: Sustainable Building Policy (C532)

The City of Edmonton's administration has done superb work on the development of a Sustainable Building Policy. The Energy Transition Advisory Committee believes that this policy lays the groundwork for future policy iterations that ensures Edmonton achieve its Energy Transition Plan and establishes a continuous improvement framework.

We offer a series of recommendations that will help the City develop a credible Sustainable Buildings Policy that is based on solid research and leads us to carbon neutrality. As a result we will build a resilient city of the future, with reduced operating costs and dramatically reduced carbon emissions.

Introduction

A subcommittee of the Energy Transition Advisory Committee was struck for the purpose of reviewing and providing feedback on the update of the Sustainable Building Policy (C532) (CR_3959). The subcommittee met on February 1, 2017, February 24, 2017, and March 21, 2017 to review the cost benefit analysis undertaken to support the new policy recommendation for City owned new construction and existing buildings.

Based on these three subcommittee meetings, the co-Chairs, on behalf of the Committee, offer the following comments and advice to City Council.

The Energy Transition Advisory Committee found that the level of rigour in the policy development process and cost benefit analysis was excellent. The Committee also found the proposed standards for new building construction to be a good starting point. However, the Committee feels that there is currently a significant gap between the level of ambition presented in the Sustainable Building Policy and the overall Edmonton Energy Transition Strategy objective of achieving carbon-neutrality for all City of Edmonton Operations (as defined in *The Way We Green*).

Summary of Recommendations

The Energy Transition Advisory Committee recommends the following actions be incorporated as city policy in the GHG Management plan or as part of the Sustainable Building Policy (C532):

1. Sets a target to achieve carbon neutrality for all city-owned buildings by 2030.
2. Implements a three metric approach for the performance of all new City buildings, with current standards set at:
 - a. 50% better energy efficiency than required by the building code,
 - b. 50% reduced GHGs relative to building code requirements, and
 - c. 50 kilowatt hours per square meter or less energy intensity.
3. Immediately begins to plan carbon-neutral pilot projects in each building category.
4. Continues to use the LEED program as a performance metric, that LEED Gold be adopted as the goal for new city-owned buildings.
5. That all appropriate city buildings are BOMA Best Certified by 2020.

The recommendations are described in more detail below.

A Clear Pathway to Carbon Neutrality

Buildings are the largest contributing source of greenhouse gas emissions in Edmonton. Given the long operational life of existing and new buildings, it is essential to start with a smart plan today that will set the stage for the long-term goals. As such, the City of Edmonton needs to develop a clear path to carbon neutrality for new construction imminently.

The City also needs clear and ambitious goals with a transparent pathway and time-line to achieve them. After much discussion, the Committee recommends the following:

- 1) Carbon neutral electricity for all City buildings(as part of all operations) by 2020;
- 2) Carbon neutrality of all City buildings by 2030; and
- 3) Carbon neutrality of the entire City operations post-2030.

This approach and level of ambition would help bring Edmonton into the realm of leading municipalities. Vancouver, for example, has already adopted a Zero Emissions strategy for buildings and will require all new buildings to meet a zero emissions standard by 2020. The Pan-Canadian Framework and the Architecture 2030 challenge, along with other initiatives, are recommending actions consistent with net-

zero energy or carbon neutral buildings for new construction by 2030. Edmonton has some of the best expertise in the country when it comes to building net-zero and is well positioned to move the bar on zero emissions buildings.

We recognize that these ambitious goals will be a challenge and that costs will be associated with the effort. Inefficient and emissions intensive building practices can no longer be deferred and present a long term economic and environmental liability. In fact, while improved building performance does come at a an up-front cost premium, an investment in energy efficiency retrofits and improved construction standards today will actually result in cost-savings into the future. If we continue to defer we will not meet our targets and the costs of remediation will be much higher in the future.

The Committee looks forward to working with Administration through the proposed Sustainable Building Policy and the update of the City Operations GHG Management Plan in order to put forward a practical approach to achieving the ambitious targets.

Strengthening the Sustainable Building Policy (C532)

Regarding the proposed policy standards for new construction, the Committee supports Administration's strategy to take a three-metric approach to ensuring energy efficient design. The three-metric approach sets targets for an energy intensity reduction objective relative to the Alberta Building Code, a GHG reduction objective relative to the Alberta Building Code, as well as an absolute maximum on annual heating demand of the building. In order to establish ambitious performance levels that are consistent with a long-term path to carbon neutral buildings, the Committee recommends the stringency of the three metrics be as follows:

1. Energy use intensity target set at 50% below the levels required in the building code,
2. Greenhouse gas emission intensity target set at 50% below the levels required in the building code, and
3. Annual heating demand maximum set at 50 kilowatt hour per square meter for building types where possible.

