

BC Air Action Plan

JUNE 2008



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MESSAGE FROM THE B.C. GOVERNMENT >>

MESSAGE FROM THE B.C. GOVERNMENT

Clean air and a healthy environment are fundamental to our quality of life. As B.C. continues to grow, the importance of keeping our air clean becomes more apparent every day. Looking after the quality of the air we breathe is both our right and our responsibility.

That is why the B.C. government has developed this Air Action Plan – to help ensure we continue to enjoy the best air quality possible. Our province deserves it. We deserve it. The Plan sets out 28 actions to reduce pollution from all sources, with all initiatives underway by 2009.

The government is dedicating \$28.5 million over three years to implement the Plan, in partnership with industry, communities and other levels of government.

You can make a difference, too. In fact, individuals who cut their contributions to air pollution can have the biggest impact of all – especially with support from communities and government. And don't forget: even small changes in our day-to-day lives can make a big difference. After all, it's your air, your health and your choice.

Nothing is more important than the air we breathe. So let's work together to keep it clean and healthy – for our families and communities, for generations to come.



*Honourable Gordon Campbell
Premier of British Columbia*



*Honourable Barry Penner
Minister of Environment*



Did You Know?

Hospital visits as a result of poor air quality cost our B.C. health care system up to \$85 million a year. These costs – and the human suffering they represent – can be reduced. This Air Action Plan is part of the solution.

Did You Know?

Individuals can make a big difference in the fight against air pollution. See page 21 for a Top 10 list of everyday things you can do to help.

ABOUT THIS PLAN

Clean air and a healthy environment are fundamental to our quality of life and, here in British Columbia, we're fortunate to have some of the cleanest air anywhere. We are exposed to far fewer pollutants than people in more industrialized parts of the world.

As B.C. continues to grow, keeping our air clean is more and more challenging. We have to consider not just the sources of pollutants, but how their impacts on health and the environment can vary with geography, changes in the weather, and other factors beyond our control. For example, in some of our valleys, air quality can be excellent on clear, windy days but poor when temperature inversions trap pollutants in the local airshed. We need to plan for the full range of circumstances and, as our communities grow, make sure levels of harmful pollutants do not grow alongside them.

As our province tackles the challenges of climate change, keeping our air clean is more important than ever before. Warmer temperatures can result in higher concentrations of some air pollutants. They can also increase the number and frequency of forest fires, which are a leading contributor to one of the most harmful air pollutants: fine particulate matter. The good news is that greenhouse gases and air pollutants share a number of common sources. And B.C. is moving forward to address both issues simultaneously.

That's why the government has developed this Air Action Plan as part of its broader strategy to lead the world in sustainable environmental management with the best air and water quality, and the best fisheries management, bar none. The Plan sets out 28 actions to reduce air pollution, complementing the government's plan to reduce greenhouse gas emissions, and the new B.C. Energy Plan which ensures, among other things, that at least 90 per cent of the electricity generated in B.C. will continue to come from clean or renewable sources.

The government is dedicating \$28.5 million over three years to implement this Air Action Plan, in partnership with industry, communities and other levels of government.

You can make a difference too. In fact, individuals who cut their contributions to air pollution can have the biggest impact of all – especially with support from communities and government. And don't forget: even small changes in our day-to-day lives can make a big difference. Nothing is more important than the air we breathe. We literally cannot live without it. So let's work together to keep it clean and healthy – for our families and communities, for generations to come.



AIR ACTION PLAN HIGHLIGHTS

This Air Action Plan will help to improve air quality across B.C. by promoting clean transportation, clean industry and clean communities. Highlights of the 28 actions in the plan include:

Clean Transportation

- » cleaning up emissions from transit and school buses
- » promoting a province-wide anti-idling campaign
- » retro-fitting older heavy duty diesel vehicles
- » greening B.C.'s vehicle fleet by supporting Green Fleets B.C. and enhancing effective programs such as SCRAP-IT and Air Care on Road
- » supporting greener ports and marine vessels

Clean Industry

- » eliminating beehive burners
- » turning more wood waste into energy
- » working with the bioenergy industry and others to develop new fine particulate standards for industrial boilers
- » encouraging companies to use the cleanest available technologies

Clean Communities

- » taking an active role in airshed planning
- » supporting people to replace old wood stoves with cleaner alternatives
- » implementing a provincial smoke management plan
- » supporting research on air quality and health

For a list of all 28 actions in this plan, see page 11. For a Top 10 list of ways you can make a difference, see page 21.

WORKING TOGETHER FOR A GREENER B.C.

