



6328 A 104 Street Edmonton, AB T6H 2K9
tel: 780.433.8702 fax: 780.433.3792
info@gresworld.com



BEAT THE CARBON TAX

Energy Efficiency and Renewable Energy

ALBERTA MUNICIPALITIES ACTION PLAN



6328 A 104 Street Edmonton, AB T6H 2K9
tel: 780.433.8702 fax: 780.433.3792
info@gresworld.com

ALBERTA MUNICIPALITIES ACTION PLAN

Step 1: Conduct a Greenhouse Gas Emissions Assessment

The new Carbon Tax is set to become active January 1, 2017. The cost will be significant and costly. To manage this cost impact, one option is to implement an energy management program. This starts with conducting an assessment of your municipality's current ghg emissions. This information will identify the municipality's major CO2 sources (and the greatest opportunities for reductions), and will provide a baseline to judge the municipalities progress towards its goal.

Real time metering and specifically Circuit Meter should be installed into all buildings. It tracks gas, electricity and water, and allows for the creation of a dashboard showcasing the consumption patterns for all buildings. This includes reporting on costing, energy consumption and greenhouse gas emissions. For transportation, Metrix energy accounting software can be used. The federal government also has a software package that can be utilized.

A preliminary application for the City of Toronto, Efficiency Capital fund will be generated as a source of financing for future projects. There are other financing options, in many forms and costs.

Step 2: Create an Energy and Environmental Operational Plan

After completing a ghg inventory, your municipality will be ready to develop a energy and environment operational plan that can reduce emissions while lowering energy costs.



The plan would generate the following:

Utility Supply Management

- Time of use electricity metering
- Demand response
- Gas purchase agreement
- Water Use

Energy & Environmental Management

- Energy retrofit program for ___% savings
- Smart metering
- Occupant participation
- O&M documentation and training

Renewable Energy

- Target of ___% by 2020

Step 3: Implementation Team Leadership Awareness and Training

Immediately an enrollment and training program should be started for all stakeholders in the institution. The steps are as follows:

1. Enrollment

Team leaders would be drawn from current staff such as head custodians or support staff where this new task of energy management training can become one of their responsibilities.

2. Leadership Training

Team leaders would be trained to:

- Construct a resource efficiency action plan for their building.
- Construct a communications plan for their building.
- Coach all employees on implementing the resource efficiency action plan, and using the Web Info Center.



- Display contents of program Action Kits.
- Provide new employee resource efficiency action orientations.
- Act as point person for awareness follow-up activities.

3. Workshop Training Goals

- Create awareness amongst custodians and building operators on energy management needs
- Provide lectures on energy concepts and management relative to lighting, electricity, HVAC, and waste

Step 4: Implementation of Measures

Of course, a plan alone cannot cut global warming pollution. It is essential that a municipality put a plan into action and monitor its progress periodically. Here are some sample ideas.

Green Vehicle Solutions

The technology exists today to significantly reduce global warming pollution from cars, trucks, and SUVs. Improving automobile fuel economy can be the biggest single step to curbing global warming.

Solution #1—Green Fleets Many municipalities are saving taxpayer dollars and reducing air pollution by “greening” their fleets with hybrid gas-electric and other vehicles that go farther on a litre of gas.

Solution #2—Hybrid Vehicle Incentives In addition to purchasing hybrid vehicles for municipality fleets, local governments can encourage citizens and businesses to buy hybrid vehicles with a wide range of incentives. Some municipalities are already providing incentives such as free parking for hybrid vehicles and lower registration fees and taxes.



6328 A 104 Street Edmonton, AB T6H 2K9
tel: 780.433.8702 fax: 780.433.3792
info@gresworld.com

Solution #3—Clean Buses Residents have long had to endure the sight and smell of black smoke belching from dirty diesel-engine buses. Now many municipalities are replacing these polluting old buses with buses that run on cleaner compressed natural gas (CNG) or with hybrid-electric diesel engines.

Energy Efficiency Solutions

Every municipality can make substantial energy efficiency improvements by putting policies in place to promote efficient technologies and integrating them into planning decisions. The policies outlined below represent some of the most effective steps currently being taken on the municipality and local level.

