Climate Change
Rising to the Challenge

We Can Do It!

Workers Health & Safety Centre

CAW TCA CANADA

Between the cover

Some 40 per cent of all trees cut down are used to create paper. And since 1937, about half of the Earth's forests have been sacrificed to the paper pursuit. Inside pages for this booklet were produced by unionized workers at the Cascade paper mill in Saint Jerome, Quebec. The paper, known as *Rolland Enviro 100*, is made from 100 per cent recycled, post-consumer waste. No harmful chlorine was used to bleach this paper stock. Better yet, the mill making it is powered with biogas piped from a nearby landfill. So this booklet itself is another example of what we call "Green Jobs" — jobs that are safer and healthier for workers, their families, their communities and you.

cope:343 Mar/07

Climate Change: Rising to the challenge.

We can do it!

The climate change crisis also offers us the chance to experience what very few generations in history have had the privilege of knowing: a generational mission; the exhilaration of a compelling moral purpose; a shared and unifying cause; the thrill of being forced by circumstances to put aside the pettiness and conflict that so often stifle the restless human need for transcendence; the opportunity to rise.

— Al Gore, former U.S. Vice President from his book *An Inconvenient Truth*

Earlier this year the International Panel on Climate Change released its latest and perhaps most definitive report yet citing unequivocal proof of global warming. In fact, 11 of the last 12 years were among the warmest since global temperatures were first recorded in 1850. This effect translates into more frequent heat waves, droughts and severe storms the impact of which could last for another 1,000 years.

What's more IPCC says these changes are not likely to have occurred by chance but can be linked to human activities like the unfettered burning of fossil fuels, deforestation and large scale agriculture.

In North America we've witnessed many of these events firsthand. But far from home, in Sub-Saharan Africa and central Asia where droughts are turning huge areas into deserts, the United Nations forecasts 100 to 200 million people are at risk of becoming environmental refugees, a new term to add to our environmental lexicon.

Those overwhelmed by these facts throw up their hands writing this off as a doomsday scenario. Global climate change is indeed a crisis but it affords us perhaps the greatest opportunity to change the course of history, to reclaim our world. Fortunately many others have come to this conclusion instead choosing to join a growing movement.

Taking action may be a moral imperative for some, for others it's good business sense. Amory Lovins, founder of the Rocky Mountain Institute counters longstanding negative myths uttered by climate change naysayers. "The political discussion is about cost, burden and sacrifice," he says. "Climate protection is not costly, it's profitable, because efficiency is cheaper than fuel."

Australia is lighting the way as the first country to introduce a ban on incandescent lightbulbs, phasing them out over three years. New standards for lighting will require energy efficient compact fluorescent bulbs.

The Nova Scotia government has set mandatory targets to generate almost 20 per cent of its electricity by renewable energy by 2013. And the city of Montreal has been lauded for its wide reaching community consultation in creating its first strategic plan for sustainable development.

On Parliament Hill opposition parties in the House of Commons recently passed a private member's bill binding the federal government to disclose its policy agenda for climate change.

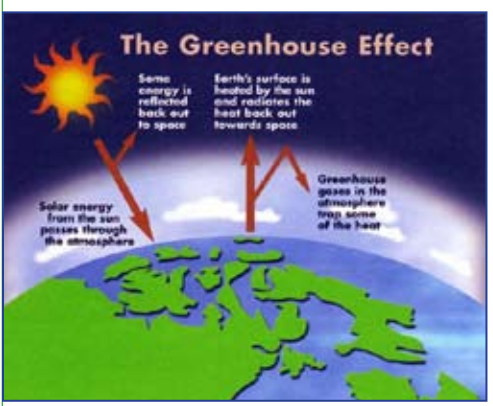
Fortunately, as individuals, communities and industries there is much we can do now. This booklet shares many of those solutions. The public no longer accepts the fear mongering tactics of those who claim climate change is too costly to tackle.

This year's Academy Award for outstanding documentary film was given to *An Inconvenient Truth*, the movie which follows Al Gore's cross-country presentations on climate change. People are listening. When Hollywood celebrities arrive at award shows in hybrid vehicles, we know they 'get it' and what's more it's now cool to be green.

Garden clubs aren't just for little old ladies in straw hats, but are popping up at schools in downtown Toronto where kids are learning about the environment and having fun too.

Together let's rise to the challenge. We have the ingenuity, perseverance and our greatest natural resource of all, hope for a better world.

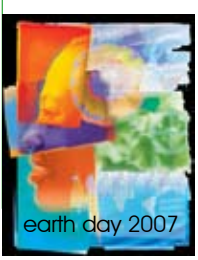
Where do we begin? Well consider the following.



What is climate change? And, what causes it?

Our Earth is constantly changing; this is true. Ask any scientist and they will tell you our planet shows signs of geological change, including change in climate. But past changes were natural occurrences. Today human activity is responsible for the climate changes we are experiencing.

Since 1750 with the advent of the Industrial Revolution man has been burning fossil fuels like coal, oil and natural gas to power our factories, homes and most recently transportation vehicles. When we burn fossil fuels we release carbon dioxide into our atmosphere, one of the most common greenhouse gases. We call them 'greenhouse' gases because they contribute to the **greenhouse effect** over our Earth's atmosphere.



Life on Earth as we know it would not be possible without a 'greenhouse effect.' Like a greenhouse roof, gases in our

atmosphere allow the sun's rays to pass through, but then trap some of their warmth below. Without these gases our planet would look more like Mars whose temperatures fall to –122.8ºC at night. Unfortunately, we now have too much of a good thing. It is like we have added an extra heavy blanket over the earth. Carbon dioxide concentration rates increased more between 1995 and 2005 than they had since 1960 when they were first measured.

Other major greenhouse gas pollutants include methane and nitrous oxide. Over time the Earth's atmospheric chemistry will destroy these gases, but depending on the gas this process will take decades to centuries. In Canada the energy industry, based primarily on **fossil fuels**, is the largest single polluter of greenhouse gases. They account for over one-third of the pollution. While use of energy causes greenhouse gases too, this figure only includes the production of energy. Next the transportation sector, including cars, trucks, railways, aircraft, shipping and public transportation like buses and subways, accounts for about one-quarter of our country's total greenhouse gas pollution. Manufacturing and mining produces 15 per cent of the problem. This is followed by agriculture, home energy use, public building energy use and methane from garbage dumps.

The problem of greenhouse gas pollution is made worse by the destruction of forests. Nearly half of the world's trees have been sacrificed for logging and agriculture. Canada has been no exception. But even more alarming is the number and severity of forest fires which release huge amounts of carbon into the air. During the 1970's about one million hectares of forest burned each year, today it's closer to three million hectares.

Trees are called the 'lungs of the earth' because they breathe out oxygen so necessary to life on earth. But trees are also called 'carbon sinks' because they breathe in, or absorb, carbon dioxide, one of the most common greenhouse gases. Fewer trees also mean greater amounts of carbon dioxide in our atmosphere.

As a result of all these factors temperatures are climbing. Over the past 30 years the Earth's average temperature has risen nearly one degree Fahrenheit. A prominent NASA climate scientist recently confirmed 2005 was the warmest year on record. Given heat drives our climate system, increases in temperature mean increases in **extreme weather** conditions. For instance, the average peak hurricane speed has increased by 50 per cent since 1949. Left unchecked scientists tell us this situation will result in greater suffering yet. If we don't intervene, they predict the Earth's average temperature will rise by 5ºC before the end of the century. It is worth remembering a slightly smaller temperature change experienced thousands of years ago resulted in the end of the last ice age.

We should also remember that temperatures don't rise uniformly across the world. **Northern regions, like Canada, are affected most**. A recent satellite study of the Greenland ice cap shows it is melting far faster than scientists had feared — twice as much ice is going into the sea as five years ago. Meantime, Canada has experienced several straight seasons of above average temperatures. As a result Arctic ice has melted by 40 per cent since 1970; if it continues to melt at the same pace, by 2040 the summer sea ice will be gone and polar bears will starve to death since they will be unable to hunt on the summer ice. Melting permafrost can also release trapped stores of methane, a greenhouse gas with the potential to add to the global warming trend even more than carbon dioxide.

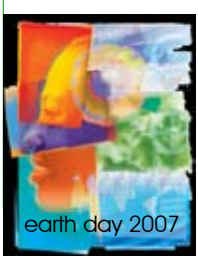
Other signs of climate change in Canada include severe droughts, flash floods and extreme summer heat. On average 40 persons in Toronto alone have died of heat-related disease during each summer since the 1990s.

