Associated Engineering

Associated Engineering Carbon Neutral Program

Canadian Consulting Engineering Awards 2012

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Associated Engineering's Carbon Neutral Program

Our Stewardship Principles Policy documents our commitment to business practices that ensure continuous improvement to our environmental, social, and economic performance. Accordingly, and as responsible corporate citizens, we established a vision and action plan and are now a carbon neutral company.

"We want to become an active contributor to the solution to global warming by reducing our greenhouse gas emissions and supporting environmentally friendly initiatives."

Kerry Rudd, President & CEO

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Associated Engineering Carbon Neutral Program

Associated Engineering is now a carbon neutral company. This is a major milestone for our 65 year old, Canadian consulting firm. Our path to this milestone has been unique. We developed **our own in-house carbon calculator**, which we made available to staff for day-to-day use, developed processes to reduce energy use, and, since 2007, have invested over $500,000 to offset our carbon emissions. More than just a corporate commitment of funds, our Carbon Neutral Program has **fostered a culture of environmental sustainability** that has permeated through the entire company. Staff at all levels, from across the company, have introduced processes and procedures to help reduce our collective carbon footprint--at work and at home.

Originality / Innovation

To become carbon neutral, Associated Engineering embarked on a distinct process. We recognized that ultimately, we would need to purchase carbon credits to offset our environmental impact. A number of retail carbon offset providers are available in the marketplace. We could have retained such a company to help us assess our carbon footprint, and then purchase carbon credits to offset our greenhouse gas emissions and become carbon neutral. However, selecting this route would not have helped us to meet our corporate **Stewardship Principles** -- to improve and develop **business processes that are environmentally, socially, and economically sustainable.**

Instead, we formed a Carbon Neutral Realization Committee, who determined a process for evaluating our carbon footprint, evaluated and devised options for mitigating energy use, and assessed carbon offset providers who meet our objective of offsetting future greenhouse gas emissions.

One of the first steps in the process was conducting energy audits of our offices, completed by our in-house LEED approved professionals. We determined our greenhouse gas emissions and identified areas where we could reduce or mitigate these emissions. To determine our greenhouse gas emissions, the committee developed our own greenhouse gas calculator. Other tools in the market do not account for different energy sources. **Our in-house calculator** produces a more accurate calculation of our greenhouse gas emissions by **accounting for energy sources such as hydropower, coal, and nuclear.**

Reducing our Carbon Footprint

Our energy audit showed that our largest uses of energy are facility energy, business travel, and personal commuting. With this information, we have and are continuing to make improvements to reduce our energy use. We encourage staff to turn off lights, as well as other equipment when not in use. For new offices and office renovations, **we developed a Lighting Guide** to aid in design and operation of lighting. The recommendations include adding high efficiency lighting, motion sensor light switches, and/or light switches in individual offices to allow lights to be turned off.

Working with our landlords and building owners, we have implemented building improvements in our two largest offices: replacing cooling towers and heat pumps in our Burnaby office and installing new high efficiency boilers in our Edmonton offices to reduce our greenhouse gas emissions.

Associated Engineering Carbon Neutral Program

To decrease business travel, we **installed video conferencing equipment** in all of our offices, and encourage staff to video conference or teleconference rather than travel, if possible. To help staff assess the carbon footprint of potential travel, we created an on-line carbon calculator so that they can easily insert a destination, and see what the carbon footprint is for the trip. We also encourage staff to use ride share programs, carpool, cycle, take transit, and rent fuel efficient vehicles.

Other sustainable initiatives include composting coffee grinds; recycling papers, glass, tetrapaks, cans, and batteries; purchasing sustainable supplies and materials; donating used equipment such as computers, monitors, and printers; and eliminating bottled water. **Staff across the company formed the EcoAction group to support environmental sustainability**. The group, which receives company sponsorship, researches environmentally sustainable initiatives and produces a regular newsletter with tips on how to be more environmentally friendly at work and at home.

As a result of these efforts, from 2008 to 2011, we **reduced our greenhouse gas emissions by 4.2%.**

Becoming Carbon Neutral

In June 2011, Associated Engineering fulfilled our corporate commitment to become carbon neutral through the purchase of 4600 tonnes of carbon offsets from Envirotrade, a Mauritius-based company that sells carbon offsets to support forest conservation. We specifically selected Envirotrade because their carbon offset program is audited and verifiable. Through Envirotrade, we are not only offsetting our carbon footprint, but also **helping communities and families by supporting local agriculture and forestry**, thus providing incomes and food for locals. Selecting Envirotrade helps meet our Stewardship Principles of environmental, social, and economic sustainability.

Our objective remains to identify and invest in local carbon offset projects. We continue to evaluate carbon offset providers and programs in the communities where we live and work. We are currently exploring **a geothermal energy project** in BC and **an air compressor technology** for a water project in BC.