Solution #1—Making New Buildings More Energy Efficient Incorporating energy efficiency requirements into municipal building codes increases the overall energy efficiency of new buildings.

Solution #2—Energy Efficiency Retrofits to Existing Buildings Modernizing lighting, heating, cooling, and other operations can reduce the energy requirements of existing buildings in a cost-effective manner, lowering energy costs and reducing pollution, for police and fire stations, municipality office buildings, and schools.

Solution #3—Energy Efficient Street Lighting Street lighting and traffic signals can use a significant amount of energy. By replacing traditional light fixtures with super-efficient light emitting diode (LED) bulbs, municipalities are reaping energy and cost savings.



6328 A 104 Street Edmonton, AB T6H 2K9
tel: 780.433.8702 fax: 780.433.3792
info@gresworld.com

Solution #4—Combined Heat and Power Municipalities and businesses can also benefit from energy efficient combined heat and power (CHP) systems. These systems produce both electricity and steam for heating and cooling from a single power plant located near consumers. Organic Rankin Cycle engine/ORC can be added depending on the needs of the client. ORC's capture waste heat to produce electricity.

Solution #5—Public Benefit Funds and Financing (PACE). Municipalities with community-owned, local municipal utilities, can integrate energy efficiency into the municipality's overall energy plan.

Renewable Energy Solutions

By harnessing natural sources of energy like the sun and the wind, renewable energy sources can replace our reliance on outdated, polluting power plants that rely on fossil fuels.

Municipalities around the country are discovering that investing in innovative renewable energy sources reduces global warming pollution and creates a reliable source of clean, homegrown electricity.

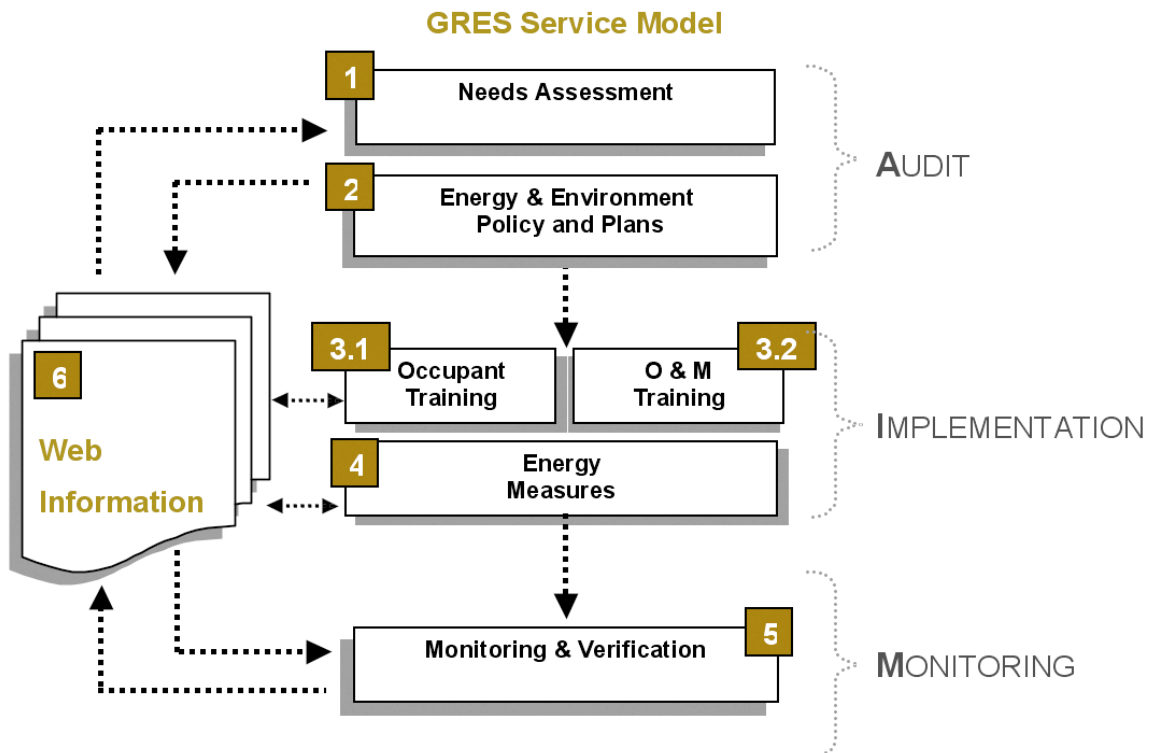
Solution #1—Renewable Energy Standards The Alberta government has established a 30% renewable energy standard that requires an increase in the percentage of electricity from clean, renewable energy sources (such as wind and solar power) by a specific target date of 2030.