With global warming also comes the warming of our oceans and their expansion. Warmer ocean temperatures are already killing coral reefs, home to 65 per cent of the world's fish species. Rising sea levels associated with melting ice caps will threaten coastal cities like Vancouver, Halifax, London, New York and Shanghai. Small island countries will be lost entirely. In fact, last year, Lohachara Island off the coast of India, was the first inhabited island lost to rising seas, leaving its 10,000 residents without homes and livelihoods. In an already thirsty world, fresh water supplies will also continue to evaporate. And tropical diseases will surely spread. An international medical alert was recently issued about a potentially lethal fungus that normally thrives in tropical climates, but has been found in coastal British Columbia.

What is the Kyoto Protocol?

Concerned about the mounting signs that climate change is a real problem, the world's nations first agreed to do something about it in 1992 at the United Nations Conference on Environment and Development, a conference more popularly known as the Rio Earth Summit because the conference was held in Rio de Janeiro, Brazil. Here they agreed to steady the pace at which we were creating greenhouse gases.

Five years later concern and evidence was greater still. It was obvious that we needed to go beyond just stabilizing our greenhouse gases; we would need to reduce them. Scientists estimated we would need to reduce greenhouse gases by 50 to 60 per cent to stop the dangerous warming trend. (Since then some have estimated that we may need to reduce greenhouse gases by as much as



80 per cent.) So the United Nations called another meeting to talk about the problem, this time in Kyoto, Japan. After long negotiations they agreed to a first step. Countries would reduce their greenhouse gas emissions by an average of 5.2 per cent below 1990 levels by the year 2012. Canada's share would be six per cent below 1990 levels.

Representatives then took this agreement back to each of their countries. It took another five years before our government in Canada accepted Kyoto. But at least they did. Some countries like the United States are yet refusing to make any commitments.

In 2005 Canada hosted world discussions on where to go once the Kyoto agreement expires in 2012. While we are far from determining next steps, our leaders did secure commitment to a process for working toward their development.

Has Canada honoured its Kyoto commitment?

Canada's greenhouse gas emissions have continued to rise steadily. In 2004 emissions were 26.6 per cent greater than 1990 and 34.6 per cent above our Kyoto target. At present we are the world's ninth biggest creator of greenhouse gases, or the third biggest creator per person behind Australia and the United States. So in order to live up to the Kyoto Protocol we will need to reduce our greenhouse gases by more than 25 per cent.

In a 2005 report comparing our progress toward sustainability an independent team of researchers found Canada to be one of the worst environmental performers in the industrialized world. We ranked 28th out of the 30 member countries of the Organization for Economic Co-operation and Development based on 29 key environment indicators. Canada's poorest showing included: 28th in energy consumption and 26th in greenhouse gas emissions. The study found Canada had shown no improvement over the last decade.

Many observers attribute this lack of progress to federal and provincial government reliance on voluntary programs. They point out voluntary measures clearly aren't working, if they did we would be achieving our goals. Further, if our governments talk about the issue at all, they prefer to only talk about what individuals can do to meet the challenge of climate change. The role of governments or corporations is largely absent from the public discourse. Finally, Canada's vision for honouring our commitment to Kyoto is limited in scope. When and if we talk about energy solutions we talk about them in isolation. Energy solutions need to be tied to a larger economic vision. Given what causes greenhouse gas emissions, we also need to be talking about what and how we produce and consume. Individual Canadians are more often citing the environment as their greatest concern and climate change something they expect elected officials to address.

What can be done? — Green Power!

The good news is we can keep our commitment to the world to reduce our greenhouse gases. If we put our minds to it, we can even go beyond Kyoto's targets and eventually reach the 60 to 80 per cent reductions in greenhouse gases needed. Many of the solutions are available to us today. Green power — power that uses renewable resources and does much less harm to the health of our environment or the health of workers helping to generate it — comes in many forms. If done right all of the following examples will produce no, or considerably less, greenhouse gas pollution. The many ways in which their technologies harness the gifts our planet offers is amazing. Their potential for job creation is equally wonderful.

Solar energy

Energy from the sun is safe, clean and will never run out. We can now capture energy from the sun's rays in solar panels and store it in batteries to be used when the sun isn't shining. Heating homes and water is the most common use of solar power. Smaller items such as calculators, watches and radios can also be powered by solar batteries.

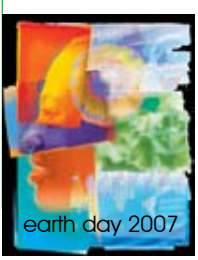
Scientists are also developing solar collectors that will capture the sun's energy so we can use it to power our cars, run our factories, and heat or cool our homes.

The first of its kind in North America, the Drake Landing Solar Community in Okotoks, Alberta meets 90 per cent of each home's heating needs through a district system which stores solar energy in summer for use during high demand winter months. Large garages with solar energy panels are pre-built, collecting energy before the houses are even completed. The project is managed by the non-profit Built Green Society.

A few large companies have already installed solar air heating systems including: Bombardier, at the Canadair facilities in St. Laurent, Quebec; Delphi, at the Battery Plant in Oshawa, Ontario; and Ford Canada at their automotive assembly plant in Oakville, Ontario. The Canadian Auto Workers (CAW) and others are encouraging these and other companies to install more solar powered systems. When they do, this will bring down the cost of solar power so we can all afford it.

Wind energy

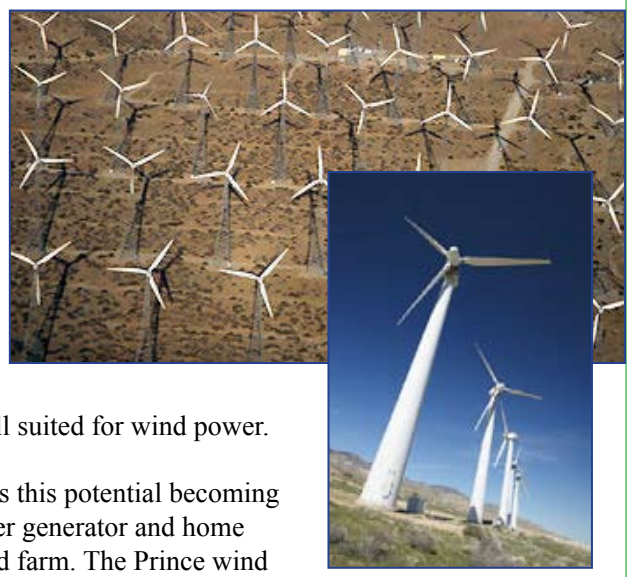
Humans have been using windmills to capture the energy of the wind for centuries. We stopped using wind energy when it became so easy and cheap to burn fossil fuels.



Today we are rediscovering the power of wind. It is the fastest growing source of energy worldwide. Denmark is already generating 20 per cent of their power with wind turbines. And they have produced 12,000 new jobs with this technology. The

threat of climate changes has also persuaded other European governments to follow their lead.

U.S. studies have estimated their wind corridors could provide two to three times the electricity needed for the entire country. Meantime, Canada with the potential to produce more wind power than anywhere else in the world has accepted the challenge. Canada more than doubled its total installed wind capacity in 2006, ranking it 12th in the world. Scientists are working to beat the freezing temperatures of the north and build wind plants there. Areas along the Great Lakes are also well suited for wind power.



Ontario has begun to harness this potential becoming Canada's biggest wind power generator and home to the country's biggest wind farm. The Prince wind farm on the shores of Lake Superior, northwest of Sault Ste. Marie, has 126 turbines enough to generate electricity to power 40,000 homes.

Three other large Ontario wind farms opened last year: Port Burwell, a town on the northern shore of Lake Erie, will meet the energy needs of 30,000 Ontario homes; Kingsbridge I near Goderich on the shores of Lake Huron and Melancthon near Shelburne, northwest of Toronto. Quebec has Canada's second largest wind farm with 133 wind turbines generating electricity for 10,000 homes. Nova Scotia Power plans to double this capacity promising to purchase enough wind power to supply 20,000 homes.

But wind can power things other than homes and buildings. Calgary enjoys the first public Light Rail Transit system to be run by wind-generated electricity. Twelve wind turbines allow Calgary citizens to 'ride the wind.'

Geothermal energy

Geothermal energy is a non-polluting, natural energy source produced by the internal heat of the Earth. There are five kinds of geothermal energy: hot water; hot dry rocks; magma; compressed hot water aquifers; and ground-source heat. The most common kind in use is from hot water far below the Earth's crust. It is brought to the surface as steam or hot water and is used to generate electricity by powering a steam turbine. While geothermal energy is the main energy source for homes and factories in some cities in Iceland, its use elsewhere is limited at the moment. This said, in Canada the famous hot springs in Banff, Alberta help heat a resort located there. The City of Moose Jaw has developed a geothermal heating system for a public swimming pool and recreational facility. Carleton University in Ottawa uses groundwater to heat its buildings. The Health Centre complex in Sussex, New Brunswick has been using an underground aquifer for thermal energy storage

since 1995. And folks in the Meager Mountain-Pebble Creek area of British Columbia are currently testing a geothermal site with an eye to building a sizable facility in near future.

