CITY OF KINGSTON

REPORT TO ENVIRONMENT, INFRASTRUCTURE and TRANSPORTATION POLICIES COMMITTEE

Report No.: EITP-08-036

TO:	**Chair, Environment, Infrastructure and Transportation Policies Committee**
FROM:	**Cynthia Beach, Commissioner, Sustainability & Growth**
RESOURCE STAFF:	**Paul MacLatchy, Director, Strategy, Environment & Communications**
DATE OF MEETING:	**2008-11-13**
SUBJECT:	**ENHANCED GREEN MUNICIPAL BUILDING POLICY**

EXECUTIVE SUMMARY:

In April 2004, the City of Kingston demonstrated its leadership in sustainability by becoming the first municipality in Ontario and one of the first municipalities in Canada to establish a policy for the green construction of municipal buildings. The policy statement adopted by Council required that all large municipal building and major retrofit projects undertake an assessment of certification under the Leadership in Energy and Environmental Design (LEED) program as a design goal for Council's consideration before finalization of the project design. This requirement became known as the Kingston LEED Policy for municipal buildings.

Since then the City has had the benefit of the experience gained by the six building projects to which an assessment of the LEED program has been applied and the five that have been, or are in the process of being, constructed. This report also draws upon the experience of the over 30 Canadian municipalities that have since created their own corporate LEED green building policies and the over 100 LEED certified buildings that now exist in Canada. The economic, social and environmental benefits of building to a green standard have been proven in Kingston and the LEED program has been shown to provide a reliable and cost effective result. It is now appropriate to enhance our green building policy to continue our investment in building green and to maximize the associated benefits.

Kingston's experience with the LEED program has been a successful one. Energy modeling of the K-Rock Centre, Police Building and INVISTA Centre indicate that the City will benefit from an annual energy cost savings of $435,600. The capital investment required to achieve these savings and other benefits is estimated to be $3.2 million representing a simple payback of 7.3 years.

This report recommends a policy that requires new building projects owned or significantly funded by the municipality, to achieve a minimum LEED-Silver certification and major renovations to undertake an assessment of the feasibility of achieving a LEED certification. In addition, to ensure maximum economic and environmental benefit, it also requires new building projects achieve a minimum energy efficiency of 42%. The feasibility assessment for

renovation projects should target energy efficiencies of 33% better than the Model National Energy Code (MNEC) as a design goal. Additionally, all LEED projects should achieve credits for best practice commissioning and , measurement and verification.

RECOMMENDATION:

WHEREAS the City of Kingston developed a LEED building policy in 2004 that required all large municipal building and retrofit projects to undertake an assessment of LEED as a design goal for Council's consideration before finalization of the project design, and;

WHEREAS since then the City of Kingston has gained significant experience in the successful design and construction of green buildings and is confident in the economic, social and environmental benefits of the LEED rating system, and;

WHEREAS energy efficiency, best practice commissioning, and the ability to measure and verify energy performance are critical to realizing the operating cost savings and green house gas emission reductions promised by building green,

THEREFORE BE IT RESOLVED THAT the Enhanced Municipal Green Building Projects Policy attached as Exhibit A be received and recommended to Council for adoption,

AND FURTHER THAT all new municipally owned or significantly funded new building projects be required to achieve a minimum of a Silver level of certification under the Leadership in Energy and Environmental Design (LEED) program as administered by the Canada Green Building Council unless it can be shown that it is not feasible to do so,

AND FURTHER THAT all major renovations of municipally owned or significantly funded buildings be required to undertake a comprehensive assessment of feasibility of achieving a LEED certification for the project,

AND FURTHER THAT feasible LEED projects achieve energy efficiencies of 42% and 33% better than Model National Energy Code for new buildings and major renovations respectively,

AND FURTHER THAT feasible LEED projects obtain LEED credits for Best Practice Commissioning and Measurement & Verification.

