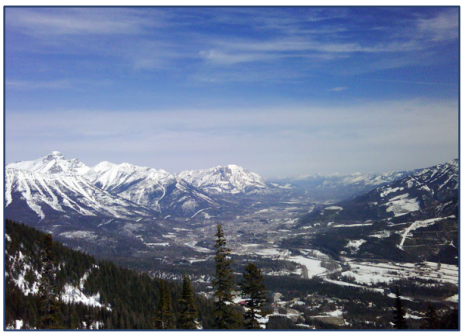

Regional District of East Kootenay

Corporate Greenhouse Gas Emissions Action Plan

Final Report

Prepared for
Regional District of East Kootenay
Andrew McLeod
Manager of Planning & Development Services

Prepared by
The Carbon Neutral Kootenay Project
Contact: Ron Macdonald

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About the Carbon Neutral Kootenays Project

The Carbon Neutral Kootenays project is an initiative to assist local governments in the Kootenay region in meeting their commitments under the Climate Action Charter, including becoming carbon neutral in their operations. It is jointly funded by the Regional Districts of Central Kootenay, East Kootenay and Kootenay Boundary, and the Columbia Basin Trust, with the participation of member municipalities and First Nations.

In 2009, the initiative includes compiling inventories of energy and greenhouse gas emissions for local government operations, developing action strategies for reducing emissions from Regional District operations, and conducting outreach and capacity building activities for staff and elected officials in the Kootenay region.

This project is being implemented and facilitated by The Sheltair Group (*now Stantec) with the Community Energy Association.

Contacts: Ron Macdonald
Inventories and Action Plans

The Sheltair Group(now Stantec)
604-696-8452

Dale Littlejohn
Outreach and Communications

Community Energy Association
604-628-7076

The Carbon Neutral Kootenays Project is funded by the Regional Districts of Kootenay Boundary, Central Kootenay, East Kootenay, and the Columbia Basin Trust.

At the 2009 Union of BC Municipalities (UBCM) Conference this project was awarded the prize for **Leadership & Innovation** in recognition of "environmental excellence and ideas that showcase vision, creativity and teamwork that can be followed by others". The unique funding model and partnership is a first in BC.

Summary

The Regional District of East Kootenay (RDEK) has developed a Corporate GHG Emissions Reduction Plan to reduce energy consumption and greenhouse gas (GHG) emissions in its corporate operations. This plan is consistent with the Regional District's voluntary commitment to the Climate Action Charter; as a signatory to the Charter, the RDEK is committed to becoming carbon neutral by 2012.

This plan establishes a framework for meeting this commitment by:

- Defining the baseline inventory of all energy consumption and GHG emissions that result from the Regional District's corporate operations;
- Identifying measures and business processes already initiated by RDEK staff that will increase energy efficiency or reduce corporate emissions;
- Developing policies and actions to reduce energy consumption and greenhouse gas emissions in four focus areas: buildings, fleet, purchasing, and leadership and staff engagement;
- Identifying an emissions reduction target from which to measure progress toward carbon neutrality; and
- Outlining a structure for implementation.

Corporate Energy Use and GHG Emissions: 2008

In 2008, the RDEK consumed a total of **12,283 GJ** of energy, resulting in an estimated **303 tonnes of CO2 emissions** in the delivery of its services. Energy consumed in the operation of the RDEK fleet accounts for 60% of emissions, while buildings and facilities account for 40 %.

GHG Emission Reduction Target

Within the commitment to becoming carbon neutral, the Regional District is committed to reducing its corporate emissions through the adoption of the following target:

> *To achieve carbon neutrality by 2012 by reducing corporate greenhouse gas emissions 15% from 2008 levels, and purchasing offsets for the remaining emissions.*

This corporate emissions reduction target supports the Regional District's broader community emissions reduction target, which has been set at 17% below 2007 levels by 2020. At its October 2009 meeting, the RDEK Board authorized staff to add the community target, and the planning tools and policies necessary to meet it, to each Official Community Plan in the Regional District.

Opportunities for Reducing Emissions

The policy initiatives and action items identified in this plan are summarized below. By implementing these reduction measures, it is estimated that the RDEK could reduce operational GHG emissions by approximately 15%.

Policy Initiatives & Actions		Estimated Reductions
Building Operations		
1.	Develop an RDEK green building policy	15% (of existing building emissions)
2.	Develop an RDEK alternative energy policy	
3.	Conduct energy efficiency audits of existing RDEK facilities	
4.	Incorporate energy management into annual building maintenance procedures	
Fleet Operations		
5.	Develop an RDEK vehicle purchasing policy	15% (of fleet emissions)
6.	Implement a vehicle use efficiency strategy for all RDEK departments	
7.	Develop a monitoring program for fleet fuel consumption	
Purchasing		
8.	Develop an RDEK green purchasing policy	To be determined
9.	Incorporate life cycle costing into operational decision making	
10.	Incorporate emissions tracking requirements into agreements with RDEK service providers	
Leadership and Staff Engagement		
11.	Dedicate staff resources to implementing the corporate energy efficiency and emissions reduction strategies	To be determined
12.	Align future RDEK Board priorities with opportunities to reduce energy and emissions	
13.	Consider establishing a Community Energy Efficiency Grant with the annual CARIP grant funds	
14.	Develop an administrative system for tracking corporate emissions and report on progress	

Implementation and Funding

To aid in successful implementation, it is recommended that the Regional District designate a specific staff member as the Program Champion for energy and GHG management purposes. This person will be responsible for working with staff from each department to initiate activities and ensure that the annual work plan is progressing. It is important that the energy management activities of the Program Champion be recognized as part of their job descriptions and performance expectations.

No new staff resources are proposed.

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1.0 Introduction

1.1 Background: Energy, GHG Emissions and Climate Change

There is increasing evidence that global climate change resulting from emissions of carbon dioxide and other greenhouse gases (GHGs) is causing, or will soon cause, significant environmental impact on the ecology of the planet. In addition to impacting ecology, climate change is expected to have serious negative impacts on global economic growth and development. In 2005, the UK government commissioned an independent review called the "Stern Review", which states that the "costs of stabilizing the climate are significant but manageable; delay would be dangerous and much more costly". This is a significant conclusion highlighting that deferring action will be more costly than initiating action immediately.