A few Canadian high schools and elementary schools also use ground-source heat pump systems. They include Father Michael McGivney Secondary School in Markham, Ontario, Bob McMath Secondary School in Richmond, British Columbia and Swan Lake First Nations School in Brandon, Manitoba.

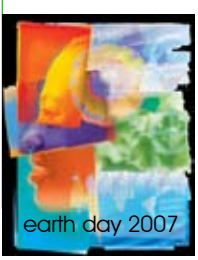
Ironically, one of Canada's greatest untapped geothermal power resources is also one of the greatest producers of greenhouse gases. The rapidly developing Alberta tar sands, home to deeply buried oil deposits, produced 25 megatonnes of carbon dioxide in 2003. At these rates researchers predict tar sand CO^2 emissions could soon match those of the entire Czech Republic. Production of each barrel uses two to three times the energy needed to extract one barrel of conventional oil.

Fortunately an Alberta business consortium is assessing the geothermal potential of granite rock 500 metres below the Earth's surface. Cold water would be pumped into a deep well where it absorbs heat from the hot rocks and pumped back to the surface for use. This new power source could heat the water needed for oil extraction, replacing the use of natural gas. The tar sands project currently accounts for one-third of Alberta's natural gas consumption and is expected to increase. Along with huge energy savings geothermal facilities emit a tiny fraction of carbon compared to coal-fired plants.

Regardless, future potential for geothermal energy is great. Worldwide, 39 countries could obtain 100 per cent of their electricity from geothermal sources. For instance, in Western Queensland, Australia, they are researching the use of hot rocks three to five kilometres underground. If successful, they will be able to meet all of Australia's energy needs for hundreds of years.

Tidal and wave energy

Energy from tides has been used since the Middle Ages when millers used them to drive the water wheels in their millponds. Water has four times the energy intensity of a good wind site. Consequently, many are experimenting with tides and waves to generate electricity. Some are beyond the experimental stages.



There are currently three working tidal power generators in the world. The largest in La Rance, France provides energy for 200,000 homes. The second largest is along the Bay of Fundy, in Nova Scotia where the Annapolis Tidal Generating Station produces enough electricity for 4,000 homes. The third station is situated on Russia's White Sea.

In each case, as the tide rises, twice daily, water is allowed to flow through the gates in a dam, known as a barrage, and fill the basin behind. At high tide the gates are closed, and as the tide falls, the water in the basin is retained behind the dam. Once a large enough head of water is built up, the water behind the dam is released and then drives a generating turbine to produce electricity.

Hydroelectric energy

Unlike Niagara Falls, most hydroelectric projects require dams. So while they don't produce carbon dioxide, these projects have others social and environmental problems caused by flooding behind the dams. Poor planning causes people and animals to lose their homes. New evidence also shows that some of these projects produce methane as vegetation rots below the flooded area. To help deal with these problems a new organization has been formed called the Low Impact Hydropower Institute. They inspect hydro projects and certify those projects that protect the environment.

Beyond these efforts though, many are harnessing hydropower on a smaller scale yet. A small-scale hydroelectric facility requires that a sizable flow of water and an adequate head of water are available without building elaborate and expensive facilities. Small hydroelectric plants can be developed at existing dams and have been constructed in connection with water level control of rivers, lakes and irrigation schemes. By using existing structures, only minor new civil engineering works are required; this reduces the cost of this component of a development. Cordova Mines, Ontario and Almonte, Ontario are but two examples of communities benefiting from small-scale projects.

Energy from plants

Biomass is the name scientists give to the energy stored in plants like wood, straw, grass and corn. Biomass can be burned to produce electricity, digested by bacteria to produce biogas and biodiesel, or processed to make ethanol or alcohol fuel.

In Brazil, half a million cars run on ethanol. In China there are more than 4,000,000 biogas energy generators. In Canada we are operating one of the world's first operations to make ethanol from grass and agricultural waste such as straw and oat hulls, also known as cellulosic wastes.
Every litre of ethanol substituted for gasoline will reduce carbon dioxide emissions by 70 to 90 per cent.

Between 1980 and 1993, many businesses and institutions in the

Atlantic provinces also installed automated biomass heating plants to deal with rising energy costs. In the last decade, many businesses have continued to operate — and often expand — their biomass heating plants.

Energy from waste

Throughout Europe, and now in Canada, cities are actually creating power from garbage. This process has two benefits: one, it recycles material that would simply occupy space in a landfill site; and two, it captures methane gases from the rotting garbage and converts them to electricity. Methane gas is also a greenhouse gas responsible for climate change. Its ability to trap heat in our atmosphere is 25 times more powerful than carbon dioxide, another gas responsible for climate change.

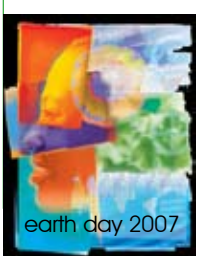
Money made from methane conversion is also no small change. The City of Toronto makes $2.5 million a year by selling its electricity from methane.

Happily, biogas can also be produced from animal waste. A cattle farm in Middlesex County, north of London, Ontario will this summer begin use of a bio-digester that will use its manure mixed with water to produce enough energy to run the farm and more. The nice thing about this solution too is it takes care of more than one environmental problem. While use of biogas helps prevent climate change, it also helps to prevent risk of water contamination. Water supplies in many southwestern Ontario communities are threatened by manure-containing run off from big factory animal farms. This solution is certainly a good fit for the area.

Fuel cells

Hybrid vehicles, vehicles that run on rechargeable batteries and gasoline, are coming on stream today. But vehicles powered by fuel cells offer us some of the most exciting possibilities for a cleaner future. A fuel cell works like a battery, but does not run down or need recharging. It will produce power as long as fuel, hydrogen, is supplied. Hydrogen is the third most abundant element on the Earth's surface, where it is found primarily in water and organic compounds. It is generally produced from hydrocarbons or water. When burned as a fuel, or converted to electricity, it joins with oxygen to again form water. As such, it is a clean form of energy.

Hydrogen fuel cells can be used to power buildings as well as vehicles. They are useful as backups to solar and wind power. When the sun isn't shining or the wind isn't blowing we can use stored hydrogen generated from fuel cells. Some hospitals are using fuel cells in remote locations. General Electric is selling home units now. Vancouver and Chicago each have three fuel cell buses on the road. Winnipeg has also tested a prototype fuel cell powered bus. The large car manufacturers have sample cars on the road too. Upcoming Olympic preparations in China and Vancouver will include fuel cell transportation in the mix. Mining companies are also looking to replace diesel-powered equipment with equipment powered by fuel cell technology.



Currently fuel cells are a popular replacement for lead-acid batteries in forklifts. Battery-powered forklifts run out of power in four hours. But forklifts powered by fuel cells will run for 24 hours. Manufacturers looking to save time and our environment are opting for this solution. Sales generated from this type of fuel cell use will ultimately contribute to research and development needed to make fuel cells a viable power source for the automobile.

However, the father of the modern fuel cell, Canadian-born engineer Geoffrey Ballard, describes a future where cars will not only be users of fuel cells and the hydrogen energy they store on board, they also will be energy suppliers too! When the car isn't in use it will plug into the electricity grid either at home, at the office or a parking lot. Ballard explains, a car with this ability to refuel itself is called a regenerative fuel-cell vehicle. He estimates, each of these vehicles will be able to power five to 10 homes. One hundred fuel cell vehicles, he calculates, will produce more than enough power for a 50-story office tower. One million vehicles, or just four per cent of the cars registered in California would equal the state's total stationary generating capacity!

Reducing energy use

While green energy sources are important, we must first work to reduce our energy use. This strategy, plus a good mixture of green or renewable energy will meet all our energy needs. Since the introduction of the **compact fluorescent light bulb** in the early 1980s, efficiencies in lighting have more than tripled. Similar gains have been made in many household appliances, including refrigerators, furnaces, water heaters and ranges. But we can't stop looking for ways to save energy. The way buildings are designed and the way existing buildings are managed can also make a big difference.

Montreal architect, Avi Friedman, reminds us the easiest way to reduce our energy footprint is to reduce the size of buildings. Secondly, simplifying the building floor plan will help. For instance, a rectangular plan has about seven per cent less perimeter than an L-shaped plan of the same area, 17 per cent less than a U-shaped plan, and 24 per cent less than an H-shaped plan. By reducing the amount of exterior wall area you reduce energy needs.

Buildings can also be designed for instance to take advantage of the sun's warming rays, this is known as **passive solar heating**. Buildings built for passive solar heating usually feature large south-facing windows, given that the south side of buildings always receive the most sunlight. Materials that absorb and store the sun's heat can be incorporated into the sunlit floors and walls. The floors and walls will then heat up during the day and slowly release heat at night, when the heat is needed most. Surprisingly straw is one of the best materials for use in these situations. Buildings from straw bale construction are reported to use half the energy of buildings from traditional materials and construction methods.