This Air Action Plan is part of the provincial government's broader strategy to lead the world in sustainable environmental management, with the best air and water quality, and the best fisheries management, bar none. The 28 actions outlined here complement the work underway across B.C. to address climate change, improve air quality, protect our water, enhance public transit, improve local planning, and make our province electricity self-sufficient by 2016. This Plan supports the new LiveSmartBC Efficiency Incentive Program by providing additional tools and incentives to help British Columbians make their homes more energy efficient. LiveSmartB.C. encourages us to reduce our carbon footprint by using energy wisely, protecting our water and improving our air quality.

The BC Air Action Plan is also supported by initiatives such as ActNow, which encourages healthy lifestyle choices such as walking and cycling.



Did You Know?

Outdoor air pollution takes a greater toll on human life in British Columbia than HIV/AIDS, contributing to as many as 250 deaths every year.

Did You Know?

A study published in 2000 by Environment Canada estimated that high levels of smog, known as “extreme visibility events,” could reduce tourism revenues in Greater Vancouver and the Fraser Valley by almost \$9 million a year.

1 Provincial Health Officer’s Annual Report, 2003.

2 Volatile organic compounds may occur naturally (e.g. forest fires), or result from human activities (e.g. vapours from gasoline and solvents).

These examples illustrate the interconnected nature of the various components of a healthy environment, and serve as a reminder that every one of us – including individuals, business, industry, communities, and governments – need to do our part to keep our province clean, green and sustainable.

CLEAN AIR – WHY SHOULD WE CARE?

Poor air quality has negative effects on our health, our environment and our economy. Health effects include eye and throat irritation, breathing difficulties, and the aggravation of existing heart and lung conditions. Air pollution can also lead to people taking more medications, visiting their doctor or emergency room more often, being admitted to hospital more often, or even dying prematurely. For example, according to the Provincial Health Officer, outdoor air pollution contributes to as many as 250 premature deaths in our province every year – and increases health care costs by an estimated \$85 million¹.

Impacts on the environment range from smog in the air, to damaged plant tissues, to the transfer of pollutants from the air to land and water. Economic impacts include potential losses in sectors such as tourism and agriculture. Poor air quality can also limit opportunities for economic growth.

TARGETING THE WORST POLLUTANTS

Outdoor air pollution has a number of components that vary in intensity according to their sources. They include sulphur dioxide, a gas produced from fossil fuel combustion and natural sources such as volcanoes; volatile organic compounds²; and nitrogen oxides, produced by combustion processes such as those in engines and furnaces. Both sulphur dioxide and nitrogen oxides can lead to acid rain. Nitrogen oxides and volatile organic compounds can also lead to production of ground-level ozone, one of the main ingredients in smog – and one of the worst offenders in terms of its impact on human and environmental health.

» **Ground-level ozone** is different from the ozone that naturally occurs high in the atmosphere and helps to protect us from harmful ultraviolet rays. Also known as “bad ozone,” ground-level ozone is produced when nitrogen oxides react with volatile organic compounds.

Health effects of ground-level ozone include airway irritation and inflammation. Repeated exposure may cause permanent lung damage. Ozone can also harm plants, reducing crop yields and making plants more susceptible to diseases.

All of the components described above can also contribute to particulate matter (PM) pollution. PM is air pollution in one of its most visible forms.



- » PM refers to airborne liquid and solid particles and occurs in two forms: primary and secondary. Primary PM is emitted directly into the atmosphere by sources such as wildfires, woodstoves, agricultural burning, transportation, manufacturing, and power generation. It also includes pollen, spores and road dust. Secondary PM is formed through chemical reactions involving the pollutants mentioned above: nitrogen dioxide, sulphur dioxide, volatile organic compounds and ammonia.

PM is a serious health concern, as it can cause diseases such as emphysema, chronic bronchitis, asthma and lung cancer. Because PM is composed of tiny particles invisible to the human eye, it can be inhaled deeply into our lungs.

This Air Action Plan directly targets the sources of ground-level ozone and fine particulate matter in three areas: transportation, industry and communities. It sets out the actions government is taking in all these areas, and highlights everyday steps you can take to help clear the air for all British Columbians.

100% BY 2010

B.C. is working to reduce levels of fine particulate matter and ground-level ozone – the two most harmful contributors to air pollution – in communities province-wide. Our target is to meet or beat Canada wide standards for these two pollutants in all monitored communities by 2010. This Air Action Plan will help meet this “100% by 2010” goal.

MEASURING OUR PROGRESS

How clean is B.C.’s air, and how will we know our plan is working? Two important indicators are the levels of fine particulate matter, referred to by scientists as PM2.5, and ground-level ozone. These are the outdoor air contaminants of greatest concern from the perspectives of both human and ecosystem health.