Benefits to Firm & Employees

While the intent of the Carbon Neutral Program was not for profit, our research and development gave staff skills in assessing and calculating greenhouse gas emissions, skills which have since been shared across the company. We have marketed these services to our clients. In the last three years, clients from BC to Ontario, including the Cities of Toronto and Calgary and the BC Capital Regional District, have retained our services to assess their greenhouse gas emissions, and help them to reduce their carbon footprint. Even on projects where clients have not specifically asked for this service, we have promoted environmental sustainability as part of our overall efforts to reduce our greenhouse gas emissions on our projects, as well as in our business.

Conclusion

Staff take pride in our distinct position in the consulting engineering industry as a carbon neutral company. Associated Engineering's Carbon Neutral Program has engaged staff across the company, and fostered a culture of environmental sustainability that extends to all our business processes, our projects, and our home lives.

Introduction

Associated Engineering is now carbon neutral, fulfilling a corporate strategy to improve and develop business processes that are environmentally, socially, and economically sustainable. To attain this distinct achievement in the consulting engineering industry, Associated Engineering embarked on a unique process. We developed a custom carbon calculator, implemented measures to reduce our carbon footprint, and invested more than $500,000 in a carbon offset fund that not only met our environmental objectives, but is also socially and economically sustainable. Moreover, our Carbon Neutral Program has fostered a culture of environmental sustainability that as permeated across the company.

While our primary goal was to become carbon neutral, we did not want to accomplish this by simply purchasing carbon credits to offset our greenhouse gas emissions. Thus, we developed a process that involved evaluating our operations and determining areas that could be more environmentally sustainable. Ultimately, we want to find ways to improve our business practices to reduce our carbon footprint moving forward.

About Associated Engineering

Associated Engineering is of one of Canada's leading multi-disciplinary, employee-owned, consulting firms, specializing in the water, transportation, infrastructure, environmental, buildings, energy, and asset management sectors. Our services include planning, feasibility studies, preliminary and detailed design, construction, commissioning, training, operational assistance, and project management for public and private sector clients in Canada and overseas.

Associated Engineering Offices

Associated Engineering's history dates back to 1945, when the company started as a one-person company providing consulting engineering services to municipalities across Alberta. Today, the Associated Engineering group of companies has almost 850 staff in 21 offices across Canada.

In the last five years, we have grown by almost 50% and established seven new offices. We have broadened our services to include urban planning, environmental science and management, facilitation, as well as our core engineering practice.

Associated Engineering takes pride in the fact that we are one of the few major consulting firms in Canada that are wholly Canadian and employee-owned.

Recognized as an industry leader, we are one of Canada's 50 Best Managed Companies, and have received multiple awards for engineering excellence, including Canadian Consulting Engineering's highest recognition, the Schreyer Award, for the

design of the Gold Bar Wastewater Treatment Plant Water Reuse Facility in Edmonton, Canada.

Program Background

In 2006, Associated Engineering completed a new Strategic Plan. Entitled *Our New Path Forward*, our Strategic Plan was more than a roadmap to guide and improve our business performance. More than this, our Strategic Plan identified a goal to develop stewardship principles and help build better communities.

Associated Engineering has always believed that, as professionals and responsible members of our communities, we have a role and a duty to protect the environment and help the communities in which we work. We deliver on these stewardship principles on the projects we undertake, ensuring our solutions are socially, environmentally, and economically sustainable. We wanted to achieve this in our business as well.

In 2007, Associated Engineering developed our Stewardship Principles Policy (see Appendix A). Our Stewardship Principles Policy documents our commitment to business practices that ensure continuous improvement to our environmental, social, and economic performance.

In support of our Stewardship Principles, we made a commitment to become carbon neutral. As responsible corporate citizens, we believe we have a responsibility to reduce our carbon footprint.

Many retail carbon offset providers are available in the marketplace, which we could have retained to assess our carbon footprint, and then purchase carbon offsets to become carbon neutral. However, this route would not have helped us to meet our Stewardship Principles -- to improve and develop environmentally sustainable business practices.

We developed a Carbon Neutral Policy which established a vision and parameters around how we wanted to achieve carbon neutral status. Key elements of our policy (see Appendix A) are our commitment to reduce or mitigate practices that generate greenhouse gases and support carbon offsets to become carbon neutral.

To develop a plan for becoming carbon neutral, Kerry Rudd, our President & CEO, established a Carbon Neutral Realization Committee. Demonstrating his commitment to our Carbon Neutral Program, Kerry also sat on this committee.

The committee developed a Carbon Neutral Realization Plan which has guided the Carbon Neutral Program. The committee evaluated our carbon footprint, developed baselines and metrics, and researched options for carbon offsets that best suit the company.