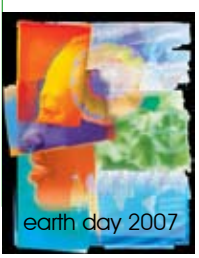
Motivated by the threat of global warming, the City of Toronto and the Toronto Atmospheric Fund (TAF) developed the **Better Buildings Partnership** in 1994, a program designed to improve buildings so they use less energy for heating, cooling, lighting and overall operations. To date, more than 600 private- and public-sector buildings have participated in the program. The partnership has had an economic impact of more than $161 million on Toronto's economy and created thousands of jobs in the construction trades. And greenhouse gases have been reduced considerably. The retrofits have reduced carbon dioxide emissions by 194,500 tonnes annually, equal to removing 38,200 cars from our roads for one year.

Similarly motivated, TAF worked with others from local and federal government on a green roof demonstration project. Project data based on two demonstration sites and released in 2002 found that **green roofs** (flat roofs specially covered in dirt and vegetation) not only cooled substantially the actual building, but the area around it. The insulating capacity of green roofs realized big energy and greenhouse gas reductions. Further, these green roofs helped manage sewer overflows from storm water and reduced urban runoff.

The average high-rise building can expect a 25 per cent decrease in their energy bill. Others have pointed to obvious reduced fuel consumption for locally grown rooftop vegetables. In Germany 80 municipalities have encouraged the creation of over 13 million square metres of green roofs. In Japan and now Chicago, laws require green roofs for larger buildings. Chicago estimates green roofs reduce storm water runoff by half.

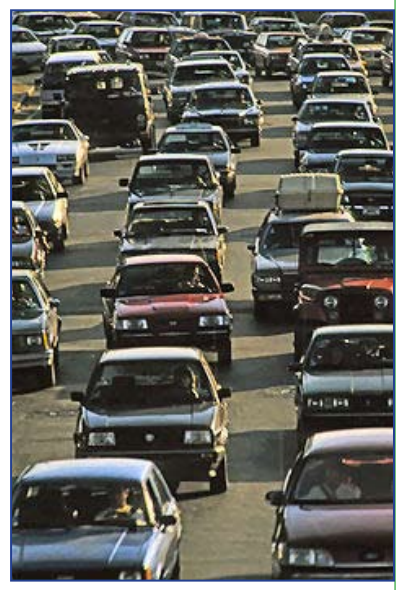
Each year more green roofs are dotting the landscape. Last fall, St. Gabriel's Roman Catholic Church, Canada's first environmentally sustainable church, was consecrated in Toronto. With its garden built atop the roof of the underground parking garage, a massive south-facing solar glass wall to capture heat, and living wall of foliage to help improve air quality, the church is a testament to the community's deep connection to the Earth.

Meantime, Toronto's Jackman Avenue Junior School was awarded a Toronto Green Award for its groundbreaking environmental initiatives. The school was retrofitted with a green rooftop and the school ground's eight gardens are tended by students and staff who plant, weed, compost and mulch. Each fall they welcome the community to celebrate their gardens by hosting a Harvest Festival.



While fuel cell technology and alternative fuels will help improve air quality, now we must work to create **better efficiencies in transportation** by insisting on lighter, more energy efficient vehicles, plus using public transit, railways or shipping whenever possible. Further, if we better planned

our communities so that people could live and work in the same communities, we would reduce travel distances, reduce fuel usage and the need to pave over green spaces with roads. We would also reduce toxic runoff (caused by paved surfaces' inability to absorb rain), global warming and our impact on the world's water cycle. This kind of community planning is often called Smart Growth. Southeast False Creek, a former industrial area near downtown Vancouver is such a model. Home to the 2010 Olympic Athlete's Village, the community's design favours walkers and cyclists. With nearby public transit, and Canada's first community with car-sharing spaces, it's estimated 60 per cent of its residents' daily trips will be made without use of a car.



Materials Matter

Thinking about what things are made of and how they are made is just as important to our health and the health of the planet as thinking about our energy sources. Many of the things we buy harm the workers who make them, the environment around us and even the people who use them. Not surprising, the government of Canada tells us that chemical producers are the single largest producers of greenhouse gases in the manufacturing sector. Many chemicals are also made from the same greenhouse-polluting fossil fuels we are trying to avoid in our energy supply. Pesticides for instance are amongst the most energy needy products. Pesticides are also made from crude oil, so when they break down after they are applied on plants they generate more carbon dioxide emissions yet. Of the top 10 polluting chemicals in the car manufacturing industry, all 10 are made from petroleum or fossil fuels. These chemicals are commonly used for cleaning and degreasing, painting or finishing operations, and as chemical parts in glues and paints.

But petroleum is crucial to more than chemicals. Most things made from plastic are also derived from this fossil fuel. The list of things that include petroleum is both long and often surprising. Balloons, bandages, eyeglass frames, fertilizers, ink, house paint, lipstick, panty hose, perfumes, rain boots, shampoo, toothpaste and vitamin capsules all include petroleum.

Fortunately, there are solutions to this problem too. As mentioned above, plants can be changed to cleaner energy sources. But plants can also be changed to chemicals, textiles and building materials. When it comes to the top 10 polluters in car manufacturing, plant matter-based materials such as **biochemicals and natural fibres** are available for each of these processes. All have several advantages over those made from fossil fuels, not the least of which is the reduction of worker and community exposures to hazardous substances and of course, the reduction of the greenhouse gases that cause climate change. For instance, solvents and degreasers can be made from citrus fruits, corn alcohol, sugar fermentation and soybean oil. Paint strippers can also be made from citrus fruits, black liquor (a byproduct of paper milling), crystallized wheat starch, walnut hulls and ethanol fermentation.

When it comes to actual car parts natural fibres like flax, hemp and jute are used as interior supports, reinforcing agents for plastics often replacing fibreglass, and carpet backing. Use of these natural fibres also makes the vehicle lighter and thus more energy efficient. Further, a type of cloth called Ramie is fast becoming a popular car textile. Considered an excellent replacement for polyester, it is also fireproof.

One of the world's most popular furniture companies, IKEA, is dedicated to choosing materials that are naturally fireproof. This way they avoid using harmful chemical flame protectors.

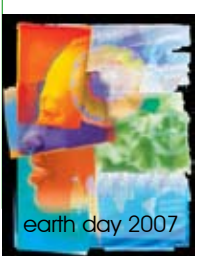
Yet another leading company is Interface, an international carpet manufacturer, with operations in Belleville, Ontario. They provide carpet tiles made from a new product called Solenium. Unlike other carpets fibres solenium is fully compostable, made from natural and degradable fibres. This material also lasts four times longer than traditional carpets.

A company called Cargill manufactures man-made materials from natural fibres as well. Using corn they make plastic food packaging, materials, and carpets too. Examples like this one are often referred to as 'green chemistry.'

Living the "three Rs"

Beyond these efforts many people are also thinking about ways to use less material. Among other things they are keeping in mind that all production requires energy. In this context the "three Rs" take on new meaning. As ever they tell us the first "R" — **Reduce** — is the most important — which means buy less and use less. But this doesn't mean we have to suffer. Rather use only that which we really need. When we reduce our consumption, we reduce our use of the Earth's limited resources and we reduce our energy needs. (If everyone on this planet were to live as we do in Canada it would take five Earths to sustain us.) Next they tell us to **Reuse**. It's not garbage until you throw it out. Find new and creative uses for old things instead of buying new things. Finally, they say, **Recycle**. Recycling is the re-using of things that would otherwise be thrown away. There are six main groups of recycled products: kitchen waste; fabric; glass; plastic; paper; and metal. Recycling is a way of reusing things and saving the material and energy it takes to replace them. It is also a great way of saving our resources while making money at the same time.

In Ontario less than 70 per cent of alcohol containers end up in blue boxes, a trend they hope to turn around with a new deposit return program. Customers pay a 10 or 20 cent deposit on each bottle which they get back when the container is returned. While freeing up landfills the program aims to eventually recycle up to 90 per cent of the glass for new bottles, fiberglass insulation and glazes for ceramic tiles.



With the "three Rs" in mind, using the above example of making plastics and materials from corn, some argue we would be much better to use agricultural waste to make these products.

Either way, if we want our Earth to survive, we must begin to think of garbage as a valuable, natural resource and the handling of garbage as resource recovery. The city of Guelph's Wet-Dry recycling program is a perfect example of how to achieve this goal. Their garbage program operates in the same manner as a normal curbside garbage pickup system, except residents keep their waste separate. Wet material, such as food scraps, goes into green bags, and dry material, like paper or plastic containers, goes into blue bags. Rather than transporting their garbage to the local landfill, waste collectors take the garbage to a nearby recycling plant where wet waste is composted and dry waste is sorted and prepared for market. This project created about 70 jobs and reduced 60 per cent of collected waste.