Solution #2—Solar and Wind Installations Municipalities are working with local municipal utilities to construct wind turbines. In other cases, municipalities are working with privately owned utilities and renewable energy developers to construct solar arrays on municipality buildings, schools, and homes.

Step 5 Monitor Progress

Monitor all systems with real time metering and on an annual basis that compares findings to the baseline established in step 1.





6328 A 104 Street Edmonton, AB T6H 2K9
tel: 780.433.8702 fax: 780.433.3792
info@gresworld.com

Appendix 1 – Sign Up Sheet

Should your institution wish to obtain help to Beat the Carbon Tax, send in a note requesting the following:

- 1. A teleconference breifing session. 1 hour. Reviews the steps required to implement a plan.**
- 2. A presentation to staff and the governance leadership group on the steps required to implement a plan.**
- 3. Commision a Greenhouse Gas Emissions Assessment.**
- 4. Commision Energy and Environmental Operational Plan.**

Contact – Global Resource Efficiency Services

brian@gresworld.com

780-433-8702

6328 104 st Edmonton Alberta T6H 2K9

www.gresworld.com



Appendix 2 - AUMA Programs

TAME+

The Taking Action to Manage Energy (TAME+) program provides tools and funding to help municipalities understand how energy is used in their buildings, identify key savings opportunities, and implement retrofit projects. For detailed information on eligibility requirements, available funding, and how to apply, please refer to the [TAME+ Guidebook](#).

Who can participate?

- 1 Municipalities: all designated municipalities within the Province of Alberta that meet the definition of "municipality" as per Section 1(s) of the [Municipal Government Act](#).
- 2 Community-related organizations: non-profit community-related organizations (CROs) are eligible to participate if the project is located on municipally owned facilities or municipally owned land. While CROs are eligible to participate, the municipality must be the signatory to the funding agreement and all reimbursements made under the program will be directed to the municipality.

How much funding is available?

Participants are eligible to receive an Energy Audit Incentive to offset the costs of required detailed energy audits and an Implementation Incentive to offset the costs of municipal building retrofits. Available funding is dependent on the total area of all buildings being retrofitted by a municipality.

Energy audit incentive:

Building Area	Incentive Maximum
Under 2,000 m ²	50% of audit costs up to \$500
2,000 to 5,000 m ²	50% of audit costs up to \$1,000
5,000 - 10,000 m ²	50% of audit costs up to \$1,500
10,000 m ² or greater	50% of audit costs up to \$2,000



Implementation incentive:

Building Area	Incentive Maximum
Under 2,000 m ²	50% of capital costs up to \$25,000
2,000 - 5,000 m ²	50% of capital costs up to \$50,000
5,000 - 10,000 m ²	50% of capital costs up to \$75,000
10,000 m ² or greater	50% of capital costs up to \$100,000

Projects must also meet a minimum greenhouse gas reduction performance requirement of \$20 per tonne, measured by dividing total MCCAC implementation funding by a project's lifetime greenhouse gas reductions.

Note: Funding is available on a first come, first served basis.

Completing a Detailed Energy Assessment?

In order to participate in TAME+, municipalities are responsible for commissioning a detailed energy assessment (audit) for all buildings included in the project application. Municipalities should review the [TAME+ Detailed Energy Assessment Requirements](#) document and provide a copy to the energy consultant prior to completing the audit in order to ensure that all requirements are met.

The [TAME+ Detailed Energy Assessment Requirements: Review Checklist](#) is a useful tool to help municipalities review the draft Detailed Energy Assessment report prior to submitting a final application to the MCCAC.