"We want to become an active contributor to the solution to global warming by reducing our greenhouse gas emissions and supporting environmentally friendly initiatives."

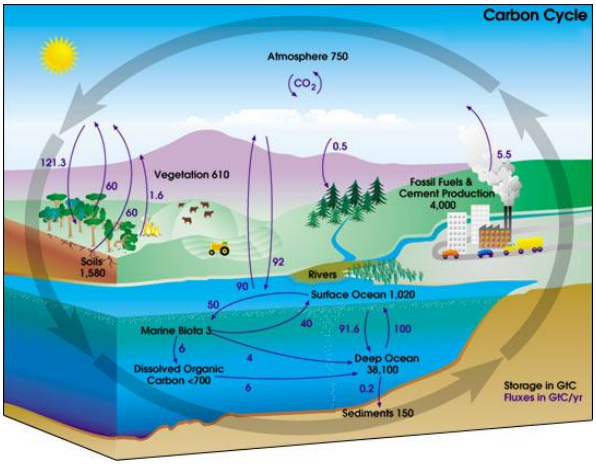
Kerry Rudd
President & CEO

Path to Becoming Carbon Neutral

What is a Greenhouse Gas?

The first step in our path to becoming carbon neutral was understanding what contributes to greenhouse gases, and then calculating our greenhouse gas emissions.

Carbon dioxide (CO_2) is the most recognized greenhouse gas. Methane, nitrous oxide, ozone, and water vapour are also considered to be primary greenhouse gases in the earth's atmosphere. Compounds containing chlorine, bromine or fluorine are relatively minor contributors to greenhouse gases.



Based on the above, we decided to focus on quantifying three greenhouse gases: carbon dioxide, the main gas of concern, as well as nitrous oxide and methane. Quantified together, these gases are expressed in units of carbon dioxide equivalents (CO_2e). CO_2e is the global warming potential of the mass of nitrous oxide and methane emitted, expressed relative to carbon dioxide.

Calculating our Greenhouse Gas Emissions

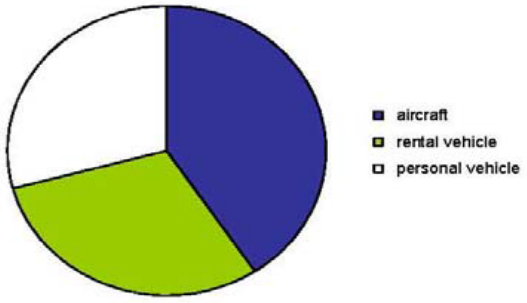
In 2008, we began energy audits of our offices across Canada to identify our energy use and greenhouse gas emissions. Our in-house, LEED approved professionals completed these energy audits. We garnered information from our accounting system regarding air travel distances and office electrical charges. We also surveyed staff to determine their personal commuting distances to and from work.

A unique part of our process was the development of our own in-house, custom greenhouse gas "calculator". We evaluated greenhouse gas "calculators" that were available in the industry from both private sources, such as retail carbon offset providers, as well as government agencies. Most of these calculators are simplistic in nature and don't accommodate differences in energy use (e.g. coal vs. hydropower), which we see because of the geographic span of our company.

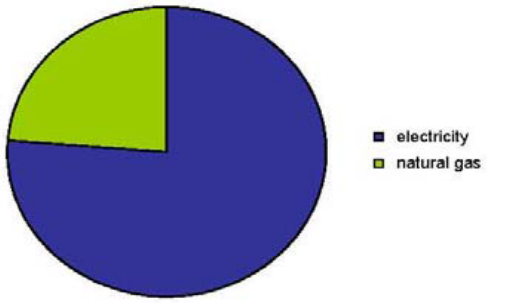
Our in-house calculator, developed using Microsoft Excel, allows us to quantify our greenhouse gases from various emission sources and for different energy used in different offices; for example, in BC, we rely mostly on hydropower while in other provinces, we use energy generated from natural gas, coal, or nuclear-generation. Our in-house spreadsheet provides a more accurate quantification of our greenhouse gas emissions.

We have calculated our greenhouse gas emissions annually since 2008. Figure 1 shows our corporate greenhouse gas emissions for 2010.