AUTHORIZING SIGNATURES:

ORIGINAL SIGNED BY COMMISSIONER Cynthia Beach, Commissioner, Sustainability and Growth
ORIGINAL SIGNED BY CHIEF ADMINISTRATIVE OFFICER Gerard Hunt, Chief Administrative Officer

CONSULTATION WITH THE FOLLOWING COMMISSIONERS:

Commissioner Beach, *Sustainability & Growth*	✓
Commissioner Hunt, *Finance & Corporate Performance*	
Commissioner Thurston, *Community Development Services*	
Commissioner Leger, *Corporate Services*	
Jim Keech, President, *Utilities Kingston*	

(N/R indicates consultation not required)

OPTIONS/DISCUSSION:

1.0 INTRODUCTION & BACKGROUND

In 2002 the City of Kingston became a member of the Federation of Canadian Municipalities' (FCM) Partners in Climate Protection Program (PCP) and through that membership joined over 160 other Canadian municipalities and 600 communities world-wide dedicated to the reduction of green house gas emissions. As part of the PCP program the City of Kingston completed green house gas inventories for both the corporation and the community. Through this inventory it was realized that in its base year of 2000 the City of Kingston spent approximately $6.1 million in energy and emitted approximately 28,000 tonnes of green house gas emissions. It was further determined that approximately 58% of the total emissions (and 52% of the cost) was directly related to the operation of municipal buildings. In 2004, Council adopted[1] a green house gas reduction target of 25% for the corporation by 2012 compared to the base year 2000.

In 2003, staff began researching ways to ensure that new municipal building projects would be designed and constructed with high regard for energy efficiency, environmental sustainability and fiscal responsibility. The Canada Green Building Council's (CaGBC) Leadership in Energy and Environmental Design (LEED) program was identified by staff as the preferred model for governing new municipal building projects. LEED was gaining market share in both the United States and Canada, emphasized third party verification of environmental and energy efficiency claims and offered a holistic approach to sustainable building design.

Leadership in Energy and Environmental Design (LEED) is a consensus based voluntary rating system for designing, constructing, operating and certifying green buildings. It was first developed by the US Green Building Council and was later adopted in Canada by the Canada Green Building Council. It was developed to prevent "green washing" and to give credibility to green building claims through quantification/qualification and third party review. LEED is composed of six design areas (energy efficiency, water efficiency, site selection, indoor environmental quality, material selection and process/innovation). Within each of these six areas is a series of design attributes and, depending on the number of design attributes selected and included in the building construction, the building can be designated as either LEED certified (bronze), silver, gold or platinum.

While the business case for this initial policy was supported by a LEED assessment of the proposed twinning of the Centre 70 ice pad, there were limited business case studies and empirical data for municipal LEED buildings with comparable market conditions to Kingston.

In recognition of the "untested" nature of LEED in the Kingston market, City Council opted for a cautious approach to requiring the use of LEED on new projects and in April 2004 endorsed[2] the following staff recommendation that became the "LEED Policy":

[1] Report No. 04-004 to Kingston City Council.
[2] Report No. 04-114 to Kingston City Council.

WHEREAS the energy consumption of the building portfolio of the City of Kingston accounts for approximately 60% of the green house gas emissions of the corporation and costs approximately $3.1 Million dollars per year based on year 2000 records and which is forecast to increase at a rate greater than inflation and;

WHEREAS the Leadership in Energy and Environmental Design (LEED) provides an internationally recognized standard for sustainable building design and is recognized by the Federation of Canadian Municipalities (FCM) as a key component to obtaining GMIF funding for infrastructure projects, and;

WHEREAS the adoption of demonstrable and verifiable sustainability within municipal infrastructure projects will be a key component to accessing Federal infrastructure monies such as grants and gasoline tax rebates,

THEREFORE BE IT RESOLVED THAT Council requires that all large municipal building and retrofit projects undertake an assessment of LEED as a design goal for Council's consideration before finalization of the project design.

By requiring a LEED assessment Council and staff were able to consider the cost/benefit analysis of incorporating LEED as a design goal on a building by building basis. This was the first Municipal LEED Policy in Ontario and one of the firsts (along with Vancouver and Calgary) nation-wide. Since 2004 the green building market has grown quickly in Canada along with the use of the LEED suite of assessment products as the preferred green building rating system for both private and public sector projects. There are now more than 30 Canadian municipalities with corporate green building policies. The majority of these municipalities require a minimum LEED Silver level for new municipal buildings and a select few municipalities (Vancouver, Nanaimo, and Richmond) require LEED Gold. There are over 100 LEED certified buildings in Canada. Municipalities have proven to be early adopters of LEED buildings accounting for approximately 21% of the total Canadian LEED certified buildings.

2.0 STRATEGIC CONTEXT AND POLICY GOALS

The pursuit of green municipal buildings and an enhanced LEED policy aligns with the current priorities of Council, the Corporate Energy Plan, Kingston's commitments through the FCM's Partners in Climate Protection Program, the Transportation Master Plan, the revised Official Plan currently in development and the preliminary work completed on the Integrated Community Sustainability Plan.