Similar programs can be found in Ontario's Durham Region, Toronto, Edmonton, Alberta and Halifax, Nova Scotia.

The "three Rs" big time

While reducing household waste is important it has been estimated that even if all households recycled all their products and materials, it would still only reduce the entire waste stream by one or two per cent. Where we really need to reduce waste is upstream in factories or workplaces. For instance, the making of a single laptop computer generates 4,000 times its weight in waste.

To help deal with the garbage problem some companies form what are called **eco-industrial parks**. They operate on the principle that one company's garbage is another company's raw materials. The Burnside Industrial Park in Halifax, Nova Scotia is one of Canada's largest and most successful eco-industrial parks. More than 1,300 small and medium sized businesses participate. Together, they employ 17,000 people.

Other companies are also helping by volunteering to take their products back when we are finished using them. Thinking ahead they also build their products so that when they do take them back they can easily take them apart and reuse parts. Xerox is one example of this model. This company takes back at least three quarters of the equipment it sells. Xerox estimates they keep 1.2 billion pounds of electronic waste out of garbage dumps. When they do, they also save $2 billion.

Other electronic producers who voluntarily take back their products include Hewlett Packard, IBM and Best Buy (in some locations). But most companies do not. The Canadian Auto Workers and many others view a concept called Extended

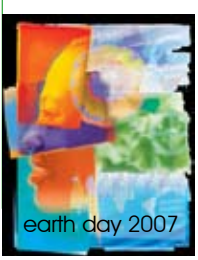
Producer Responsibility (EPR) or Producer Takeback as one of the most important means to achieve new, sustainable and clean or 'green' jobs. First legislated as policy in 1991 by a German government facing severe landfill shortages, EPR shifts the burden for recycling products discarded by consumers from the public sector back to the private sector, or rather the original manufacturer. This way, manufacturers are inspired to implement design changes that incorporate effective material and product recycling and reuse. Taken to its logical conclusion EPR would see manufacturers repairing or remanufacturing their products much like the manufacturers of Xerox copiers do. In this system the benefits for all are clear. Resource, energy and water consumption are reduced to a minimum, but worker skill levels are considerably increased. Remanufacturing is not capital intensive, but it is labour intensive.

Two prominent examples of EPR legislation are Europe's legislation both for electronic and electrical equipment waste and automobiles. Many are asking, "If manufacturers can meet Europe's requirements, why not ask them to do the same here in North America?" Unfortunately in North America these kinds of programs are mostly voluntary and thus few and far between. One of these exceptions can be found in California where six California jurisdictions have passed EPR resolutions and the California Integrated Waste Management Board has adopted EPR directives as part of its core mission. Here in Canada producer product-take back measures are largely limited to proper disposal of hazardous products or litter abatement. Nonetheless, some are optimistic. Four years ago the CAW launched a campaign to lobby the federal government for EPR laws in Canada.

Meantime, CAW members in Windsor, Ontario are also dedicated to finding new homes for old computers. This way they will keep computers from filling garbage dumps and eventually polluting our water and soil. They call their program Computers for Kids. Working with others in the community, like the Sandwich Teen Action Group, CAW members fix up older donated computers and then give the computers to computer-based, after-school and summer learning programs. So far they have refurbished almost 300 computers. These computers in turn help some 200 children learn with computers each day. Further, many teens who volunteer with the group earn their 40-hour, volunteer community service credit. That they continue long after earning their credit is testament to their character and the program.

Selling service not product

Xerox's leasing program makes the remanufacturing of their copiers possible. Customers buy the function copiers provide rather than the copier itself. Xerox retains the ownership. When a copier breaks down, Xerox takes responsibility for repairing it or replacing it. When they replace it they take back the copier and remanufacture it for others to use. Thus, they meet customer needs using fewer materials and less energy.



Yet another leader using this approach is Interface. Instead of selling wall-to-wall carpeting they sell a flooring service. They

provide this service using their innovative Solenium carpet tiles. When the carpet eventually does wear, usually in the high traffic areas first, because the carpet is also modular, they need only replace the requisite squares and not the whole carpet at once. Equally important, between 1993 and 1998 the company also increased their workforce by 73 per cent.

Of course, it has not been lost on CAW members that cars are increasingly becoming a leased product and as such are prime candidates for the 'selling service not product' model that facilitates producer take back or remanufacturing schemes.

Toxic use reduction laws

Many of the smarter material choices and 'green chemistry' examples we mentioned above would move ahead faster if laws were in place to encourage them. Among other chemicals, the European Union is also phasing out toxic substances in auto production, including lead, mercury, cadmium and chromium. But one of the most substantive developments is new European Union legislation entitled **Registration, Evaluation, Authorisation of Chemicals or REACH**. Coming into force this June, REACH will restrict use of carcinogens and mutagens, and force consideration of alternatives as part of the chemical licensing process. While these changes don't require mandatory substitution of dangerous chemicals, this innovative approach attempts to remedy the prevailing policy failure that allows tens of thousands of chemicals to be used without adequate knowledge about their environmental or public health effects. REACH has the potential to trigger cleaner technologies and safer products globally.

Individual members of the European Union have gone farther still, adopting specific legislation banning commercial production and use of carcinogens. One of the more progressive laws was passed in Sweden in 2001. Their sustainable chemical policy requires all new chemicals proposed for use must now be accompanied by evidence that they do not propose carcinogenic risk.

The U.S. has also taken a broad approach to chemical management with implementation of pollution prevention and toxics use reduction initiatives. The federal Pollution Prevention Act of 1990 requires pollution be prevented at the source with engineering and administrative practices that reduce both toxics use and releases. The first specific piece of legislation in this area, however, was the Toxics Use Reduction Act (TURA) established in Massachusetts in 1989. This law is designed to encourage reduction in the amount of toxics used and generated as a result of an industrial process or operation. It is currently the preferred mechanism for complying with all legislation governing worker and environmental health and applies to companies with 10 or more full-time workers manufacturing 25,000 pounds or more of a "reportable" toxic substance. Unlike the federal Toxics Use Inventory, TURA requires companies to report on toxics use not toxics release. Central to TURA is a facility based plan to reduce toxics. Just as important, the state provides support for these facilities in the

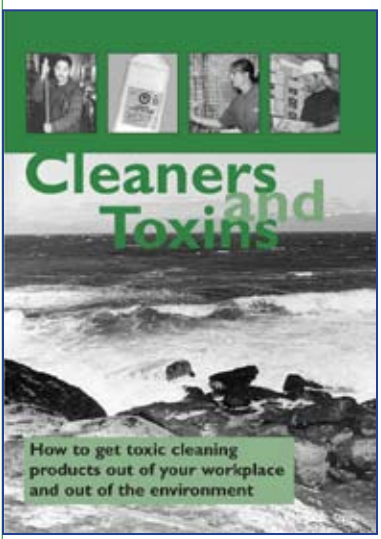
form of training and research into alternative substances. One study found that because of this law companies generated more than a third less toxic waste and reduced use of toxic chemicals by almost a quarter. They also saved $15 million; this without factoring in benefits to environmental, worker and public health.

Here in Canada, municipality upon municipality is passing bylaws to eliminate use of pesticides on our lawns and in our gardens and parks. Like EPR laws, these initiatives are also prompting many to ask, if we can do this in some places, why not all places? But here in Canada many recognize we need to go beyond pesticide bylaws.

Working for change

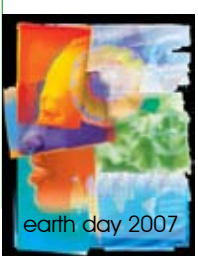
Getting companies and governments to do the right thing isn't always easy. Both often think in the short term. Leaders of companies want to report profits to their investors each year. Politicians who form governments want voters to re-elect them every four years. Both fear if they support environmental laws that would reduce greenhouse gases (among other things) they will lose their jobs; for investors and voters often mistakenly think laws will cost them money or jobs. As we have seen with many of the examples above though, doing the right thing can save money and create jobs.

To help educate people about the many benefits of environmental laws and doing business differently, the Canadian Auto Workers have started many campaigns in addition to one they launched for 'big time recycling'. Below are but a few examples.



Cleaners and toxins campaign

Cleaning chemicals affecting the health of fish plant workers *and* the marine environment on our west coast first alerted CAW members to the need for safer alternative cleaning products. Since then they have joined forces with the Vancouver-based **Labour Environmental Alliance Society (LEAS)** to produce a handy 24-page Cleaners and Toxins Guide and a full-blown campaign. LEAS engages environmentalists by providing them basic research on product Material Safety Data Sheets and then mobilizes workplace health and safety committees to coordinate product changes and watch future ordering of cleaning products. "Eliminating carcinogenic chemicals from the workplace is the most effective means of cancer prevention," says Mae Burrows, a CAW member and the executive director for LEAS. "It's also the best means of pollution prevention — at the source."