How do I apply?

Interested municipalities are invited to submit the [TAME+ Expression of Interest](#).

Where do I find additional information?

Inquiries may be directed to contact@mccac.ca



6328 A 104 Street Edmonton, AB T6H 2K9
tel: 780.433.8702 fax: 780.433.3792
info@gresworld.com

Energy Efficiency Toolbox

The Energy Efficiency Toolbox has been produced by the MCCAC to help Alberta municipalities and their residents take energy efficiency measuring into their own hands and get an up close look at ways to conserve energy and lower costs in their municipal buildings and operations. The Energy Efficiency Toolbox contains a number of tools to experiment with which will each provide a range of information on different areas of energy consumption and allow you to understand how to become more efficient. An accompanying [Energy Efficiency Toolbox Manual](#) had been developed to provide an overview of the intended use and contents of the toolboxes. It is essential to thoroughly read both the Energy Efficiency Toolbox Manual as well as all other device instruction manuals provided before using any of the equipment to ensure proper use and safety.

There are currently two Energy Efficiency Toolboxes assembled and ready for use. Both Toolboxes are currently located at the Alberta Urban Municipalities Association (AUMA) offices, 8616 51 Ave NW, Edmonton, AB T6E 6E6. Alberta municipalities are encouraged to [contact](#) the MCCAC to arrange to borrow the Energy Efficiency Toolboxes at their own convenience, either by picking them up in person or by making arrangements to have them delivered.

AMSP

The Alberta Municipal Solar Program (AMSP) provides financial rebates to Alberta municipalities who install solar photovoltaics (PV) on municipal facilities or land and complete public engagement for the project. For detailed information on eligibility requirements, available funding, and how to apply, please refer to the [AMSP Guidebook](#).



Who can participate?

- 3 Municipalities: all designated municipalities within the Province of Alberta that meet the definition of "municipality" as per Section 1(s) of the *Municipal Government Act*.
- 4 Community-related organizations: non-profit community-related organizations (CROs) are eligible to participate if the project is located on municipally owned facilities or municipally owned land. While CROs are eligible to participate, the municipality must be the signatory to the funding agreement and all reimbursements made under the program will be directed to the municipality.

What types of projects are eligible to receive funding through the AMSP?

- Solar PV systems that are greater than or equal to 2 kW and less than or equal to 1 MW in installation capacity
- All projects must be compliant with Alberta's *Micro-generation Regulation 27/2008*
- All projects must be completed and energized after February 5, 2016

What types of projects are ineligible to receive funding through the AMSP?

- Projects located on facilities or land owned by the private sector, schools, universities, hospitals, and the provincial or federal governments
- Projects located on temporary structures
- Off-grid solar PV and solar thermal projects
- Projects that are supported financially by other Government of Alberta climate change initiatives

How much funding is available?

Participants are eligible to receive a rebate per watt of total installed capacity (\$/W), as per the table below. The rate tier is determined by the total installed capacity of a project submitted through a single AMSP Application. Total funding provided by the MCCAC will not exceed 20% of eligible expenses, up to a maximum of \$300,000 per project application. The rebate will be issued after the project is complete.



6328 A 104 Street Edmonton, AB T6H 2K9
tel: 780.433.8702 fax: 780.433.3792
info@gresworld.com

Total Installed Capacity (DC)	Rebate
<10 kilowatts	\$0.75/Watt
10 kilowatts to <150 kilowatts	\$0.60/Watt
150 kilowatts to 1 Megawatt	\$0.45/Watt

Note: Funding is available on a first come, first served basis. Municipalities are eligible to submit multiple applications.

How do I apply?

Interested participants are invited to submit the [AMSP Expression of Interest](#) as a first step.

Upon receiving feedback and approval from the MCCAC, please proceed to the [AMSP Application](#).

Where do I find additional information?

Inquiries may be directed to contact@mccac.ca

Provincial Programs

Federal Programs

Additional Support

ESCO's – energy service companies that conduct energy performance contracts

Foundations – that provide grants for innovation and demonstration programs