In order to build in long-term improvement, ongoing strengthening of the three energy performance metrics should be implemented over time and as the Alberta Building Code is updated. The annual heating demand metric, in particular, should be reduced at regular and predictable intervals such as every three years with a schedule of prescribed targets, until the majority of new City buildings can be built to meet passive building standards (e.g., between 15 to 30 kilowatt hours per square meter per year).

Similar to our feedback for the Blatchford Project, the best strategy to be resilient against future fuel price volatility, reduce the need for active heating and cooling, and mitigate greenhouse gas emissions is to focus on raising the quality and resilience of the building envelope from the start. The building

envelope tends to be the last major building system to be upgraded, and has a much longer lifecycle (e.g., 2 to 3 times longer) as compared to the routine replacement of building heating and cooling equipment.

There are several specific findings from the cost benefit analysis studies that the Committee would like to highlight to Council in support of the recommendations:

- Annual heating demand of 50 kilowatt per hours was found to be cost effective for the various City building types (except for the mixed office and industrial building type);
- Carbon neutrality for the various City buildings (except for the mixed office and industrial building type) was found to be cost effective (achievable at <1 to 2% incremental capital) if the City starts to procure 100% green electricity for its City operations;
- Net-zero energy for new City buildings is possible starting at approximately 6% incremental capital.

Lead by Example – Demonstrate Carbon Neutral Buildings

The Committee also recognizes the challenge that the City has in reducing GHG emissions from the existing City buildings which accounts for 60% of the City's GHG emissions. We are aware that 90% of the existing building stock by gross floor area was not built to an energy standard (e.g., prior to 2008 adoption of the Sustainable Building Policy).

It is a leadership imperative that the City demonstrates to industry and the community that the path to carbon neutrality is possible for new and existing buildings. To this end, the Committee recommends to Council and Administration that the City demonstrate as soon as possible:

1. At least one carbon neutral new building; and
2. At least one deep retrofit to an existing building to achieve carbon neutrality.

The public engagement, capacity building and potential industry partnerships created and enabled by these pilot projects would be invaluable to furthering Edmonton's energy transition.

LEED certification is another useful tool to clearly identify the City of Edmonton's sustainable building practices for new buildings. The LEED certification program provides a valuable, holistic third party rating framework for ensuring both energy and non-energy related sustainable design is incorporated into new buildings. The committee supports LEED certification for new buildings, but advises that use of the LEED certification approach be used tactically alongside the broader targets of carbon neutrality and building energy performance (the three metric approach) to further contribute to energy transition outcomes (e.g., maximize achievement of energy related credits first).

If the City is to continue using the LEED certification approach to demonstrate building performance, the City should adopt a LEED Gold standard for all new buildings. LEED silver is no longer a sufficient standard to achieve the goal of showcasing Edmonton as a building leader.

Locking in Best Practice

Strong building performance standards, such as those discussed above, are necessary to ensure that buildings are built to be as energy efficient as possible. However, that is only a part of the picture. Human behaviour, through the ongoing operation and use of a building by its occupants, can also have a significant influence on the energy performance.

The Committee supports the implementation of BOMA BEST Certification as a means to address the operational and behavioural barriers to achieving efficient energy use and GHG reductions in buildings. We would like to challenge the City to start the certification process immediately with the goal of having all appropriate City buildings certified by 2020.

Summary

The initial role of the Energy Transition Advisory Committee subcommittee was to review and provide feedback on the proposed updates to the Sustainable Building Policy (C532).

Beyond the single policy update, the Committee recognizes a critical need to establish clear and ambitious targets for Edmonton's buildings in alignment with the overall vision of a carbon neutral city. Ultimately achieving this vision in a credible and cost-effective way means:

1. Committing to credible but ambitious energy performance targets for new and existing city buildings;
2. Mapping a pathway of interim goals and policy updates required to get there;
3. Taking meaningful action today to update existing policies, to set the stage for future success, and to demonstrate early examples showing carbon neutral buildings are possible today.

We look forward to continued engagement with Council and the City's administration to work toward this shared vision.

Yours truly,

David Dodge, Lori Nickifor

Energy Transition Advisory Committee Co-Chairpersons on behalf of the entire Committee

Cc:

City Council

Linda Cochrane

Gary Klassen

Paul Ross

Mark Brostrom

ETAC Members