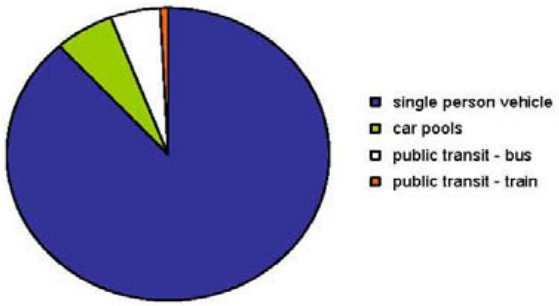
Business Travel	t CO2e/yr	relative fraction
aircraft	864	41%
rental vehicle	640	30%
personal vehicle	620	29%
	2,124	100%



Facility Energy	t CO2e/yr	relative fraction
electricity	1,509	76%
natural gas	470	24%
	1,979	100%

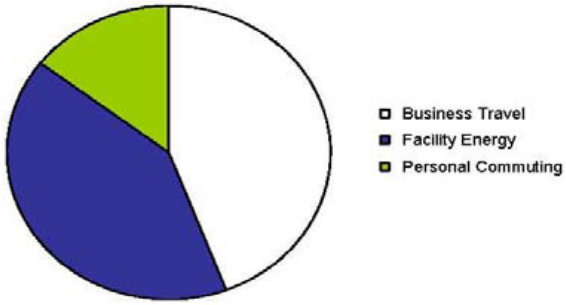


Personal Commuting	t CO2e/yr	relative fraction
single person vehicle	618	88%
car pools	42	6%
public transit - bus	35	5%
public transit - train	5.4	0.8%
	700	100%



Overall Summary	t CO2e/yr	relative fraction
Business Travel	2,124	44%
Facility Energy	1,979	41%
Personal Commuting	700	15%
	4,803	100%

total employees	703	
unit carbon footprint	6.8	t CO2e/yr - emp



reference GHG_Master_Calculator_20120208.xls

Figure 1
Greenhouse gas emissions summary for Year 2010

Our audit and subsequent assessment show that our main sources of greenhouse gases are:

- Facility energy: purchased electricity and natural gas used to operate our offices
- Business travel: fossil fuel used in aircraft, rental vehicle, and private vehicle travel
- Personal commuting: fossil fuel / electricity used for employee commuting to and from work.

Facility energy use makes up approximately half of our corporate carbon footprint. Business travel accounts for about one third of the remaining greenhouse gas emissions, and personal commuting makes up one sixth of our greenhouse gas emissions.

Reducing our Greenhouse Gas Emissions

From our energy audit, we determined that reducing facility energy use, and specifically, lighting, was a key area to reduce our greenhouse gas emissions. To reduce facility energy use, we encouraged staff to turn off lights, as well as computers, monitors, photocopiers, and other equipment when not in use. For new offices and office renovations, we developed a Lighting Guide to aid in design and operation of lighting. The recommendations included adding high efficiency lighting, motion sensor light switches, and/or light switches in individual offices to allow lights to be turned off in individual offices.

Turning off facility lighting and equipment when not in use helped to reduce enhergy use

We are working with our building owners and landlords to implement green initiatives as part of building and tenant improvements. Our landlords have been open and receptive to implementing sustainable equipment in our buildings. Recent examples include installation of low-flow toilets, waterless urinals, and motion sensor taps; replacement of cooling towers and heat pumps to improve efficiency of heating, ventilation and air conditioning in our Burnaby office; and new high efficiency boilers in our Edmonton office, which will reduce overall greenhouse gas emissions. Edmonton and Burnaby are our two largest offices.

New cooling towers, heat pumps and high efficiency boilers in our two largest offices will help reduce our overall greenhouse gas emissions

We encourage use of video conferencing and teleconferencing to reduce air travel. We also opened offices in key areas, including Whitehorse, Yellowknife, Prince Albert, and Victoria, to better service our clients in those areas, and also reduce travel by having local staff. In addition, we have encouraged our staff to rent vehicles that are fuel efficient by providing them with a website link so that they can determine the most fuel efficient vehicle before renting.

As summarized on the table below, through our efforts we have reduced our carbon emissions from 7.1 tonnes CO_2e/year-employee in 2008 to 6.8 tonnes CO_2e year in 2010, a 4.2% decrease in three years.

Year	CO_2e/year-employee	% decrease in CO_2e/employee compared to baseline
2008	7.1	Baseline
2009	7.0	1.4% reduction
2010	6.8	4.2% reduction

Figure 2 shows the relative contribution of business travel, facility energy, and personal commuting to corporate greenhouse gas emissions from 2008 to 2010. The figure shows that, in part due to our efforts to reduce facility energy use, it has dropped as a percentage of our total energy use compared to the other categories. The results indicate that business travel has increased as a relative percentage. Our analysis of our business travel shows that this increase results from a high number of projects requiring travel for field investigations and construction inspections in remote sites. We are currently exploring measures to reduce travel costs to remote sites, for example, by renting more fuel efficient vehicles, and, where possible, replacing travel with teleconferencing, Skype, or video conferencing.

We have communicated to employees through our annual reports from the Carbon Neutral Realization Committee, as well as through regular correspondence directly from Kerry Rudd, President & CEO. These communications are intended as a status update, and also to help employees understand what role they can play to help the company reduce our greenhouse gas emissions.