LEAS has hosted dozens of workshops in various sectors. As well they have set up cleaners' project sites in a school, recreational centre, food processing plant, long-term care facility and two large office complexes. At all sites they have seen the use of several safer cleaners. For their efforts LEAS won the 2002 Canadian Council of Ministers of the Environment Award.

Prevent cancer campaign

Every year, more than 70,000 Canadians die from cancer. They are mothers, brothers, best friends, daughters, grand-dads, co-workers and neighbours. They are young and old, male and female, rich and poor, of all races and ethnic backgrounds. Still more than 150,000 Canadians are newly diagnosed with this shattering disease — every year. By 2010, the Canadian Cancer Society predicts cancer will overtake heart disease as the most common cause of death in Canada.

In response most cancer organizations rightly urge us to maintain healthy habits — exercise regularly, stop or never start smoking and eat healthy foods to prevent cancer. That's very good advice. But aside from these so-called "lifestyle" factors, we're also vulnerable to cancer from other hazards. For instance, while smoking is the most frequent cause of lung cancer, 21 of 22 lung carcinogens have been detected in workplace settings. So, as we get active and eat a healthy diet, we must also eliminate the carcinogens in the air we breathe, the water we drink, the food we eat, and in our homes and workplaces.

Understanding the wisdom of this approach and inspired by a Workers Health and Safety Centre film about workers suffering from work-related cancers, the CAW began a prevent cancer campaign in December 1997. With education and help from the national union, the Workers Centre and the Occupational Health Clinics for Ontario Workers (OHCOW), members of workplace joint health and safety committees have identified and replaced many cancer-causing chemicals. More recently, all three organizations have worked with environmentalists in communities like Windsor and Toronto to form cancer prevention coalitions. The Windsor group has been successful in helping to start an environmental health research center in Windsor, while the Toronto group helped bring in pesticides bylaws for their city.

Out in British Columbia the LEAS group has also just published a handy book on safer alternatives to cancer-containing household products.

CAW hemp campaign

The hemp plant produces perhaps the strongest and most versatile natural fibre known. Moreover, a crop of hemp requires the application of little or no cancer-causing, greenhouse-producing pesticides. When hemp is farmed the leaves are not taken from the land. As a result, up to 70 per cent of the nutrients are returned to the soil. This decreases the need for chemical fertilizers as well. The hemp paper making process requires fewer chemicals than traditional paper production as well. Finally, foods produced from hemp are excellent sources of important vitamins.

In 1995 CAW environmentalists, recognizing the many benefits of the hemp plant, set out to educate Canadians about the

possibilities for hemp farming in Canada. For instance, Ontario's tobacco farms are ideally suited to grow hemp. In years that followed, the CAW launched a formal campaign that played a big role in the re-legalization of hemp farming in our country. Since then, the CAW continues to educate Canadians about the many virtues of this wonderful plant. Its potential for environmentally friendly, clean jobs is clear to all who listen.

Clean car campaign

Related to the push for big time recycling and the hemp campaign is a campaign to transform the motor vehicle industry by lobbying for a clean car standard that addresses fuel efficiency, tail pipe emissions, clean manufacturing, reuse and recyclability. Included in this drive is the goal to eliminate mercury in vehicles. Vehicles are a major source of mercury pollution. Ninety-nine per cent of the mercury used in cars can be found in hood and trunk light switches. Meantime, the 12 million vehicles disposed of in the U.S. and Canada each year contain an estimated 8.8 to 10.2 metric tonnes of mercury.

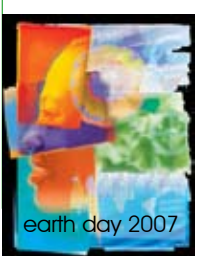
To help heighten awareness of this issue, environmental groups like Great Lakes United have started a program to replace mercury switches in vehicles. The CAW also provides a list of vehicles containing mercury, their make, model and mercury uses. The CAW negotiated with the big three automakers — GM, Chrysler and Ford — to eliminate mercury switches for convenience lighting in all new cars.

Among other things, the CAW's most recent car policy calls for a mandatory 25 per cent reduction of all smog-causing tail pipe emissions by 2010 and for a mandatory five per cent target of all new cars sold in Canada to be powered by cleaner fuels.

What more can governments do?

Laws that promote dematerialization and detoxification and alternatives to the carbon- or petroleum-based economy will certainly help us achieve our commitments under the Kyoto Protocol. But to achieve greenhouse gas reductions at a level that will sustain healthy workplaces and communities we will require greater government support yet. A brief list of other necessary interventions includes:

- Funding for public transit systems;
- Stronger zoning regulations to limit suburban sprawl;
- Energy-efficient standards for factories, buildings, vehicles and appliances;
- Upfront loans and incentives for energy efficient products and retrofits;
- Investment to research reduction of waste and toxins;
- Implementation of environmental product declarations, including material usage, energy and product performance, production processes, packaging details, how it was distributed and degree of recyclibility;
- Established timetables for the phase out of fossil fuels;
- Shifts in subsidies for fossil fuel production to investments in green energy production;
- A Sustainable Forestry Act requiring Forest Stewardship Council certification as a condition of all timber operations;



- Laws requiring all newsprint to contain at least 50 per cent recycled content;
- Government purchase of environmentally friendly products, services and energy;
- Support for workers and their communities affected by the transition to cleaner production;
- An international fund to help poorer countries develop green energy. products, services and energy.

While space does not permit elaboration of all these strategies, two deserve further exploration.

Subsidies shifts

The federal U.S. government subsidizes the fossil fuels industry to the tune of $20 billion a year. Meantime, Canada subsidizes the fossil fuel industry with $1.3 billion a year. Just imagine what could be accomplished we if invested this kind of money in green energy alternatives instead.

Just Transition

Money from fossil fuel subsidies could also be redirected in part towards workers and communities affected by the implementation of Kyoto and other environment saving measures. Costs associated with the transition to a new economy must not rest solely on the backs of workers or their communities who just happen to be employed in polluting industries. When the gasoline additive tetraethyl lead was banned in Canada for instance, there wasn't a living, breathing human being who said this wasn't best for our environment and our health, particularly the health of children. But in the process 2,000 Sarnia-area petrochemical workers paid a heavy price as a direct result of the ban. More than a decade later only 25 per cent of them have jobs with equal or higher salaries — 37 per cent are still unemployed.

To help address situations like this, organized labour, supported by others, is calling for government "just transition" policies and action. Essentially "just transition" is about fairness and environmental justice. It is about quality employment in an economy based on sustainable production. It is based on the principle that workers should not bear the brunt of economic change in the face of environmental necessity. If left to their own devices some workers would be the only losers in the pursuit for an eco-friendly economy.

The CAW and others have developed policies supporting transition measures to help protect workers who face major industrial change and restructuring initiated in the name of sustainability and environmental protection. It includes elements like retraining, income security and re-employment in alternative industries and ventures.

Workers employed in the extraction and refining of fossil fuels will suffer the greatest displacement under Kyoto. And yet provided they are fairly dealt with, they support implementation of the Kyoto Protocol. They, like the CAW, understand there are no jobs on a dead planet.

How can you help?

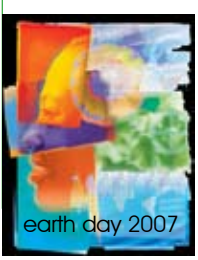
So far we have talked about the many ways we as a society can confront climate change. To get involved in some of these activities you may have to wait until you graduate school or enter the workforce, but there are many things that you and your family can do as individuals to help right now in your schools, communities, and homes. Here are just a few.

Learning and leading

Students across our nation are showing us the places in which we learn are also places in which we can lead. Working with terrific teachers and others in their school community, they have undertaken projects as a class or formed school environmental clubs to do some pretty amazing things. These things have included:

- ✓ Waste audits to help figure ways to reduce, among other things, paper waste (One school reduced paper waste in their school by 60 per cent. Another school achieved reductions by implementing the practice of reusing paper that had only been printed on one side.);
- ✓ Garbageless lunch campaigns to discourage the purchase of food in throw away packaging and promote the use of reusable food containers;
- ✓ Replacement of pop container dispensers with a bulk-dispensing unit and reusable glasses (This measure reduced the waste stream in one school by approximately 60,000 cans and bottles per year.);
- ✓ Traffic surveys to help identify opportunities for car pooling, public transit use and alternate transportation such as bicycles;
- ✓ Introduction of safer cleaners in the school just like the LEAS project;
- ✓ Greening of the school ground, with the planting of gardens and trees;
- ✓ The building of a greenhouse to help grow plants for transplanting to the school property;
- ✓ Recycling programs, including the recycling of food waste to make compost for their gardens (Refunds from recycling of pop cans and juice boxes have also been used to help lower the cost of in school lunch prices, fund other environmental projects or make donations to charitable groups.);
- ✓ Entire energy audits of the school designed to help reduce energy usage (One school went so far as to design a software interface that connects the school's gas and electricity meters to its web site so students could see how much energy they were using in real time. Since 2000 this same school has reduced its energy use by 25 per cent by putting lights on timers and automating the heating system; when the school isn't in use, lights are off and the heat is lowered.)