Climate change is a global phenomenon, caused by the cumulative effect of the consumption of fossil fuels by the world's population. In response to this challenge, the reduction of GHG emissions will require a concerted global effort to **conserve energy** and **reduce GHG emissions**. No one individual or organization can make a difference to global GHG emissions; individuals and organizations must all act in concert, and all individuals and organizations must contribute to mitigate this challenge.

In addition to reducing impacts on climate change, local governments can begin to plan for energy resilience in their communities. As the abundance of cheap fossil fuels declines, reducing dependence on fossil energy sources will be a key strategy for ensuring long-term community sustainability; reducing vulnerability to price fluctuations.

Local governments can take action on energy consumption and greenhouse gas emissions by:

- Identifying opportunities to reduce consumption and GHG emissions in their operations (corporate emissions reduction plan), and
- Implementing broader policies and programs to reduce consumption and GHG emissions in the community as a whole (community emissions reduction plan).

1.2 Climate Action Charter Commitment

The **BC Climate Action Charter** is a provincial initiative introduced in September 2007 to encourage local governments to significantly cut their greenhouse gas emissions. Participating local governments have committed to measuring their GHG emissions profile, becoming carbon

neutral in their municipal operations by 2012, and creating complete, compact, and more energy efficient rural and urban communities. The Regional District of East Kootenay signed the Charter in October 2007; in order to become carbon neutral, it will need to develop strategies to reduce its corporate greenhouse gas emissions where possible, and purchase carbon offsets for the remainder.

Signatories to the Climate Charter are currently eligible for a rebate of the carbon tax paid to the Province (called the Climate Action Rebate Incentive Program – CARIP). The RDEK received a rebate of approximately $700 through CARIP in March 2009. This amount reflects the estimated carbon tax paid by the RDEK to the Province between July and December 2008.

1.3 Carbon Neutrality and Carbon Offsets

Carbon neutrality means that the organization's carbon emissions are effectively reduced to zero through a combination of reductions and offsets. To achieve **carbon neutrality** an organization must:

- Establish a baseline of annual GHG emissions,
- Reduce those emissions as much as possible through reduction measures, and
- Purchase carbon offsets for any remaining emissions.

A **carbon offset** is a reduction in greenhouse gas emissions that is generated through a reduction project, either in the community or elsewhere. These reductions are verified, and can be purchased by the local government. Note that a project that reduces the local government's current emissions does not qualify as an offset project. Since it is currently impossible to reduce emissions to zero, there will always be some requirement to procure offsets.

1.4 Objectives of this Corporate GHG Emissions Reduction Plan

The corporate plan objectives are to:

- **Set a baseline** of energy consumption and GHG emissions for RDEK corporate operations.
- **Define actions** for the RDEK to implement that will reduce energy consumption and GHG emissions for corporate operations.
- **Support the RDEK** in meeting its commitment to become carbon neutral in its operations by 2012 as part of the Climate Action Charter.

1.5 Methodology

The RDEK Corporate GHG Emissions Reduction Plan was developed in a series of steps as follows:

- **Corporate inventory**: An inventory of corporate activities that consume energy and produce greenhouse gas emissions was compiled to estimate annual energy consumption and greenhouse gas emissions for the base year of 2008.
- **Background review**: Current corporate policies and operational initiatives in the Regional District were identified and assessed with regard to energy and emissions reduction through discussion with staff and review of documents.
- **Action planning workshop**: A workshop was held with staff to review potential types of actions and define activities that would be feasible to implement in order to reduce energy consumption and greenhouse gas emissions for corporate operations.
- **Activity research**: Research was conducted on current activities being undertaken in other local government jurisdictions in BC (particularly those in the Kootenays) to address corporate operations in a local government context. These activities and examples helped inform the development of actions for this plan.

2.0 Corporate Energy and GHG Inventory

This section presents the compiled corporate energy and GHG inventories for the Regional District of East Kootenay for 2008. Please refer to the companion document "2008 Corporate Energy and Emissions Inventory Report" for details regarding data sources, methodology, and emission factors used in the analysis.

2.1 RDEK Operations Profile

A Regional District typically provides services requested by its members, acting as a federation which pays collectively or individually for services received. The RDEK provides a range of planning, environmental management, building inspection, bylaw enforcement, and protective services to area residents. Some services cover the entire Regional District, such as 911, while others are provided to a single community or group of communities, such as an arena or fire hall.

By law, only those areas that subscribe to a service offering are responsible for paying the cost of that service. This may have implications for energy management and conservation activities as rate payers from one portion of the Regional District cannot be required to pay for initiatives in another service area (e.g. a building retrofit or upgrade).

In order to deliver services to residents, the RDEK operates the facilities, fleet, and utility accounts outlined below, either directly or through the provision of funds to other agencies.

Core components of RDEK operations that contribute to its GHG emissions profile include:

Administration: The RDEK operates three administrative buildings in the region, and is also responsible for a former credit union building.

- RDEK Administration Building, Cranbrook
- Edgewater Office / Library, Edgewater
- Columbia Valley Office, Invermere
- Edgewater Credit Union Building, Edgewater

Recreation: The Regional District is responsible for three community centres (including two arenas) and four small park maintenance buildings.

- Edgewater Community Hall, Edgewater
- Columbia Valley Rec. Centre / Eddie Mountain Arena, Invermere
- Canal Flats Arena, Canal Flats
- Wycliffe Park maintenance and storage buildings (4)

Fire Services: The RDEK operates 35 fire service vehicles and seven fire halls. These buildings and vehicles are run and maintained by community volunteer firefighters, and are typically in use only a few hours per week.

- Fairmont Fire Hall, Fairmont
- Windermere Fire Hall, Windermere
- Jaffray Fire Hall, Jaffray
- Baynes Lake Fire Hall, Baynes Lake
- Edgewater Fire Hall, Edgewater
- Hosmer Fire Hall / Community Hall, Hosmer
- Panorama Fire Hall, Panorama

In addition, the RDEK provides partial funding for fire protection to six other municipalities across the Regional District in exchange for the municipality providing fire protection to the surrounding electoral area. The number and size of these service areas may be expanded in the future.