Use of the LEED rating system supports the City's goals for brownfield redevelopment and for the responsible control of operating costs.

The goals of the original green building policy were to:

a) minimize increases in green house gas (GHG) emissions due to the construction and operation of new facilities,
b) minimize operational energy and other utility costs for new facilities,
c) hedge against inflationary rises in energy costs,
d) minimize the burden placed on the natural and built environments by new facilities,
e) maximize the quality of indoor environments of new facilities,
f) maximize opportunities for funding of new building projects from upper levels of government,
g) promote alternative and non-automotive transportation,
h) promote alternative and renewable energy generation,
i) provide local opportunities for Kingston and area engineers, architects and contractors to gain experience in green building projects, systems and technologies,
j) lead by example and to become a catalyst for change in the wider private sector green building market, and
k) contribute to the recognition of Kingston as a sustainable community.

In addition to the goals stated above, a revised green building policy should also:

l) maximize return on the capital investment of building green.
m) enable the City of Kingston to accurately monitor, record and report energy consumption data.
n) leverage the position of the City of Kingston as a funding agency to promote the adoption of green building goals within the community.

3.0 EXISTING POLICY AND APPROACH

The existing policy indicates that all large municipal buildings and retrofit projects undertake an assessment of LEED as a design goal for Council's consideration before finalization of the project design. While this policy does not dictate a minimum level of LEED, a LEED Silver designation was initially targeted for all of the City of Kingston's new projects. It was through the Integrated Design Process (IDP) that it was determined that LEED Gold was actually achievable for the new City of Kingston Police Headquarters. Similarly, the INVISTA Centre and the Calvin Park Library are targeting LEED Gold within their existing budgets.

With the experience gained from the City of Kingston Police Headquarters and K-Rock Centre projects, the practice was modified for the INVISTA Centre and the Calvin Park Library to go to the market with a direct request for a minimum LEED Silver rated building.

4.0 SUCCESSES AND LESSONS LEARNED

The City of Kingston has undertaken LEED assessments on 5 municipally owned projects:

- Proposed Centre 70 Twinning

- New Police Headquarters
- Grand Theatre Restoration
- K-Rock Centre (Kingston Regional Sports & Entertainment Centre)
- INVISTA Centre (Multiplex)

Of these, three proceeded to construction with a LEED design goal and one, the Police Building, has achieved a Gold level of certification. Additionally, the renovation of the administration building at the Ravensview Treatment Plant has also adopted a goal of LEED certification and the new Calvin Park Library will be designed and constructed to achieve a LEED Gold certification. With one LEED Gold designation and four projects pending LEED designation, the City of Kingston is recognized across Canada as a leader in green building design and construction.

The City of Kingston LEED projects have demonstrated that green building design and construction is a sustainable choice being not only a responsible environmental and social decision but also a responsible economic decision. The City's leadership in this area is arguably one of the reasons that others in Kingston have felt comfortable enough to adopt LEED as a design goal for their own projects as shown in the following table:

OTHER LEED BUILDING PROJECTS IN KINGSTON		
Project	**Owner**	**Status**
Kingston Service Facility	Union Gas	In design
Ravensview WPCP – Admin Bldg	Utilities Kingston	In construction
Goode's Hall Expansion	Queen's University	In design
Queen & Bagot Multi-Residential	Kincore Holdings	Construction schedule pending
Calvin Park Library	Kingston Public Library	In construction
Queen's Centre – Gym and Pool	Queen's University	In construction
Queen's Centre – School of Physical & Health Education	Queen's University	In construction

Environmental benefits of the Kingston LEED projects include: energy savings, water savings, green house gas reduction, waste diversion from the landfill, alternative transportation, use of recycled materials and low VOC emitting materials, densification and infill, biodiversity and brownfield remediation. As indicated on the following table, the Kingston LEED projects have estimated energy savings ranging from approximately 31% to 61% compared to the Model National Energy Code (MNEC) and water savings ranging from approximately 42% to 91% compared to a reference conventional building.

City of Kingston LEED Projects: Estimated Energy and Water Savings				
	Kingston Police Headquaters	**INVISTA Centre**	**K-Rock Centre**	**Calvin Park Library**
LEED Status	Designated	Targeted	Targeted	Targeted
LEED Level	LEED Gold	LEED Gold	LEED Silver	LEED Gold
Total Capital Cost	$38 million	$33.6 million	$46.5 million	$3.6 million
square footage (ft2):	121,000	160,000	152,000	10,500
Cost/square foot ($/ft2):	314	210	306	343
% Energy Savings:	52%	40%	31%	61%
% Water Savings:	77%	42%	54%	91%

The social benefits of these LEED projects include: improved indoor air quality, access to natural lighting and views and improved thermal comfort. These attributes contribute to improved employee morale, productivity and user satisfaction. Civic pride is enhanced as Kingston is branded as a Canadian leader in sustainable building design and construction.

