

Energy Conservation Guidelines

Introduction

Each one of us consumes energy on behalf of our schools and the School District every time we turn on a light, power up a computer or turn up a thermostat. We also make the choice to waste energy each time we leave lights on when there is no one in the room or leave a door propped open when it is cool outside. Because we are 'purchasing' energy on the School District's behalf, we have a responsibility to use only the amount of energy that we actually require. Using less energy is not about making drastic changes. We want to maintain and even improve comfort conditions while also conserving energy and we can do this by using energy efficient technologies and decreasing the amount of wasted energy. By conserving energy we can save money on our energy bills and decrease our impact on the environment by generating fewer greenhouse gas emissions.

Greenhouse gas emissions, mainly carbon dioxide, from the burning of fossil fuels are changing the composition of the atmosphere in a dangerous way. In the Richmond School District, the most significant source of greenhouse gas (GHG) emissions comes from the equipment used to provide heat and power to our buildings. A simple way to reduce GHG emissions would be to switch fuels needed for this equipment to fossil carbon free alternatives such as hydro, wind or solar PV, biomass, solar thermal, etc. However, because these alternatives are often less efficient (in terms of energy output) and can be expensive, it is paramount to begin with efficiency improvements so that we can immediately reduce our GHG emissions and energy consumption as well as our energy costs. Every employee, student and school volunteer is encouraged to actively participate in the District's energy conservation and efficiency programs and be an "energy saver" as well as an "energy consumer".

Effective Energy Conservation Practices at the District Level

- Maintain accurate records of energy consumption and associated costs; identify and investigate anomalies
- Set energy conservation targets for the District and continuously monitor progress towards goals
- Develop and execute a strategic energy management plan with energy conservation targets and make available information on the goals and progress of the district's energy conservation program
- Continually evaluate the district facilities for efficient operation and cost effective modifications. Evaluate new technologies and where possible leverage technology to assist in energy conservation (e.g. use of building management systems, occupancy sensors, photo cells, etc.)
- Maintain BC Hydro Power Smart Partner relationship
- Leverage incentives available from organizations such as BC Hydro, Fortis BC and PSECA to help fund energy conservation initiatives
- Purchase ENERGY STAR rated energy consuming equipment, where possible. Review equipment purchases for the most energy efficient option.

Administrative Guidelines

- Develop and maintain a Green Fund whereby savings achieved through Energy Conservation are directed towards future energy conservation and sustainability initiatives
- Set long term fossil carbon reduction goals that align with the recommendations of government and advisory panels like the UN IPCC

Effective Energy Conservation Practices in Schools/Sites

Collaboration

- Brainstorm energy conservation initiatives and collectively decide on your school's priorities
- Ensure your project team has representation from all site-based stakeholders
- Engage district and community partners in your design, development and implementation process (e.g. Manager of Energy and Sustainability, Energy Specialist, BC Hydro, FortisBC)
- Share your challenges and successes with your school and community

Continuous Improvement

- Monitor how much energy your school or facility uses each month. Compare your facilities' consumption to predicted consumption (baseline) for that month to understand energy consumption for your site
- Track whether you are improving. If energy consumption is increasing, investigate why this might be happening. If energy consumption is decreasing, your efforts have been successful! Record what actions you have taken to reduce your consumption.
- Target specific areas where you think you can improve energy conservation. Define the energy conservation behaviours you would like to change and determine how you will measure whether behaviours have changed
- Create an action plan for the energy conservation initiative: targets, activities, timelines, roles and responsibilities, resources, budget, assessment and evaluation tools, communication tools, etc.
- Measure and assess whether change has occurred (before and after surveys, audits, utility consumption data)
- Use the Eco-Wise assessment tool to record your energy conservation activities.
- Conduct regular 'energy walkthroughs' of your school to identify energy wasters.
- Communicate your results, challenges and successes to your community and district
- Report energy waste conditions that require repairs to be fixed

Commitment to the Triple Bottom Line Assessment

- Assess your plan and implementation strategies for Educational/Social impact
 - How does the energy conservation initiative connect with the environmental learning outcomes and enrich learner's knowledge of environmental connections?
- Assess your plan and implementation strategies for Environmental impact
 - How does this initiative decrease the school's ecological footprint?
- Assess your plan and implementation strategies for Economic impact
 - What are the financial costs to implement your energy conservation initiative?
 - How will your energy conservation initiative save your school/site money by using fewer resources?