Fleet: The RDEK operates a fleet of 24 vehicles (in addition to the 35 fire service vehicles noted above) assigned to specific RDEK departments. Each department is responsible for purchasing their own vehicles.

Solid Waste Management: The RDEK manages solid waste through two landfills – the Central Sub-region landfill and the Columbia Valley landfill – and 19 transfer stations. Of these facilities, the two landfills and four transfer stations are staffed (Cranbrook, Kimberley, Sparwood, Elkford). Waste is collected by a private firm under contract to the RDEK.

Infrastructure: Infrastructure services provided by the RDEK include street lighting, drainage and flood protection, six community water systems, and two sewer systems (Edgewater and Holland Creek).

Purchasing: The Regional District purchases products and services required to continue the operation or delivery of services to residents.

The operations profile provided in Table 1 is the basis for the 2008 RDEK energy and emissions inventory.

Table 1. Operations Profile for the RDEK

Type	Number
General Buildings	8
Community and Recreational Facilities	3
Fire halls	7
Vehicle Fleet	59
Electricity Accounts	44
Natural Gas or Propane Accounts	4

2.2 2008 Energy Consumption and GHG Emissions

Corporate emissions are generated as a result of the energy used and the solid waste generated during the management and delivery of Regional District services and the operation of its facilities. Policy planning and budgetary decisions to reduce corporate energy use are within the powers of the RDEK board and staff.

The Regional District consumed a total of 12,060 GJ of energy in 2008 and emitted 289 tonnes of CO2 equivalent in the delivery of its services. Table 2 breaks down these totals by fuel type. [1]

Table 2: 2008 Corporate Energy Consumption and GHG Emissions [2]

Fuel Type	Energy Consumption	Energy Units	GHG Emissions (tonnes CO2e)	Annual Energy Expenditure (Approx $)
Electricity	2,314,125	kWh	51	$150,420
Natural Gas	311	GJ	15	$3,110
Propane	41,001	L	63	$32,470
Gasoline	70,685	L	168	$70,690
Diesel	1,892	L	5	$1,890
Total			**303**	**$258,600**

[1] As of this report date, the inventory is in Draft form. Further information that may result in changes to these inventory totals may include: (i) possible data from the Columbia Valley Office (shared space) and the Edgewater Community Hall, (ii) refinement of the propane consumption at the Columbia Valley Rec Center (currently estimated from limited billing information), and (iii) clarification of the protocol for shared services such as fire protection in the areas around municipalities. However, this inventory is believed to be substantially complete, and none of these revisions would alter the inventory substantially.

[2] These inventory values have been modified since the release of version 1 of the inventory due to the inclusion of the Columbia Valley Rec Center data.

Figure 1 provides a breakdown of energy consumed by the Regional District by category.

Figure 1: Energy Consumption (GJ) in Corporate Operations

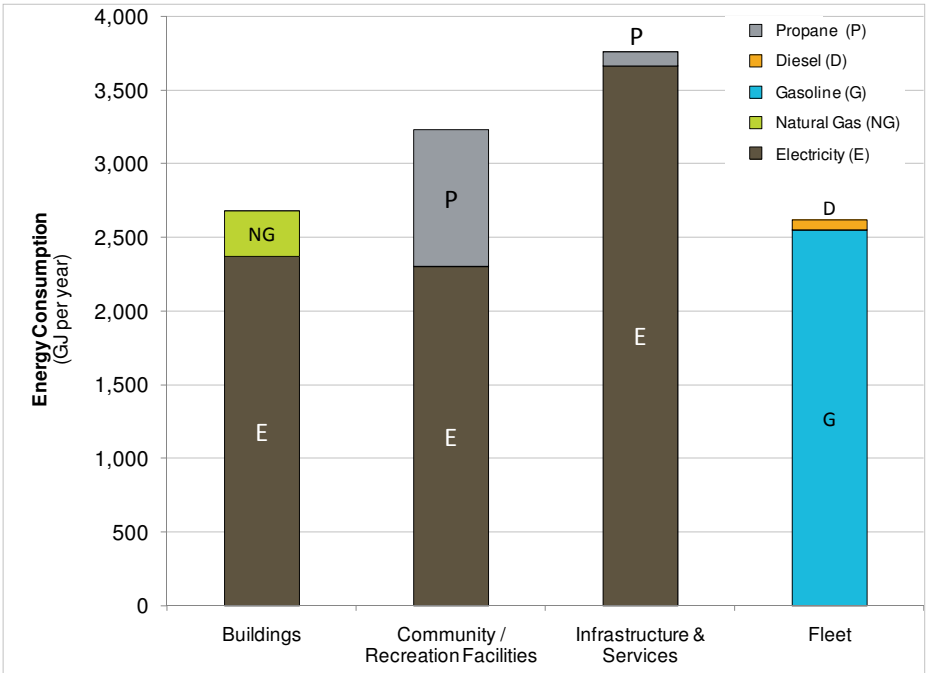
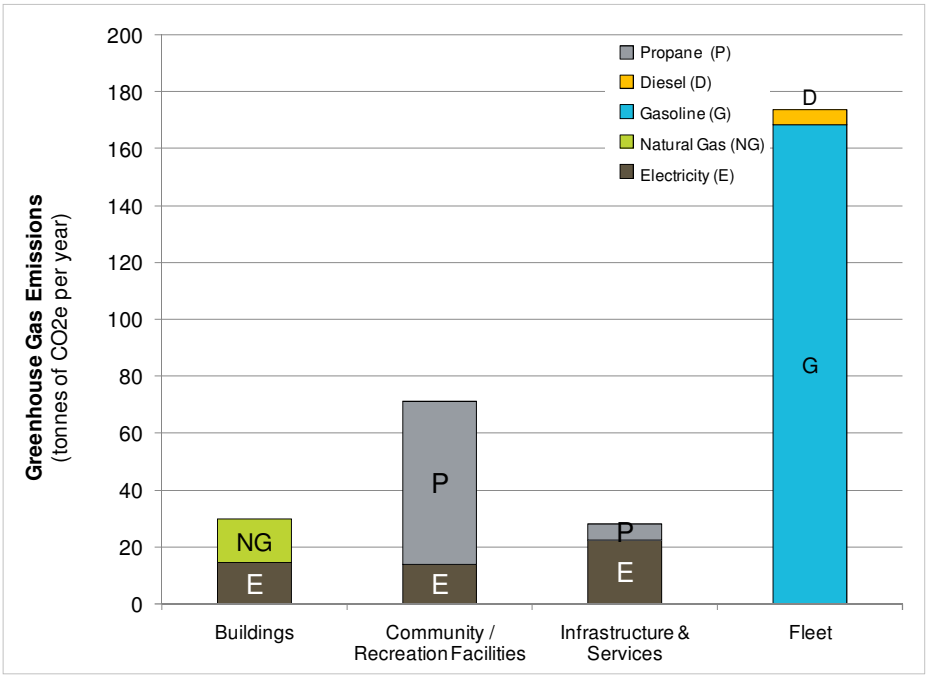