Economic benefits of these Kingston LEED projects include: reduced operating costs, hedging against rising energy prices, reduced burden on municipal infrastructure and improved employee productivity and customer satisfaction. As indicated in the following table, available data on the financial performance of Kingston LEED projects indicates that a positive net present value (NPV), adequate simple pay-back and competitive rate of return (IRR) were provided for the investment in LEED.

City of Kingston LEED Project Financial Implications				
Variable	Kingston Police Headquarters	INVISTA Centre	K-Rock Centre	Calvin Park Library
Status	**Designated**	**Targeted**	**Targeted**	**Targeted**
LEED Level:	**Gold**	**Gold**	**Silver**	**Gold**
Total Capital Cost	$38 million	$33.6 million	$46.5 million	$3.6 million
Area (square footage) ft2	121,000 ft^2	160,000 ft^2	152,000 ft^2	10,500 ft^2
Total Capital Cost /square foot	$314/$ft^2$	$212/$ft^2$	$309/$ft^2$	$343/$ft^2$
Estimated Incremental LEED Cost	$1 million	$1 million (Note 3)	$1.2 million	$180,000
% LEED Cost of Project	2.6%	3% (Note 3)	2.6%	5% (Note 2)
% Energy Savings	52.0%	40%	31.0%	61%
% Water Savings	77.0%	42%	54.0%	91%
Estimated Annual Savings:	$100,000	$187,400	$148,200	$11,300
Simple Pay-Back	10 years	5.4 years	8.1 years	16 years
NPV (30yr)	$2.1 million	$4.8 million	$4.5 million	$189,493
IRR	9%	18%	12%	5%
Note 1: Assumptions: Inflation rate: 2.98%; Energy cost escalation 3% each year; discount rate: 5%				
Note 2: Assumption of LEED Consultant: % LEED Cost = 5% of capital cost				
Note 3: A % incremental cost of 3% was assumed based on similar market conditions (i.e. K-Rock Centre)				

Economic benefits are also realized in the wider community as local architectural, engineering and construction firms gain the skills and recognition as experts in the delivery of green buildings that allows them to compete in this growing field regionally and nationally.

The lessons learned by the City of Kingston in the past four years are numerous and important as we go forward towards making our infrastructure greener still.

1. Use an Integrated Design Process:

   The City of Kingston LEED projects benefited from the application of the Integrated Design Process (IDP). Through the IDP all stakeholders and disciplines come together at an early stage within a LEED design charrette to provide input on the design and construction of the facility. Participation in the IDP can include but not be limited to: mechanical engineer, electrical engineer, architect, cost consultant, contractor, lighting engineer, civil engineer, representative from the user group, and City representatives (i.e. operations, financial and environment). Through the IDP, synergies between disciplines are realized and the resultant building has a more holistic design. For example, the impact of natural lighting, envelope rating, window quality and building orientation are taken into consideration when sizing the HVAC system. The process also serves to maximize changes to design early in the process when there is no cost impact as opposed to later in the design when small changes can have significant budget impacts. It also establishes buy-in and commitment of the various stakeholders. The adoption of the IDP and the LEED design charrettes is recognized by the City of Kingston as a key ingredient to the success of their LEED projects.

2. LEED Consultant:

It is important to have an experienced LEED consultant to guide the owner, the prime consultant, the contractor and the overall design team through the LEED process. The role of the LEED consultant starts at the very beginning of the project concept and extends to post-occupancy. The LEED consultant ensures the roles and responsibilities associated with the various LEED credits are understood and ensures the viability of targeted LEED credits.

3. Importance of Energy Efficiency Measures:

The majority of the tangible operational cost savings (not including employee productivity) within a green building are associated with energy efficiency measures. Therefore, to reduce the simple pay-back, and maximize the NPV and IRR it is important that the highest level of energy efficiency be achieved within the allowable capital budget. It is possible to obtain a LEED building while only achieving a 25% energy efficiency above the Model National Energy Code. City staff have learned that by specifying LEED without a requirement for a minimum energy performance it is possible for bidders to deliver a LEED program that does not maximize energy efficiency. Specification of a minimum energy efficiency requirement is important.