To help them make informed decisions about the impact of travel, we developed a greenhouse gas calculator for business travel, and posted the calculator on our intranet site, AEthena. The calculator makes it easy for staff to "plug in" their travel destination, and calculate the greenhouse gas emissions of travel by air versus vehicle. This tool assists staff to determine the carbon footprint of their travel plans. For inter-office staff meetings, we use this tool to select the ideal location for a meeting based on carbon footprint. Knowing the carbon footprint, staff can also make an informed decision about whether they need to meet face-to-face or if they should consider other means of meeting, such as video- or tele-conferencing or Skype.

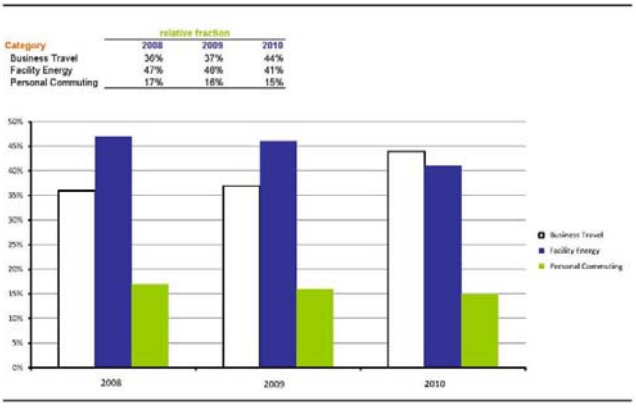
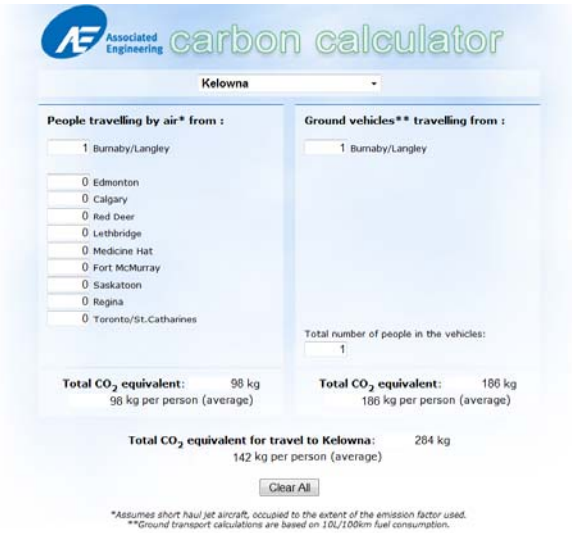


Figure 2
Relative contributions of Business Travel, Facility Energy, and Personal Commuting



Funding and Purchasing Carbon Offsets

Our energy audit showed us that we had limited means to reduce our greenhouse gas generation. As part of running our business, some level of environmental impact is unavoidable. For example, to service our clients in Northern Saskatchewan, car or air travel is necessary.

While it would have been simple and easy to become carbon neutral by purchasing credits from an existing retail carbon offset provider, we decided to research options in our local communities that could offset future emissions. At the same time, we wanted to have funds ready and available, once we selected our desired carbon offset program.

In 2007, we established a segregated carbon offset account for our estimated greenhouse gas emissions. We initially estimated our carbon offset value at a conservatively high unit rate ($/$CO_2$e) for greenhouse gas emissions that is based on a global review of CO_2e valuations used in commercial third party carbon offset funds, government tax schemes, voluntary carbon offset programs such as the Chicago Climate Exchange, and the European Climate Exchange, where most of the Kyoto Protocol-related emissions trading is conducted. To date, we have **invested over $535,000 to offset our carbon emissions**.

Since embarking on the program, we have investigated a number of retail carbon offset funds, as well as carbon offset opportunities, including tree planting, independent hydropower production, a geothermal energy project, and a compressed air technology. Tree planting seems like an obvious option; however, some members of the climate science community view tree planting as a tool best used to reduce existing atmospheric carbon dioxide levels, rather than offsetting future emissions, which is our preferred option. Notwithstanding, we are still considering verifiable, local tree planting options.

Associated Engineering: A Carbon Neutral Company

In June 2011, Associated Engineering fulfilled our corporate commitment to become carbon neutral through the purchase of 4600 tonnes of carbon dioxide carbon offsets from Envirotrade, a Mauritius-based company that sells carbon offsets to support forest conservation. We specifically selected Envirotrade because their carbon offset program is audited and verifiable.

Part of Envirotrade's Sofala Community Carbon Project, Associated Engineering's investment supports reforestation and sustainable agricultural initiatives in rural communities of Mozambique. Through Envirotrade, we are helping communities and families by giving, reviving and/or generating local agriculture and forestry industries, thus providing incomes and food supply for locals. Selecting

Envirotrade's Sofala Community Carbon Project thus helps meet our Stewardship Principle of social and economic responsibility, as well as environmental responsibility.