Figure 2 provides a breakdown of the Regional District's operational GHG emissions by category and energy source, highlighting the relatively low carbon footprint of electricity compared to other fossil fuel-based energy sources (e.g. natural gas, gasoline, and diesel).

Figure 2: Greenhouse Gas Emissions (tonnes CO2e) from Corporate Operations



2.3 Carbon Neutrality and Offsets

The objective of carbon neutrality is achieved through a combination of reductions in emissions and the purchase of offsets, shown schematically in Figure 3.

There is a limit to the emission reductions that can be achieved, particularly in the short term, so it is expected that most Regional Districts will achieve carbon neutrality through the purchase of carbon offsets. For many local governments, energy conservation measures and efficiency improvements can generate reductions in corporate emissions of approximately 15% in two to three years.

The Climate Action Charter does not specify where offsets purchased for the purposes of achieving carbon neutrality should be sourced; however, there are protocols under development to determine what can be considered a legitimate offset. Current sourcing options for the RDEK include:

- Commercial Offset Vendors: there are a wide range of vendors that source offsets in Canada and abroad.
- The Pacific Carbon Trust: PCT is a new Crown corporation established to broker BC based offsets for provincial Public Sector Organizations (PSOs) seeking to become carbon neutral.

- Call for Proposals: by issuing a request for proposals, the buyer is provided with an opportunity to specify where the offsets should be sourced (i.e. from within the local community – a more politically feasible option for many communities).

Figure 3. Getting to Carbon Neutral

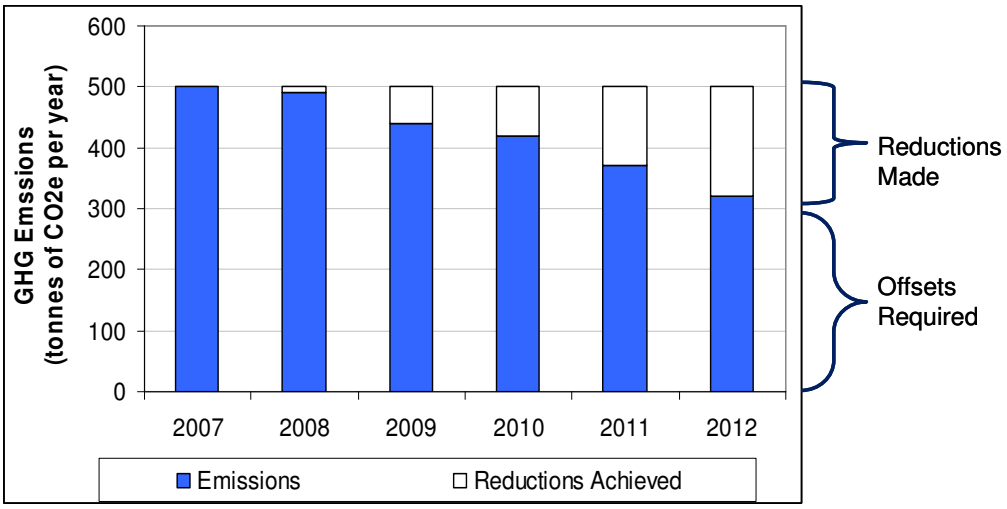


Table 3 provides an overview of the expected costs of offsetting 100% of the Regional District's emissions. Note that the estimated Carbon Tax Rebate (CARIP rebate) after 2012 (if fully received) is estimated at $7,560.

Table 3: Estimated Annual Cost for Offsets for the RDEK

	Annual Cost of Offsets (at $25 per tonne)
Cost if Emissions Remain at 2008 Levels	$7,600
Cost with a 15% Reduction	$6,460
Cost with a 50% Reduction	$3,800

3.0 Local Context

3.1 Unique Challenges and Considerations for Regional Districts

The RDEK has a number of features which create unique challenges—and opportunities—for managing energy and GHG emissions. These challenges are common to many rural Regional Districts in BC.

Large and Geographically Diverse Service Area

The RDEK service area spans eight municipalities and six electoral areas, spread over 28,000 square kilometres. Facilities, vehicles, and services are dispersed accordingly.

Modest Financial Resources

Based on the governance structure for Regional Districts in BC, capital upgrades and service enhancements must be funded by the tax base of the service area in which the service is provided.

Minimal Opportunities for Building Scale Energy Retrofits

The core facilities of the RDEK are administrative buildings and fire halls. The Regional District is responsible for only one ice arena. However, due to the age of the RDEK building stock, there may be some significant opportunities for relatively high yield, low cost energy efficiency improvements of facilities without extensive retrofits.

Small, Multi-purpose Fleet

The RDEK operates a relatively small number of fleet vehicles, with many performing multiple tasks in varied locations and weather conditions. The ability of staff to use smaller vehicles may be limited by performance requirements. Fire fighting vehicles make up a large portion of the fleet.

Limited Staff Resources

Buildings are managed by Regional District staff and volunteer fire fighters / community members; there may be limited time and resources available for administering retrofits and optimizing operational efficiencies.