4. Value of Best Practice Commissioning and Measurement and Verification:

Both Best Practice Commissioning and Measurement and Verification are credits within the Energy and Atmosphere design area of the LEED program. Best Practice Commissioning provides third party verification to ensure that the entire building is designed, constructed and calibrated to operate as intended. The added expense of best practice commissioning protects the City of Kingston as the owner of the asset and reduces the risk of underperformance. Measurement and Verification provides ongoing accountability and optimization of building energy and water consumption performance over time. These two LEED initiatives ensure that investments in energy efficiency and water efficiency installations are working as intended and will continue to perform as expected over time. The value added by Best Practice Commissioning and Measurement and Verification are such that they are seen as critical components to the successful long-term performance of a LEED building and important to minimizing the risk of underperformance.

5. LEED is not an Add-On:

LEED is an integral part of the design, construction and operations processes. To get the full financial value of a LEED design and to be able to use an Integrated Design Process it is critical that LEED considerations be incorporated at the onset of the project and carry through to post-occupancy.

6. Improved Employee Morale:

While no pre-LEED and post-LEED surveys have been conducted with employees, there is sufficient anecdotal evidence within Kingston and from others to suggest that employees enjoy the increased access to day lighting and views, improved thermal comfort and improved air quality. Employees also recognize an increased sense of pride by having the built facilities that enable them to be good stewards of the

environment. All of these elements are inherently linked to improved productivity and therefore customer satisfaction.

7. Development of Local Design and Construction Green Building Markets:

   Local firms (architects, engineers, contractors) have gained experience in green building design and construction within the City of Kingston LEED projects and have gone on to provide these services regionally.

8. Go to the market with a single and clear requirement for LEED:

   The best approach for the design of facilities was found to be preparing LEED requirements as early as possible in the process. There are aspects of the LEED certification that may be more valuable to the City as the owner responsible for ongoing operation costs. Energy guidelines have been included as part of the policy.

5.0 OPPORTUNITIES FOR IMPROVEMENT

Based on the positive economical, social and environmental benefits realized through the LEED Gold Police Headquarters, the actual practices evolved from requiring a LEED assessment to requiring a minimum of a LEED Silver rating through the tender documents. The current practice is to require LEED Silver within the tender documents but through the Integrated Design Process to strive for the highest LEED rating level possible within the allotted budget. This has resulted in three out of the five City of Kingston LEED projects targeting a LEED Gold rating (City of Kingston Police Headquarters has achieved a LEED Gold rating through the CaGBC).

The opportunities for improvement include aligning the policy to be consistent with current practice and experience, to emphasize the importance of energy efficiency measures as well as their installations and ongoing performance, and to apply the policy to organizations engaged in building projects that seek financial assistance from the municipality. The recommended enhanced policy requires all new municipal buildings to target/achieve a minimum LEED Silver certification through the CaGBC. Given the potential complexities associated with retrofits and the relatively large number of heritage buildings within the City's portfolio, the revised policy will require all major renovation projects to undertake an assessment of the feasibility of achieving a LEED certification through the CaGBC.

There is an opportunity to enhance the policy based on the lessons learned from the City of Kingston LEED building portfolio and incorporate mandatory achievement of both Best Practice Commissioning and Measurement and Verification. These two initiatives are identified within the Energy and Atmosphere design area of LEED and each are valued with 1 point. Best Practice Commissioning provides third party verification to ensure that the entire building is designed, constructed and calibrated to operate as intended. Measurement and Verification provides ongoing accountability and optimization of building energy and water consumption performance over time. These two LEED initiatives ensure that energy efficiency and water efficiency installations are working as intended and will continue to perform as expected over time.

Recognizing the triple bottom line benefits of LEED buildings and to be good stewards of taxpayer's dollars, the City of Kingston may require any agency with which it has a financial partnership to also meet the requirements of this revised policy.

6.0 RECOMMENDED MEASURES

It is recommended that the current policy be revised to require that the design and construction of all new municipal buildings achieve a minimum LEED Silver rating through the Canada Green Building Council, unless it can be demonstrated that this is not feasible. It is also recommended that all major renovations to municipal facilities achieve a minimum LEED Certified rating (equivalent to bronze) through the Canada Green Building Council, unless it can be demonstrated that this is not feasible. Further, due to the importance of energy efficiency in achieving reduced operating costs and green house gas emission reduction targets it is also recommended that it be mandatory that each project obtain 5 points for EAc1 Optimize Energy Performance (42% better than the MNEC for new buildings and 33% better than MNEC for major renovations), 1 point for EAc3 Best Practice Commissioning and 1 point for EAc5 Measurement and Verification.