Our objective remains to identify and invest in local projects that provide carbon offset opportunities. As such, we continue to evaluate carbon offset programs in the communities where we live and work. We are currently exploring a geothermal energy project in BC and an air compressor technology for a water project, also in BC.

Benefits to Firm

We made a commitment to become a carbon neutral company because we believe it is the responsible thing to do as corporate citizens and members of our communities, and to do our part to protect our environment from the effects of global warming.

The company has made significant investments to become carbon neutral, both in funding the program and staff time for research and development. However, we believe that the benefits of the program to the company and our staff far outweigh our costs.

The Carbon Neutral Program has fostered a culture of environmental sustainability

Together, our Stewardship Principles Policy and Carbon Neutral Policy have fostered a culture of sustainability across the company. A number of grassroots staff initiatives have resulted, helping to build our sustainable business practices. Although these practices are not measured as far as reduction in greenhouse gas emissions, they are contributing to reducing our carbon footprint. Below we summarize some of the sustainable business practices that the company and staff have implemented.

Sustainable Business Practices

Video Conferencing to Minimize Business Travel. Business travel is our largest source of energy use. To reduce business travel and associated costs, we have installed video conferencing equipment in each of our offices. Video conferencing has been a huge success. Travel and associated costs for in-house and project meetings have reduced. Demonstrating the success of our video conference equipment, in our major offices, video conferencing has been used so much that we have had to purchase multiple units. We currently have three units in our head office in Edmonton, and two units each in our Burnaby, Calgary, and Saskatoon offices.

Alternative Transportation Options. Associated Engineering assists staff with alternative transportation options and includes access to sustainable transportation to and from the office. We locate our offices close to public transportation, and provide facilities for

cyclists, like bike storage, and showers and change rooms.

To reduce the carbon footprint of company-wide meetings and conferences, staff are encouraged to carpool and use public transit. For example, at two recent company conferences, staff were given transit passes instead of rental vehicles. This included 42 staff attending our in-house Wastewater Management Technology Transfer Conference (June 2010) and 180 staff attending our Annual General Meeting (May 2011) in Vancouver.

Where available, the company sponsors and staff are participating in ride-sharing programs. Programs, such as the Jack Bell Ride Share in Vancouver, provide carpooling options for drivers and passengers. Staff can access the ride-share program for workplace commuting as well as carpooling within the community. By joining Jack Bell Ride Share as a company-branded sub-site, the program presents a company-supported commuting initiative that reduces overall CO_2 emissions through carpooling within the community.

Office Waste Reduction. Associated Engineering has practiced waste reduction strategies, like paper recycling, in the office for over 20 years. Our staff have blue-boxes at their desks for paper recycling. Many of our offices have enhanced our recycling program to include batteries, glass, pop/juice cans, aluminum/tin cans, milk containers, plastic containers, and cardboard.

We donate electrical items, including laptops, monitors, and desktop CPUs, to local, non-profit community organizations. Donating the equipment strengthens our commitment to recycle our e-waste in an ethical and environmentally responsible manner.

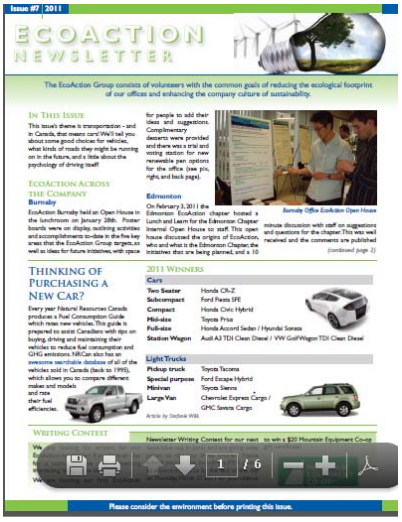
Since 2005, Associated Engineering has supported composting of coffee grinds and filters. These coffee grinds and filters are composted as part of composting programs in the community.

Recycling centres in our Edmonton & Burnaby offices

Sustainable Purchasing. Associated Engineering has developed sustainable purchasing principles that recognize the importance of evaluating the products we buy to reduce the overall carbon footprint of the company. We use 100% recycled paper as well as paper from forests managed in a sustainable manner, as approved by the Forest Stewardship Council (FSC). Individual offices source paper from local mills, where possible, to reduce the environmental impact of long-haul transportation.

In addition, we use refillable pens, purchase ethical coffee, and paper towels made of recycled materials. For in-house events, we use disposable plates and cutlery from recycled and corn-based materials.