3.2 Current RDEK Emissions Reduction Initiatives

As a relatively small organization providing an extensive range of services in a large geographic area, operational decisions at the RDEK are driven by financial prudence and administrative efficiency. In order to reduce costs and streamline its operations, the RDEK has already rolled out a

number of initiatives that are expected to reduce its energy consumption and greenhouse gas emissions. These initiatives include:

Building Operations

- Replacement of the slab at Eddie Mountain Arena, scheduled to be replaced in mid-2010. This work will reduce the load on the chiller and is expected to provide a moderate reduction in the building's energy consumption.
- Energy efficiency improvements at the RDEK administration building in Cranbrook, including lighting upgrades, motion sensors, and minor improvements to HVAC systems.
- Planned capital improvement projects with the potential to incorporate energy efficiency strategies and green building features.

Fleet Operations

- Ongoing efforts to improve the efficiency of the RDEK vehicle fleet through initiatives such as the E3 Fleet Program.
- The implementation of a corporate fuel purchase card for use by all RDEK vehicle operators, providing staff with access to aggregate vehicle fuel consumption data.
- 'Right sizing' of RDEK vehicles where possible, reducing capital costs, minimizing operational costs, and saving fuel. The vehicle type, size and fuel economy are evaluated against the performance requirements and anticipated use of the vehicle to ensure the most appropriate vehicle is purchased.
- Ongoing efforts to reduce vehicle use, such as staff carpooling to RDEK meetings.

Purchasing & Corporate Leadership

- The development of a regional GHG emissions target of 17% below 2007 levels by 2020, to be included in Official Community Plans throughout RDEK.
- Ongoing efforts to reduce or eliminate the use of paper at RDEK offices, including paperless board meetings, reduced paper use for staff recruitment and interviewing, and the implementation of online and electronic communication media for community newsletters and stakeholder relations.
- The implementation of desktop LCD screens for each RDEK board member, eliminating the use of approximately 1,200 pounds of paper per year. Board meetings are now completely paperless.

- Ongoing efforts to reduce travel associated with RDEK operations, including telephone interviews for new staff, staff carpooling, and the exploration of a compressed work schedule.

4.0 Opportunities for Reducing Emissions

4.1 Action Plan Development

There are two distinct tools available to local governments for managing and ultimately reducing corporate emissions: policy initiatives and direct action. This plan proposes a range of policy initiatives and action items in four areas of the Regional District's operations: Building Operations, Fleet Operations, Purchasing, and Leadership and Staff Engagement.

The opportunities for reducing emissions identified in this section were developed through:

- An analysis of the corporate energy and emissions inventory for the RDEK;
- A review of current corporate policies and operational initiatives in the RDEK;
- An action planning workshop with staff on November 2, 2009; and
- A review of current activities undertaken in other local government jurisdictions in BC.

It is recognized that the relatively modest cost of offsetting the carbon footprint of the RDEK is not a strong incentive for reducing corporate emissions. However, in addition to reducing the carbon liability for the RDEK, there are several low cost strategies for which there is a strong business case, due to the significant improvements in energy efficiency that will result.

4.2 Corporate Actions and Policy Initiatives

In order to become carbon neutral by 2012, the Regional District will need to undertake a combination of emission reduction measures and carbon offset purchases. Fourteen actions and policy initiatives were developed with the aim of reducing energy consumption and GHG emissions from the District's operations.

The policy initiatives and action items identified in this plan are summarized in Table 4. By implementing these reduction measures, it is estimated that the RDEK could reduce operational GHG emissions by approximately 15%.

Table 4: Summary of Emission Reduction Opportunities (tonnes CO2e)

Policy Initiatives & Actions
Building Operations
1. Develop an RDEK green building policy
2. Develop an RDEK alternative energy policy
3. Conduct energy efficiency audits of existing RDEK facilities
4. Incorporate energy management into annual building maintenance procedures
Fleet Operations
5. Develop an RDEK vehicle purchasing policy
6. Implement a vehicle use efficiency strategy for all RDEK departments
7. Develop a monitoring program for fleet fuel consumption
Purchasing
8. Develop an RDEK green purchasing policy
9. Incorporate life cycle costing into operational decision making
10. Incorporate emissions tracking requirements into agreements with RDEK service providers
Leadership and Staff Engagement
11. Dedicate staff resources to implementing the corporate energy efficiency and emissions reduction strategies
12. Align future RDEK Board priorities with opportunities to reduce energy and emissions
13. Consider establishing a Community Energy Efficiency Grant with the annual CARIP grant funds
14. Develop an administrative system for tracking corporate emissions and report on progress

4.3 Initiative One: Building Operations and Construction

Objective:

To build and operate RDEK buildings in an energy efficient manner.

Background:

The Regional District is responsible for a building stock comprised primarily of community centres and fire halls, in addition to its administrative offices. Some of these facilities (e.g. firehalls) are intermittently occupied and none have not been audited for energy efficiency in several years.
New construction and major rehabilitation projects provide building owners with an opportunity to make use of new technologies and

materials that can result in more efficient building systems, reduced operational costs, and lower GHG emissions.

Planning work is underway for a new transfer station in Fernie, to be completed in 2010/2011, and a number of significant renovation projects in the planning stages for other facilities. The development of this Plan provides the RDEK with an opportunity to develop a policy to guide these future projects.

Corporate Action #1: Develop a RDEK Energy Efficiency Building Policy

By the end of 2010, the RDEK will commit to completing all major renovations and building all new RDEK-owned buildings to a high standard of energy efficiency. To support this commitment, the Regional District will develop an energy efficiency policy for new construction and major renovation projects that considers energy efficient design, materials, and technologies. The RDEK will also incorporate life cycle costing[3] or triple-bottom line analysis[4] into its decision making regarding major renovation and construction projects.

The policy may be incorporated into a broader green buildings framework that includes participation in a program such as LEED (Leadership in Energy and Environmental Design), BREEAM (Building Research Establishment Environmental Assessment Model), GreenGlobes, or the upcoming ASHRAE Sustainable Buildings Standard[5]. Considerations may include:

- Design: passive solar, improved building envelope, advanced controls for lighting, heating & cooling systems, and high efficiency mechanical equipment.

[3] Life Cycle Costing considers the total capital and operating costs over the lifetime of the purchase. For example, purchasing a more expensive pump that uses less energy than conventional pumps may save more money over its lifetime.