Like the artist whose work graces the cover of this booklet though, students have also gotten creative about how to inspire and support these efforts. Some have created posters and hung them throughout the school, some are performing skits or making presentations to get their message across at school assemblies, some have built web sites, some have launched environment newsletters, others are writing advertisements to be delivered over the



school P.A. systems, while still others are making crafts to sell at school craft sales whose funds will further finance other school environment projects.

Community connections

Beyond the school property and out in their communities young people are also joining with others to change things for the better. Students in one community organized a local trade and environment fair including information displays from environmental organizations and music provided by the area's young musicians. In Hamilton another group of students volunteered with an impressively effective local environmental organization called Friends of the Red Hill Valley, cleaning up garbage along the middle section of the Red Hill Creek and rescuing 52 adult spawning salmon stuck at an impassable portion of the creek.

Similarly, young people have joined members of the CAW in Collingwood and the Durham Region at annual tree planting events. Others have gotten active with the CAW in the London/Middlesex area in a big way.

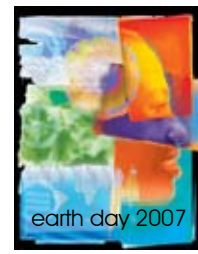
Adopt a river

"When I was a kid I lived in the river — fishing, swimming, playing," says Todd Sleeper, an environmental representative with CAW Local 27. "But over the years with all the abuse and neglect, the water got so polluted. We would catch fish, but were afraid to eat them. It got so we were afraid to swim in the river too. I had just about enough," says Todd, a father of three.

Consequently, Todd began the Thames River Clean Up seven years ago. The first year 150 people came out to help. Last year, approximately 1,800 environmentally-concerned volunteers participated in the river clean up, including hundreds of young people. Together, with boats, gloves and garbage bags, they have cleaned up over 200 km of the 520 km water system. There to help are city workers manning trucks, loaders and dumpsters to take the garbage away.

And, garbage there is! Tires, other car parts, sometimes complete cars, shopping carts, oil drums, paint cans, and appliances have all been pulled from the river and riverbanks. One year, reports Todd, they pulled 264 tires from the river. But probably the most common things collected, says Todd, are plastic bags and disposable coffee cups.

This year the river clean up will take place on Earth Day, Sunday, April 22. For those living in the area, Todd encourages you to get involved. After all, there are still some 300 km of the river to clean. Everyone who participates will have a chance at a draw for a canoe donated by a local merchant, Nova Craft Canoe. To learn more be sure to visit **www.thamesrivercleanup.ca**.



For people not living in the area however, Todd encourages you to adopt your own river. By adopting it, he doesn't mean you will own it. The water is not something that should be owned. It belongs to us all. Rather, what he means is that you too can become stewards for this life-giving force.

Lacing up for cancer prevention

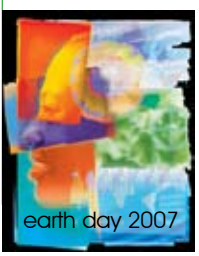
We've all heard about the runs for the cure. Yes, we need money for more research and better cancer treatments. But scientists tell us we know enough today to stop half of all cancers before they start. Trouble is most people don't have this knowledge. We need better education, and then action to eliminate carcinogens. It will take money to make this happen too though. So, this May enthusiastic 'movers' ranging in ages from five to 69 will travel to London, Ottawa, and Toronto, Ontario to participate in the Fourth Annual Run, Walk & Roll for Cancer Prevention. This event features 2K, 5K, 10K, half marathon and full marathon events — a distance for everyone! Once finished, participants will collect promised donations from their supporters. Over the past three years they have raised over $250,000 for cancer prevention projects, like a conference to be held this May and an important book that will detail 101 ways to prevent cancer. But with continued funding, organizers are now moving to establish a national cancer prevention coalition that will focus on educating citizens and politicians to eliminate sources of cancer in our workplaces and communities. To learn how you, your family and friends can get involved be sure to visit their web site at **www.stopcancer.org/rwr07**.

From your base camp

Many solutions used in workplaces are just as applicable in your home. For instance, the first of the "three Rs" principles — reduce — is easily adopted. When asking for or giving presents consider asking for experiences or giving of your own talents. This way you and the environment benefit. More stuff just uses more energy and the Earth's limited resources. And stuff cannot build relationships? So, instead of asking for yet another outfit or electronic PlayStation, why not ask for a family outing to your favourite conservation area, museum or theatre? When giving gifts also consider making them from the 'beautiful junk' already on hand, or creating cards with the promise of helping others. Smaller brothers and sisters might appreciate the promise of shared storytelling time. Most parents would enjoy help around the house.

But don't stop here. There are so many things you can do to help.

Your family's purchasing power



- ☒ Buy the food and products your neighbours build. Local food and products require less transportation and preservatives to get them to you.
- ☒ Ask you parents to buy organically produced foods whenever possible.

- ☒ Eat less meat. Meat production uses a lot of energy. It takes five to 10 times more energy to produce meat than it does to produce grain that has equivalent food energy.
- ☒ Buy products from natural materials and where possible, recycled materials.
- ☒ Again, try not to buy everything you want.
- ☒ Try sharing things, rather than buying the same thing for everyone in the family.
- ☒ Try using publicly owned things and spaces, rather than individually owned things and spaces. Libraries, parks and school basketball courts are but three examples of this principle.
- ☒ Reduce your paper consumption. Always print on both sides of the paper for instance.
- ☒ Buy rechargeable instead of disposable batteries.

Your family's cleaning decisions

- ⇨ Ask your parents to buy cleaning solutions that do not harm the environment.
- ⇨ Or make cleaners yourself.
- ⇨ An all-purpose cleaner can be made with 125 ml of pure soap and four litres of hot water. For a clean scent and to help cut grease add 60 ml of lemon juice. For a stronger cleaner double the amounts of soap and lemon juice.
- ⇨ Glass cleaner can be made from a bottle filled half with water and half with vinegar.
- ⇨ Furniture polish can be made from 15 ml of olive oil, 10 ml or vinegar or lemon juice and 5 ml of water. Before using, heat your mixture in a pan of warm water and shake well.
- ⇨ Disinfectant can be made with a mix of 50 ml eucalyptus oil and 100 ml water.

- ⇨ Baking soda on a sponge makes for a good scouring powder. You can also try a firm bristle brush and scrub with pure soap combined with either table salt or baking soda.
- ⇨ To fully clean and take smells out of carpets: vacuum, sprinkle a lot of cornstarch or baking soda, leave one hour, then vacuum again. For tougher stains, try cold soda water or repeatedly blot with vinegar and soapy water.
- ⇨ For more cleaning ideas check out **www.greenpeace.ca/e/resource/green**.

Your family's transportation decisions

- ✔ Ride your bicycle or walk whenever possible.
- ✔ Use public transportation.
- ✔ Ask your parents to try to live as close as possible to the places you go every day.
- ✔ Car pool with friends and family.
- ✔ Stop vehicle idling. If every driver of a light-duty vehicle in Canada avoided idling for just five minutes per day, it would save 1.6 million litres of fuel.

- ✔ If your family must own a car, ask your parents to ask our governments and companies to make the 'greenest' car possible. They can start by signing on to the Clean Car Campaign. Just go online: **www.cleancarcampaign.org**.
- ✔ Not all gasoline is created equal. When filling the car gas tank, fill it with gas containing the highest level of ethanol possible.

Your family's home energy decisions

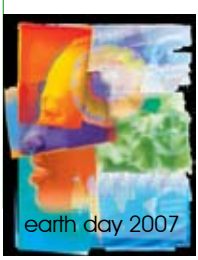
- ✹ Always turn off the lights when you leave a room.
- ✹ Don't leave the T.V. on if you are not watching.
- ✹ Hang your clothes out to dry rather than using the dryer.
- ✹ Encourage your family to use storm doors and windows and insulation to make your home energy efficient, including insulation on the hot water pipes and hot water tanks.
- ✹ Also encourage your parents to buy energy-efficient appliances, computers and printers for your home. They may cost more initially, but over time they will save money because they use less energy.
- ✹ Turn down the thermostat on the furnace. Wear a sweater and slippers instead.
- ✹ Use air conditioning only when necessary.
- ✹ Plant deciduous trees on the south side of your home to cool the house and reduce the need for air conditioning during warm months.
- ✹ Plant coniferous trees on the north and west sides of the house to reduce the impact of cold winter winds and reduce heating demands.