Environmental Education. In 2008, a small group of staff formed the EcoAction Group, whose mission is to educate staff on environmentally-friendly practices that can be incorporated in our day-to-day lives and our workplace. Today, the EcoAction Group consists of over 30 staff across the company and receives corporate support for research, development, and implementation of initiatives. In 2011, Associated Engineering budgeted nearly 1000 hours of staff time to spend on these efforts, as well as approximately $15,000 for educational events and programs within the offices. The EcoAction Group publishes an on-line ("paperless") newsletter to share information about sustainability with all staff. The EcoAction Group has helped us to be more sustainable at work and at home.



Elimination of Bottled Water. In March 2009, our Burnaby office eliminated use of bottled water. We installed plumbing and purchased water coolers, distributed around the office. In doing so, we eliminated the purchase of 250 bottles of water per year. This initiative reduces greenhouse gas emissions associated with the manufacture and transport of bottled water. The program resulted in a payback period of less than two years.

LEED Certified Office: In November 2010, Associated Engineering opened an office in Whitehorse to better serve our northern clients. Aligning with our sustainability initiatives, Associated Engineering leased a newly refurbished building that is currently undergoing LEED Certification.

Improvements in Efficiency

The Carbon Neutral Program helped us to optimize a number of our processes. The largest benefit has been the implementation of video conferencing. Our work takes us to all parts of Canada, for project and in-house business meetings. While teleconferencing has been available for a while, often subtleties of discussions were lost without face-to-face contact. Video-conferencing provides face-to-face contact and has saved travel time and cost, which has improved efficiency.

The work on our Carbon Neutral Program identified areas where we could streamline our Accounting and Human Resources systems to facilitate capture and mining for data, such as travel expenses and commute distances. As part of the Carbon Neutral Program, we made changes to the Accounting and HR systems to allow us to more efficiently capture this information.

Improvements in Profitability

The goal of our Carbon Neutral Program was not to improve profitability. However, our reduction in facility energy use has lowered our business operating costs.

The largest benefit of the Carbon Neutral Program related to profitability is the skills that the research and development gave members of our Carbon Neutral Realization Committee. The Committee members attained skills in assessing and calculating

greenhouse gas emissions. We have been able to market these services to our clients who wished to conduct greenhouse gas assessments and reduce their carbon footprint. In the last three years, clients have retained our services on the following projects:

- **City of Toronto**, Ashbridges Bay Wastewater Treatment Plant Greenhouse Gas Assessment
- **Manitoba Intergovernmental Affairs**, Assessment of Cost of Nitrogen Removal from City of Winnipeg Wastewater
- **City of Calgary**, Climate change risk assessment
- **Alberta Capital Region Wastewater Commission**, Greenhouse Gas Management
- **BC Capital Regional District**, Core Area Wastewater Management Strategy: Greenhouse Gas Management Strategy
- **Metro Vancouver**, Deriving Net Energy from Biosolids, Annacis Island Wastewater Treatment Plant (included carbon footprint analysis)
- **Metro Vancouver**, Assessment of Wastewater Treatment Plant Effluent Heat Recovery Potential (included carbon footprint analysis)
- **Comox Valley Regional District**, South Regional Sewage System Collection, Treatment and Discharge Study - Environmental and Social Analysis (included carbon footprint analysis)
- **Town of Ladysmith**, Hydraulic Energy Recovery Site Screening Assessment (included carbon footprint analysis)
- **Township of Langley**, Aldergrove Water Treatment Plant, Geo-exchange Heating System Feasibility Study (included carbon footprint analysis)
- **Regional District of Nanaimo**, Energy Audits (included carbon footprint analysis)
- **City of Richmond,** Energy Audit of Swimming Pools

We have successfully marketed our skills in greenhouse gas assessment to clients across Canada

On projects where clients have not specifically requested that we evaluate their greenhouse gas emissions, we have promoted environmental sustainability, for example by reducing the building footprint or using energy efficient lighting.

Originality / Innovation

Associated Engineering took a unique approach to becoming carbon neutral. We could have taken the easy route to becoming carbon neutral by purchasing carbon credits from an established retail carbon offset company. However, our goal was more than becoming carbon neutral, it was also to develop more sustainable business practices. We determined that most of our greenhouse gas emissions originate from facility energy use and business travel. As a result, we have reduced both facility energy use and business travel, and continue to make improvements to lower our energy consumption.

We developed a custom, in-house tool for greenhouse gas calculations. Compared to other tools in the market, our calculator accounts for greenhouse gas emissions from various sources, and therefore produces a more accurate calculation of our greenhouse gas emissions.

We developed a custom greenhouse gas calculator to provide a more accurate assessment of our emissions

Our audit showed that we cannot reduce many aspects of our environmental impact, e.g. vehicular and air travel to remote project areas for field and construction inspection. Therefore, we committed to purchasing carbon offsets. Our approach is uncommon. We have established our own carbon neutral fund, which we placed in a segregated account.