Administrative Guidelines

Leadership

- Designate one or more 'energy champions' in your location to become familiar with energy conservation practices and help identify areas of energy waste
- Inspire a collective vision
- Set short term and long term energy conservation goals which include implementing effective system-wide practices, resulting in consistent and behavioural changes
- Empower and enable everyone to conserve energy and be environmental stewards and change agents

Learning for All

- Provide energy conservation education through members of the Green Teams in classrooms, at school events and community events
- Start a school-wide "Energy Patrol" program - One of the best things about undertaking an energy saving program in schools is that it can help educate young people about energy savings to apply at home.
- Share energy conservation tips on your school website or in your school newsletter
- Leverage energy conservation education assistance from partners such as BC Hydro
- Capitalize on the teachable moments of your project by showcasing the possible curriculum connections, i.e. regular updates at staff meetings, student council meetings, athletic events, school-wide assemblies, etc.

Project Plan for Developing Energy Conservation Initiatives

These guidelines support successful development of energy conservation projects by site-based Green Teams as they create local plans of action that align with the District Sustainability Action Plan. The following steps provide a more detailed explanation of the process for developing an energy conservation project for your school/site:

Step 1: Determine your school-based (or site-based) energy conservation initiative(s)

Step 2: Collaborate with stakeholders and partner groups

Step 3: Develop the project plan (vision, scope, resources, education, funding, assessment, etc.)

Step 4: Collectively endorse the project plan (sign-off by all stakeholders)

Step 5: Implement the project plan

Step 6: Celebrate, reflect and create a plan for continuous improvement

Appendix 1 – Practical Actions that Conserve Energy

- Turn Out the Lights - Lighting is one of the largest users of energy in our facilities. By turning out the lights when a room is unoccupied, the school/site can save money.
 - Develop a school/site policy to turn off lights whenever an area is unoccupied, including classrooms, copy rooms and conference rooms
 - As a general rule, fluorescent lights should be turned out any time a room is going to be unoccupied for 15 minutes or longer. Inefficient incandescent lights should be turned out any time they are not required.
 - Use approved stickers or other prompts to remind people to turn off lights when they leave areas like washrooms, janitors' closets and storage spaces.
 - Label electrical switches to identify switches that need to be left on at all times, or during school hours only.
- Use Daylight Where Possible - Daylight is by far the best light source. It's free, sustainable, and increases wellbeing and productivity. Some buildings are not well designed to catch sunlight, but by making the most of the light that is available, you are likely to achieve some energy savings and create a more comfortable and healthy learning/work environment.
 - If your lights can be controlled separately, turn out some or all of the lights whenever there is sufficient natural light available for your classroom or work space.
 - Full lighting may not be necessary when performing several tasks, such as presentations or cleaning. Use dimmers and controls (if available) to turn down lighting, or use only the lights required for the task.
- Minimize Heat and Cooling Loss - Heat loss through open windows and doors adds to heating bills, and can make it hard to deliver consistently comfortable temperature levels.
 - Try not to open windows or prop open exterior doors if not necessary. Leaving doors wide open to a room or building may make it more inviting to come in, but letting cool air out in warmer months or warm air out during cooler months, wastes energy. Heat loss through open windows and doors adds to heating bills, and can make it hard to deliver consistently comfortable temperature levels. Don't prop doors open; instead allow them to close after people walk through the doorway. If your workplace is too hot or too cold, let your school administration know.
 - During heating season, unobstructed southern windows can contribute solar heat gain during the day. Let the light in.
 - Make sure that you keep all heating and air vents clear of obstructions like boxes and books.
 - Adjust your blinds to deflect heat in the summer, and keep heat in during the winter.
 - For safety reasons, please do not use portable electric heaters. Our electrical system is not designed to accommodate for electric heaters.
 - Windows and curtains are to be closed at the end of the school day
- Pull the Plug – Many electrical products, from microwaves to laptop chargers, cannot be turned off completely without being unplugged. These products use electricity 24 hours a day in what's called 'standby mode'. This 'phantom power' can account for up to 10% of electrical use - the cost adds up!

Administrative Guidelines

- Unplug all unnecessary electrical equipment such as coffee makers, microwaves, VCRs, and chargers for laptops and cell phones. They still draw electrical power even when turned off.¹
- When you leave for extended breaks, empty refrigerators and unplug them from the wall outlet. Be sure to leave the door open to air it out.
- Take the stairs rather than the elevator where applicable/possible
- Use energy efficient settings on dishwashers (e.g. air dry). Wait until there is a full load before running the dishwasher.
- Run exhaust fans and vent hoods only when they are needed. Turn these off when classrooms/schools are unoccupied

¹ Note that computers, photocopiers and printers are monitored by the network and are equipped with power saving modes of operation and/or automatic shut-downs and are therefore not required to be turned off manually.