[4]Triple Bottom Line (TBL) methodologies consider how an initiative meets economic, environmental, and social objectives in an integrated evaluation. For example, an energy efficient ventilation system may reduce energy consumption, reducing infrastructure costs and GHG emissions, while also improving indoor air quality and occupant comfort.

[5] The Province of British Columbia and the City of Vancouver require that new publicly owned facilities be designed and built to achieve LEED Gold Certification. The City of Richmond has a policy that new publicly owned facilities obtain a LEED Silver Certification.

- Materials: better insulation, low VOC finishes, light coloured exterior finishes that reflect heat, energy efficient windows, and shading devices.
- Tools: life cycle costing and triple bottom line methodologies.

Corporate Action #2: Develop an RDEK Alternative Energy Policy

By the end of 2010, the RDEK will commit to exploring potential alternative energy sources as part of the planning process for new RDEK facilities or major renovations to existing facilities. To support this commitment, the RDEK will develop an alternative energy policy for new construction and major renovation projects that considers potential alternative energy sources. The RDEK will also incorporate life cycle costing or triple-bottom analysis into its decision making regarding major renovation and construction projects.

All new construction and major renovation projects should include a technical and financial evaluation of potential alternative energy sources for space and hot water heating. The assessment should account for both the capital and operational costs over an extended period. Alternative energy systems may require higher up-front capital costs, but reduce operating costs (including fuel costs) over the lifetime of the building. Evaluating these costs at the design stage of any major capital project is the most effective time to incorporate alternative energy systems.

Alternative energy sources with promise for the RDEK may include:

- Solar hot water: practical for facilities with high hot water demand (e.g. pool);
- Heat recovery from ice plants: practical for the arena;
- Geo-exchange: likely not practical for retrofits, but should be evaluated for any new buildings. Open loop groundwater is the least expensive, if available, but care is needed with re-injection;
- Heat recovery from sewage treatment: may be an option if future municipal buildings are constructed near a treatment facility; and
- District energy opportunities: may be potential in the long-term if future development is concentrated near a "hub" of community facilities.

Corporate Action #3: Conduct Energy Audits of Existing RDEK Facilities

By the end of 2010, the RDEK will conduct Level 1 walk-through energy audits on a representative sample of its facilities. The selection of buildings to be audited will represent the different building types in the RDEK building stock, taking into consideration building forms and occupancy

patterns. The recommendations from these audits may then be considered for implementation in other buildings of similar type. The RDEK will complete all actions identified for which there is a ten year payback or less.

A Level 1 walk-through audit determines a building's energy efficiency and cost by analyzing energy bills and conducting a brief on-site survey of the building. The analysis provides a savings and cost analysis of low cost/no-cost measures and a list of potential capital improvements that merit further consideration.

Corporate Action #4: Incorporate energy management into annual building maintenance procedures

The RDEK will add an energy management component to regular building maintenance and safety inspections. Specifically, the following practices will be considered for incorporation into existing maintenance procedures:

- Check thermostats to determine if programming has been altered. Ensure instructions for temporarily changing temperature are clearly posted;
- Check and replace weather stripping on doors and windows as necessary;
- Monitor annual energy consumption for each building to identify fluctuations in use. Investigate abnormal energy use to determine cause (operational or structural);
- Assess condition and maintenance dates of HVAC equipment, hot water systems, and distribution and type of lighting controls; and
- Determine condition and operation of windows, doors and vents.

The Regional District currently undertakes annual maintenance and safety inspections in all of its facilities. These inspections can be adapted to incorporate energy management objectives—this would serve as a reminder to staff and would enable staff to determine whether improvements have been properly implemented.

4.4 Initiative Two: Fleet Operations

Objective:

To utilize and operate RDEK fleet vehicles in a manner that conserves energy and reduces greenhouse gas emissions.

Background:

The Regional District currently has 59 vehicles in its fleet, of which 24 are standard light vehicles for use by different administrative departments (the remainder are fire service vehicles). Many RDEK administrative vehicles are used primarily for highway driving throughout the Regional District, generally for round trip travel in excess of 100 km; however, staff also make a significant number of local trips within Cranbrook and Invermere.

RDEK staff have already initiated a number of best practices in fuel efficiency and fleet management, including the implementation of a corporate fuel card for centralized fuel purchase tracking, vehicle rightsizing, and staff carpooling to minimize the number of vehicles required at meetings around the Regional District. Formalizing these practices in RDEK policy will ensure that they continue in the future.

The District has received its initial fleet review from the E3 fleet program, a rating system developed by the Fraser Basin Council to assist in reducing emissions, increasing fuel efficiency, managing expenses, incorporating new technologies, and using alternative fuels. The RDEK is not aggressively seeking an E3 fleet certification due to the small size of the fleet. However, there are several components of the E3 fleet system which are applicable to the RDEK fleet. As the vast majority of RDEK emissions are generated from its vehicle fleet, even marginal improvements in the efficiency of the fleet will have a meaningful impact on corporate emissions.

Corporate Action #5: Develop an RDEK Vehicle Purchasing Policy

By the end of 2011, RDEK will develop a vehicle purchasing policy to ensure that vehicles purchased by the Regional District are evaluated based on:

- Anticipated usage of vehicles (e.g. engine size, vehicle weight, average load capacity, average passenger capacity, average operational terrain).
- Life cycle considerations (e.g. residual costs / values of vehicle being replaced, capital costs, maintenance costs, fuel costs, resale values).

The RDEK may choose to adopt this policy as part of a larger green procurement policy for the Regional District (see Procurement).

As a demonstration of this policy, it is recommended that the RDEK consider the purchase of a hybrid vehicle(s) for use for 'pool car' purposes (administration, local building inspection etc.) within Cranbrook and/or Invermere to highlight the suitability of these vehicles.[6]

Corporate Action #6: Implement a Vehicle-use Efficiency Strategy

The RDEK will continue to implement strategies for increasing its fleet efficiency, using its 2008 E3 fleet review as a baseline. Specific opportunities include:

- Educate staff regarding fuel efficient driving—driver behaviour and fleet maintenance can have significant impacts on the amount of fuel used by a vehicle fleet. Simple measures such as checking tire pressure before trips and ensuring that vehicles are regularly maintained can save fuel and prolong the lifespan of fleet vehicles.
- Repair or replace vehicles that are not performing to expected standards.
- Retire older vehicles that are not being well used.
- Identify opportunities to reduce vehicle needs by sharing across departments where possible.
- Continue allowing cross departmental vehicle bookings to maximize use of fleet resources.