To enable municipal resources to be used to leverage our green building goals the enhanced policy also recommends that organizations requesting significant financial assistance with their building projects be required to comply with the LEED and energy requirements of the policy.

EXISTING POLICY/BY LAW:

This report recommends an enhancement to the policy statement adopted by Kingston City Council on April 4, 2005 within report no. 04-004.

NOTICE PROVISIONS:

There are no notice provisions associated with this report.

ACCESSIBILITY CONSIDERATIONS:

The use of the Leadership in Energy and Environmental Design (LEED) as a design criteria for municipal building projects is consistent with provision of accessibility features required by the Ontario Building Code and municipal policy and practice.

FINANCIAL CONSIDERATIONS:

Compliance with the recommended policy should be expected to add from 0 to 5% to capital construction costs for new building projects while reducing the resultant operating costs due to utilities of these new facilities by between 40 to 60% annually.

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Exhibit A – Report EITP-08-036

CITY OF KINGSTON MUNICIPAL GREEN BUILDING POLICY

(A policy regarding the construction of new municipally owned and funded buildings and major retrofits to LEED Green Building Standards)

1. POLICY STATEMENT

The City of Kingston's Municipal Green Building Policy provides for the design and construction of municipally owned or funded new building and major renovation projects to proceed in a fashion that ensures environmental, economic and social considerations are taken into consideration and that a "green" building compliant with the Leadership in Energy and Environmental Design (LEED) program is achieved so that operational energy costs to the municipality are minimized, indoor air quality is protected, waste is minimized and corporate and community greenhouse gas emissions are reduced.

2. DEFINITIONS AND SHORT FORMS

CaGBC Means the Canada Green Building Council.

City Means the Corporation of the City of Kingston.

LEED Means the Leadership in Energy and Environmental Design Program as administered by the CaGBC.

LEED-CI Means the Leadership in Energy and Environmental Design Program for Commercial Interiors

LEED-EB Means the Leadership in Energy and Environmental Design Program for Existing Buildings

LEED-H Means the Leadership in Energy and Environmental Design Program for Homes

LEED-NC Means the Leadership in Energy and Environmental Design Program for New Construction

LEED-ND Means the Leadership in Energy and Environmental Design Program for Neighborhood Design

MNEC Means the Model National Energy Code for Buildings

3. APPLICATION

This policy shall apply to all projects that:

a. are owned or significantly funded by the City and,
b. are new building projects or major renovation or restoration projects, and
c. are greater than 10,000 square feet of covered and heated space or any residential space greater than 1,000 square feet.

This policy may be applied as a condition of municipal funding for any construction project.

This policy comes into effect _____.

4. REQUIREMENTS

Unless it can be shown by a comprehensive analysis that the project cannot feasibly be designed and constructed to achieve certification under the LEED Green Building Rating System, the following shall be required:

For New Building Projects:

a. All new building projects must achieve a "Silver" level of certification under the LEED Green Building Rating System most appropriate for the project (LEED-CI, LEED-EB, LEED-H, LEED-NC or LEED-ND).

b. All new building projects must achieve a minimum net energy efficiency of 42% better than the MNEC.

c. All new building projects must undertake Best Practice Commissioning as required by credit EAc3 of the LEED-NC program.

d. All new building projects must undertake Measurement and Verification as required by credit EAc5 of the LEED-NC program.

For Major Building Renovation, Restoration and Retrofit Projects:

a. All major building renovation, restoration or retrofit projects must undertake an assessment of the feasibility of achieving certification under the LEED Green Building Rating System most appropriate for the project (LEED-CI, LEED-EB, LEED-H, LEED-NC or LEED-ND).

b. For the purposes of the feasibility assessment, all major building renovation, restoration or retrofit projects should target a minimum net energy efficiency of 33% better than the MNEC.

c. All major building renovation, restoration or retrofit projects where LEED certification is deemed feasible must undertake Best Practice Commissioning as required by credit EAc3 of the LEED-NC program.

d. All major building renovation, restoration or retrofit projects where LEED certification is deemed feasible must undertake Measurement and Verification as required by credit EAc5 of the LEED-NC program.

4. POLICY MONITORING AND REVISIONS

This policy shall be reviewed and amended as required.