We investigated a number of carbon offset providers, looking for a fund that is audited, verifiable, and that would offset future greenhouse gas emissions. Our selected carbon offset fund from Envirotrade, not only offsets greenhouse gas emissions, but also helps families in a number of communities in Mozambique by providing them with jobs and helping to restore the agriculture and forestry industries. The Envirotrade fund therefore offers social and economic, as well as environmental benefits to the local area.

Ultimately, our desire remains to invest our carbon neutral funds in local community projects that will help to reduce greenhouse gas emissions. To this end, we continue to evaluate carbon offset providers. We are currently exploring a geothermal energy project in BC, as well as an air compressor technology for a water project in BC.

Benefits to Employees

Staff across the company have embraced our Stewardship Principles and our Carbon Neutral Program. In fact, when the Carbon Neutral Program was launched, an unprecedented number of staff showed their support, offered suggestions on how the company could reach our goal, and volunteered to be involved.

Today, all staff consider the environmental sustainability of a new process, initiative, or procedure. Staff have submitted ideas and helped to develop sustainable initiatives, such as composting coffee grinds. This staff commitment to environmental stewardship has resulted in programs such as our sustainable

purchasing and expanded recycling programs. These programs benefit the company by helping us to achieve our Stewardship Principles and also foster staff engagement and pride in the company.

The company has committed to calculating and offsetting personal commuting to and from work as part of the carbon neutral program. Paying a carbon offset for an employee's choice to drive rather than carpooling, cycling, or taking transit, may not be typical; however, we feel it is the environmentally responsible thing to do.

Staff have also been keen to develop skills in carbon footprint and greenhouse gas analysis, not only for the company, but to market these skills to our clients. They are proud to say that our first energy audit client is ourselves, and that we have helped ourselves to reduce our greenhouse gas emissions.

Our Carbon Neutral Realization Committee members have shared their passion, knowledge, and skills with others in the company, so that we have expanded the number of staff who have skills in greenhouse gas assessments.

Through the Carbon Neutral Program staff have learned new skills, and developed pride in working for a sustainable company

Conclusion

Associated Engineering has achieved our goal of becoming carbon neutral. Our Carbon Neutral Program has engaged staff from across the company. Staff from all disciplines, at all levels within the organization, and from every corner of our company—from Victoria to Yellowknife, to Toronto and St. Catharines-- have contributed ideas and suggestions on business practices that help to reduce our carbon footprint. Our Carbon Neutral Program has fostered a culture of environmentally sustainability that extends to our business practices, projects and homes.

Appendix A

Stewardship Principles Policy

Carbon Neutral Policy

ASSOCIATED ENGINEERING GROUP LTD.

CORPORATE POLICY: **STEWARDSHIP PRINCIPLES POLICY**

DATE: FEBRUARY 21, 2007

OUR COMMITMENT TO STEWARDSHIP

We commit to managing our business with an integrated approach that instills sound planning and operating practices to ensure continuous improvement in environmental, social and economic performance.

OUR STEWARDSHIP PRINCIPLES

We do business by:

- Making decisions and taking actions that positively impact our staff, our community and our world.
- Considering stewardship in our corporate priorities and integrating its principles into our daily operations and business planning.
- Ensuring that our decision making considers economic, environmental and social considerations.

We support people, the environment and communities by:

- Respecting our staff and clients as we plan and operate our business.
- Minimizing our environmental footprint and mitigating our impacts.
- Using our natural resources wisely and efficiently.
- Supporting initiatives which will provide environmental and social benefits in the communities in which we operate.
- Encouraging our staff to get involved in social and environmental issues that affect them and the community, using their skills and talents.

We communicate our beliefs by:

- Communicating openly and honestly with our staff and clients to develop positive, long term relationships.

ASSOCIATED ENGINEERING GROUP LTD.

CORPORATE POLICY: **CARBON NEUTRAL POLICY**

DATE: MAY 26, 2007

OUR COMMITMENT TO CARBON NEUTRALITY

We commit to identifying the activities conducted in the operation of our business that generate carbon dioxide, and other greenhouse gases with associated carbon dioxide equivalents, and the pursuit of mitigation and off-set measures to allow ongoing progress towards becoming carbon neutral in a manner consistent with our Stewardship Principles Policy.

POLICY ELEMENTS

In developing this carbon neutral policy we:

- Recognize that the first step towards carbon neutrality is to reduce consumption of resources, and related activities, associated with greenhouse gas generation.
- Appreciate that mitigation measures to reduce consumption and greenhouse generation are practically limited and subsequently some level of environmental impact is unavoidable.
- Understand the role carbon off-set schemes can have in balancing some or all the remaining greenhouse gas emissions and related environmental impact.
- Acknowledge the support of carbon off-set schemes requires a financial investment.
- Accept the responsibility for ensuring the financial investment achieves the desired result.
- Realize the need for reporting to demonstrate progress towards the desired result.