Corporate Action #7: Develop a Monitoring Program for Fleet Fuel Consumption

Using the 2008 E3 fleet review data as a baseline, the RDEK will establish a monitoring system for vehicle fuel use to show changes in fuel consumption over time (km / litre). This system will enable RDEK staff to evaluate the effectiveness of Actions #5 and #6.

[6] Note that many organizations are using gas-electric hybrids such as Ford Escapes for their fleets which require larger or four wheel drive vehicles.

4.5 Initiative Three: Corporate Purchasing

Objective:

To purchase products and services that are cost-effective and manufactured, transported and disposed of in an energy efficient manner.

Background:

Many local governments have a purchasing policy that articulates their intention to obtain the best possible value and price for goods and services required to run the organization. A green purchasing policy considers the life cycle cost of each product, and gives preference to environmentally superior products where quality, function, and cost are equal.

Sustainability purchasing and green procurement policies are becoming widely accepted in both public and private sector policy documents across the country, as organizations become increasingly interested in making purchasing decisions based on the full life cycle impact of a product or service. The Fraser Basin Council has established the BuySmart Network, which is an excellent resource for BC organizations.[7]

A green procurement policy can include a range of criteria, such as:

- Guidelines for selecting appropriate vehicles ('rightsizing');
- Guidelines for fuel selection;
- Preference for products with specific environmental labelling / rating (Energy Star, Environmental Choice, EcoLogo);
- Requiring recycled content in paper purchases; and
- Including energy conservation targets in facility management contracts.

Corporate Action #8: Develop a green procurement policy

The RDEK will develop a green procurement policy that includes criteria for energy conservation and GHG reduction.

[7] There are a range of tools and resources available through http://wwwbuysmartbc.com

Corporate Action #9: Incorporate life cycle costing into operational decision making

To ensure the full cost of a product or project is considered, include the concept of "Life Cycle Cost" in purchasing and other operational decision making procedures. For example, when the RDEK needs to buy a new pump, it should be determined whether the Regional District can afford a more expensive pump at the outset if it uses less energy and saves more money over time.

Corporate Action #10: Incorporate emissions tracking requirements into agreements with RDEK service providers

The emissions associated with the delivery of core Regional District services, whether or not they are delivered by RDEK staff, must be captured in the RDEK emissions inventory after **2012**. To enable staff to capture and monitor the emissions associated with private delivery of RDEK services (e.g. waste hauling, snow removal etc); the RDEK will include emission tracking requirements in all contracts with private sector service providers renewed after January 1, 2012. It is expected that the Province will provide criteria for this prior to 2012.

4.6 Initiative Four: Leadership and Staff Engagement

Objective:

To demonstrate leadership within the Regional District organization and serve as a role model for the community.

Background:

As a provider of services to residents in the Regional District of East Kootenay, the RDEK will assume a leadership role in developing policies that contribute to the reduction of energy and GHG emissions in its building operations, fleet management, and purchasing practices. It will also educate and develop awareness among residents of the Regional District through outreach and community engagement. Initiatives pursued as part of this plan should be highlighted in public documents such as Annual Reports and through existing RDEK communication strategies such as the website, newsletters and press releases.

Engaging staff in initiatives and actions designed to conserve energy and reduce emissions is a critical component of this Plan. The initiatives in this Plan are both policy and action oriented, and it is intended that they be addressed at the staff level in the short and medium term. If there are structures or processes in place that prevent RDEK employees from easily

taking action, i.e. from turning off lights or computers for example, it is less likely that these types of actions will be undertaken.

Corporate Action #11: Dedicate staff resources to implementing the Corporate GHG Emissions Reduction Plan

The RDEK will identify a specific Program Champion responsible for coordinating the initiatives recommended in this Plan. The designated staff person will take ownership over the Plan and will coordinate with staff in each department charged with specific actions to support progress toward reduction targets.

Staff will explore opportunities for funding that may enable the RDEK to create a new part-time 'energy coordinator' position. This may be through new resources or through the reallocation of existing resources.

Corporate Action #12: Align future RDEK Board priorities with opportunities to reduce energy and emissions

The RDEK will incorporate energy conservation and emission reduction initiatives, where possible, into the Board's annual priorities.

Corporate Action #13: Establish a Community Energy Efficiency Grant with the annual CARIP grant funds

The RDEK will consider establishing a Community Energy Efficiency Grant using the annual CARIP grant funds from the Province. The grant could be awarded to the community group or NGO in the Regional District with the most compelling proposal for raising awareness regarding energy efficiency or emissions reduction, or could be used to fund a small alternative energy study or pilot project. The grant could form an important part of the Regional District's community engagement strategy around energy efficiency.

Corporate Action #14: Develop an administrative system for tracking corporate emissions and report on progress

The RDEK will track and report on RDEK energy consumption and emissions. This process will include tracking energy consumption data through the financial system using fuel and utility bills.

This data should be provided to facility and fleet managers on a quarterly basis to allow staff to determine when systems are not performing as expected.

Staff will provide an annual emissions management report to the Board, which will typically include:

- an updated inventory of energy use and GHG emissions for the previous calendar year,
- discussion of activities conducted in the previous year,
- planned activities for the coming year(s)
- expected cost of offsets required to become carbon neutral

Please refer to the proposed annual reporting requirements in Section 5.6 for further detail.

Tracking energy consumption data is important for identifying facilities or vehicles that are not operating as efficiently as expected. Collecting consumption data in conjunction with financial data allows for energy consumption reports to be generated with financial reports. This may require the addition of specific fields to existing financial systems to accommodate the following information from fuel or utility providers:

- kWh or GJ consumption of electricity
- GJ consumption of natural gas
- L consumption of propane
- L consumption of vehicle fuels (gasoline and diesel)

5.0 Plan Implementation

5.1 Program Overview

Name

Regional District of East Kootenay Corporate Greenhouse Gas Emissions Reduction Plan

Objective

To enable the RDEK to achieve reductions in energy consumption and greenhouse gas emissions within Regional District operations as part of its Climate Action Charter commitment to carbon neutrality.