Your family's water decisions

- ♦ Don't drink water bottled in petroleum-based plastic. Instead, while we work for safer tap water, ask your parents to purchase water filters for all water coming into your home, or at least for drinking and shower water.
- ♦ Ask your parents to install low-flow showerheads and faucets. This reduces home water consumption by 50 per cent.
- ♦ Don't run the hot water longer than you need. The water heater runs on natural gas, oil or electricity.
- ♦ Take a shower instead of a bath. Showers use one-third less water and less energy too.
- ♦ Urge your parents to run full loads of laundry.
- ♦ Put an adjustable nozzle on the outdoor hose so it only runs when you want it to.
- ♦ Use a rain barrel to save rain water for watering plants.

Your family's lawn care decisions

- ▷ Ask your parents to make your home and yard a pesticide-free zone.
- ▷ Offer to pull weeds instead of using chemicals on lawns and share the following advice with them.
- ▷ Choose grasses or other ground covers and plants that are well adapted to your general climate and that are suitable for the specific site.
- ▷ Regularly mow the lawn with sharp blades set as high as possible. Do not mow wet grass. For best results mow in evenings or on cloudy days.
- ▷ Leave grass clippings on the lawn. The mulch returns nutrients to the soil. If you are detoxifying a previously



chemically-treated lawn, don't mulch for a year or two, thatch may build up.

- Water slowly and deeply about once a week. Avoid watering during strong sun or heat. Also avoid watering at night. The best time to water is early morning.
- Aeration fosters healthy grass growth and crowds out weeds by allowing air and water to penetrate through the thatch layer to the root zone. Aeration is best done in May/June and autumn.

- Organic fertilizer and/or top dressing helps maintain proper fertility and pH levels necessary to a healthy lawn. Use slow release, granular, organic fertilizer such as compost, manure, rock mineral fertilizer, bone and blood meal or kelp in autumn. To modify pH levels add lime or sulphur. Top dressing with compost is best done with aeration. Spread compost evenly no more than one-quarter inch thick.
- Over-seeding is another important strategy. You can attain excellent results by casting a mix of drought-tolerant, grub-resistant, grasses (i.e. perennial rye) with white clover.
- Ongoing monitoring and prompt treatment is also necessary.
- Insects that threaten the health of your lawn or garden can be treated without harmful pesticides as well. The following are a few tips for the most common pests:
  - *Ants*: Apply bone meal or diatomaceous earth at the burrow opening. Encircle the point of entry with a line of red chilli powder, paprika or dried peppermint leaves.
  - *Aphids*: In a blender, mix garlic, green onions and half a teaspoon of Tabasco sauce. Strain and mix with soapy water. Spray the garden, wait a half an hour and rinse off affected plants.
  - *Slugs/snails/earwigs*: Place a dish of stale beer in the garden. Insects will enter and drown.
  - *Grubs*: Spray lawn with soapy water and turn over areas of sod infested with grubs allowing birds to eat them. Alternatively, apply nematodes, a natural predator of grubs, to the affected areas.

Climate changing, people rising

Read a daily newspaper, listen to radio or television reports and most days you will find news about climate change — studies, new green technologies or extreme weather events and their human and financial cost.

These are not an invention of the news media but rather are a reflection of an increasingly concerned public. People, like us, are worried about climate change and they want action taken now.

An Angus Reid Poll found 73 per cent of Canadians consider global warming a serious threat. They are beyond debating

the science, they want to be part of efforts to save our environment and they want it to begin at home. Two-thirds of Canadians polled said they supported domestic action over international action to battle climate change. More specifically, Canadians would back the federal government in giving tax breaks to businesses and manufacturers who take action to curb global warming and would also support subsidies to cut public transit fares.

In another poll more than three-quarters of Canadians said we should not only meet, but exceed our Kyoto commitment to cut greenhouse gas emissions. The European Union has set a mandatory target to cut greenhouse gas emissions by 20 per cent from 1990 levels by the year 2020. They further agree to ensure 20 per cent of EU energy will come from renewable sources during this same time.

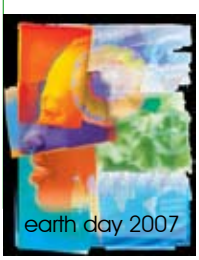
What is Canada's commitment? While Canada was one of the first nations to sign the Kyoto Protocol in 1998 and ratify it in Parliament in 2002, as noted earlier meaningful progress on climate change has essentially stopped. The current federal government holds to the belief that Kyoto commitments are unrealistic and cannot be met. Instead they have agreed to voluntary emission reductions as part of an Asia-Pacific partnership with some countries that have yet to sign the Kyoto Protocol and who are not surprisingly some of the world's biggest polluters.

The environment has become the subject of daily discussions in our House of Commons and is given serious debate during election campaigns. That means our voices are being heard, or are they? Unmistakably there is a growing environmental movement of citizens seeking change and demanding our leaders take action. Public consensus has never been stronger but do our leaders have the political will to translate this into legally binding actions necessary to combat climate change?

Fortunately, the solutions to climate change are available to us today — they are within our grasp — renewable energy choices, energy conservation, better material choices and material conservation. We need only reach out and embrace these solutions — individually and collectively. We can point fingers at those who aren't doing their part or we can put our hands to work finding solutions together.

As Al Gore, former U.S. vice president suggests, climate change presents us the opportunity to put aside our petty differences and meet the thrill or privilege of a generational mission so essential to the human condition, our very survival. We understand climate change is not a passing fancy or the hip cause of celebrities. Our environment is bigger than all of us, because it is fundamentally part of us. Most Canadians get it. It's our job to ensure all Canadians get it. Quite simply, we have to ask ourselves and each other what kind of community, what world do we want?

We cannot step back from our responsibility to ourselves, other inhabitants of the planet and future generations.



Let's rise to the challenge of climate change.

We can do it!

For greater awareness and action

Look to the World Wide Web

There are many places to find information about our environment and climate change on the Internet. Just as important, there are many more with information about how you, your family and friends can help improve our planet. The following are just a few places to start. You can find more links on the CAW and Workers Centre sites.

Canadian Auto Workers Union
www.caw.ca

Workers Health and Safety Centre
www.whsc.on.ca

Youth and Eco-education links

Earth Day Canada
www.earthday.ca/pub/home.php
Green Street
www.green-street.ca
Pollution Watch
www.pollutionwatch.org
Sacred Balance Portal
www.sacredbalance.com
Youth Action Network
www.youthactionnetwork.org

Environmental links

David Suzuki Foundation
www.davidsuzuki.org
Great Lakes United
www.glu.org
Greenpeace Canada
www.greenpeace.ca
Sierra Club Canada
www.sierraclub.ca
World Wildlife Fund Canada
www.wwf.ca

Climate change sites

Clean Air – Cool Planet
www.cleanair-coolplanet.org
Government of Canada
www.ec.gc.ca
Pembina Institute for Appropriate Development
www.pembina.org/climate-change/index.php
Stormy Weather
www.earthfuture.com/stormyweather
The Climate Group
www.theclimategroup.org

Green economics links

Clean Car Campaign
www.cleancarcampaign.org
Eco-materials Project
www.greeneconomics.net
Institute for Local Self Reliance
www.ilsr.org
Labour Environmental Alliance Society
www.leas.ca
Rocky Mountain Institute
www.rmi.org

Clean Production Action
www.cleanproduction.org
Fuel Cells Canada
www.fuelcellscanada.ca

Program Co-Sponsors

The Canadian Auto Workers Union represents more than 265,000 working in Canada. We build cars, planes and trains. We work in the transportation industry, including trucking, busing, rail and airlines. We also work in the fishing industry, hospitals, hotels and restaurants. As worker representatives we are well positioned to help achieve measures necessary for economic sustainability. But we are citizens and parents too. In this capacity we are equally concerned with the education of our children. Moreover, we understand the power that young people possess to change our world if given the opportunity. For our future and our children's future then, the CAW is committed to delivering our Earth Day program. To learn more about the CAW visit **www.caw.ca**.

The Workers Health and Safety Centre is unique among the 14 organizations funded by Ontario's Workplace Safety and Insurance Board. As the system's "training centre" we offer training and information services to workplace representatives in every sector of the economy and every region of the province. All focus on controlling, or better yet eliminating, occupational hazards at their source. All are also delivered using the Centre's participant-centred and 'workers training workers' approach. For more than 18 years the Workers Centre has proudly offered health, safety and environmental awareness programs aimed at young workers. To learn more about the Workers Centre visit **www.whsc.on.ca**.