Overview

The Plan's major features include:

- Definition of four priority areas and policy initiatives and actions for each area;
- Inclusion of energy considerations within RDEK planning processes; and
- Regional District action within RDEK facilities to demonstrate leadership in the community.

5.2 GHG Emission Reduction Target

As a voluntary signatory to the provincial Climate Action Charter, the RDEK is committed to becoming carbon neutral in its operations by the end of 2012. In order to meet this challenge, the RDEK will undertake activities to reduce energy consumption and emissions from current levels, and purchase offsets for remaining emissions.

Setting a target for corporate emissions sets a commitment by the RDEK to take action and not simply rely on the purchase of offsets to meet the neutrality commitment. As a sign of this commitment, it is proposed that the District commit to the following target:

> *To achieve carbon neutrality by 2012 by reducing corporate greenhouse gas emissions 15% from 2008 levels, and purchasing offsets for the remaining emissions.*

5.3 Estimated Emission Reductions from Actions

In order to meet this target, this study identified 14 actions and policy initiatives to be undertaken by the RDEK to conserve energy and reduce emissions. Table 5 outlines the potential reductions expected as a result of implementing the recommended actions.

Table 5. Estimated Reductions for Recommended Actions

Policy Initiatives & Actions	Estimated Reductions
Building Operations	
1. Develop an RDEK green building policy	15% (of existing building emissions)
2. Develop an RDEK alternative energy policy	
3. Conduct energy efficiency audits of existing RDEK facilities	
4. Incorporate energy management into annual building maintenance procedures	
Fleet Operations	
5. Develop an RDEK vehicle purchasing policy	15% (of fleet emissions)
6. Implement a vehicle use efficiency strategy for all RDEK departments	
7. Develop a monitoring program for fleet fuel consumption	
Purchasing	
8. Develop an RDEK green purchasing policy	To be determined
9. Incorporate life cycle costing into operational decision making	
10. Incorporate emissions tracking requirements into agreements with RDEK service providers	
Leadership and Staff Engagement	
11. Dedicate staff resources to implementing the corporate energy efficiency and emissions reduction strategies	To be determined
12. Align future RDEK Board priorities with opportunities to reduce energy and emissions	
13. Consider establishing a Community Energy Efficiency Grant with the annual CARIP grant funds	
14. Develop an administrative system for tracking corporate emissions and report on progress	

5.4 Energy Program Champion

To aid in successful implementation, it is recommended that the Regional District designate a specific staff member as the Program Champion for energy and GHG management purposes. This person will be responsible for working with staff from each department to initiate activities and ensure that the annual work plan is progressing.

However established, it is important that the energy management activities of the program champion be recognized as part of their job descriptions and performance expectations. A sample break-down of responsibilities for the program champion and other staff is shown in Table 6.

Table 6. Examples of Program Champion and Staff Responsibilities for Plan Implementation

Typical Responsibilities of Champion	Typical Responsibilities of Other Staff
Establish annual work plan	Conduct building audits on municipal facilities
Develop internal awareness programs	Budget and implement identified improvements
Publicize activities to staff through internal communications	Monitor and report on activities
Define data collection requirements and frequency; collect, store and report on data	Implement fleet management activities
Make contact with other partners to promote the plan and find areas for municipal involvement	Draft policy documents
Apply for funding through various provincial and federal programs to meet the plan objectives	
Promote energy efficiency and awareness in the community	
Act as a resource to the community on energy efficiency	

5.5 Resource Requirements and Funding

The cost associated with many of the measures identified in this plan is RDEK staff time. Many of these actions can be incorporated into existing staff activities. No new staff resources are proposed.

Funds will be required for audits to facilities (e.g. $1,000 or so per building) and to implement the upgrades identified through those audits (tens of thousands of dollars). It is expected that these costs will be budgeted within existing maintenance and operations budgets for the effected service areas.

No borrowing is anticipated, and it is not expected that these sums will be large enough to require referenda from the service areas for implementation.

Additional funding may be available through granting agencies. Table 7 outlines those funding programs that align with the emission reduction activities proposed in the Plan.

Table 7. Sample Funding Programs to Support Plan Implementation

Program	Key Features
Climate Action Rebate Incentive Program (CARIP)	The Province will reimburse communities that have signed on to the Climate Action Charter. The RDEK will receive a rebate of up to $7,600 after from 2012.
BC Hydro Energy Coordinator Funding	BC Hydro provides partial funding to municipalities for an energy coordinator. Funding is typically based on anticipated savings.
BC Hydro Power Smart	BC Hydro provides rebates and incentives to encourage energy efficiency in new construction and the installation of energy efficient products and appliances in existing facilities.
FCM Green Municipal Fund	FCM provides grants and loans to support capital projects that reduce energy and GHG emissions. Annual competitive process for funding related to brownfield redevelopment, energy, planning, transportation, waste and water.

5.6 Monitoring and Reporting

Performance Indicators

A monitoring program will enable the Regional District to assess progress towards the defined targets. Key performance indicators, also called performance measures, help determine if the actions that have been implemented are having the desired effect and to identify where changes are needed.

The following performance indicators are recommended to monitor progress and determine the volume of offsets required for purchase (as of 2012):

- Total corporate energy consumption (GJ/year)
- Annual Energy Spending ($ / year)
- Total corporate GHG emissions (tCO2e/year)

Other metrics may be used by different groups as part of their ongoing management activities. This might include:

- Average energy intensity of corporate facilities (kWh/m2)
- Average fuel economy of corporate fleet (L/100km)

Reporting

It is proposed that brief annual progress reports be prepared by the Program Champion to monitor progress. The annual reports will include:

- A description of the activities implemented in the previous year

- Key energy performance indicators, measured against previous years' data
- Current emissions inventory
- Statement of carbon offset requirements for the current year
- A description of actions anticipated for the coming year

Annual reports can also be used to update the Plan through the addition of new actions or modification of existing actions.