The Ministry of Environment collects PM2.5 data from approximately 50 monitoring sites operated by the ministry, industry and Metro Vancouver. The networks collect data on ground-level ozone from about 40 sites in communities across B.C. The monitors are typically placed in communities that are densely populated, or where air quality may be an issue.

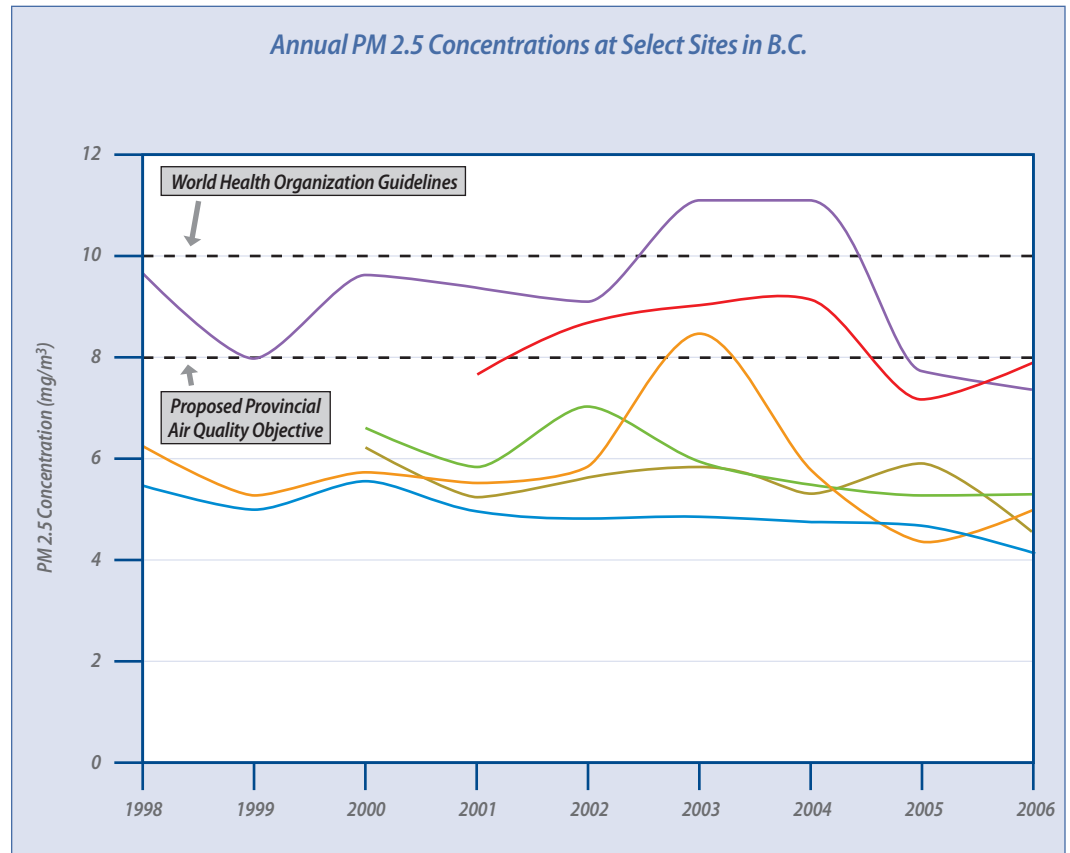
The federal, provincial and territorial governments have worked together to develop Canada-wide standards for PM2.5 and ground-level ozone. B.C. has committed to meeting or beating those standards by 2010.

In 2006/07, 88 per cent of monitored communities in B.C., including those in the the Lower Fraser Valley monitored by Metro Vancouver, were meeting the standard for PM2.5 and 96 per cent were meeting the standard for ground-level ozone. The B.C. government is working to improve these standings to 100 per cent for both pollutants by 2010. Progress is tracked in the Ministry of Environment’s annual service plan report.

*Did You Know?
Since 2001, B.C. has invested in upgrading over 150 monitoring units province-wide, covering, in combination with Metro Vancouver’s network, over 85 per cent of B.C.’s population.*

*Did You Know?
Fine particulate matter is known as PM2.5 because the particles are smaller than 2.5 microns. How small is that? If you laid them end to end, you would need 20 microns to match the thickness of a human hair, and one million microns to stretch one metre. Because they are so tiny, these particles stay in the air longer and travel farther than larger particles, such as those in dust. They can also travel deep into our lungs and lodge there, causing irritation and disease.*

The following chart shows annual trends in PM_{2.5} concentrations at various continuous monitoring sites across B.C. between 1998 and 2006.

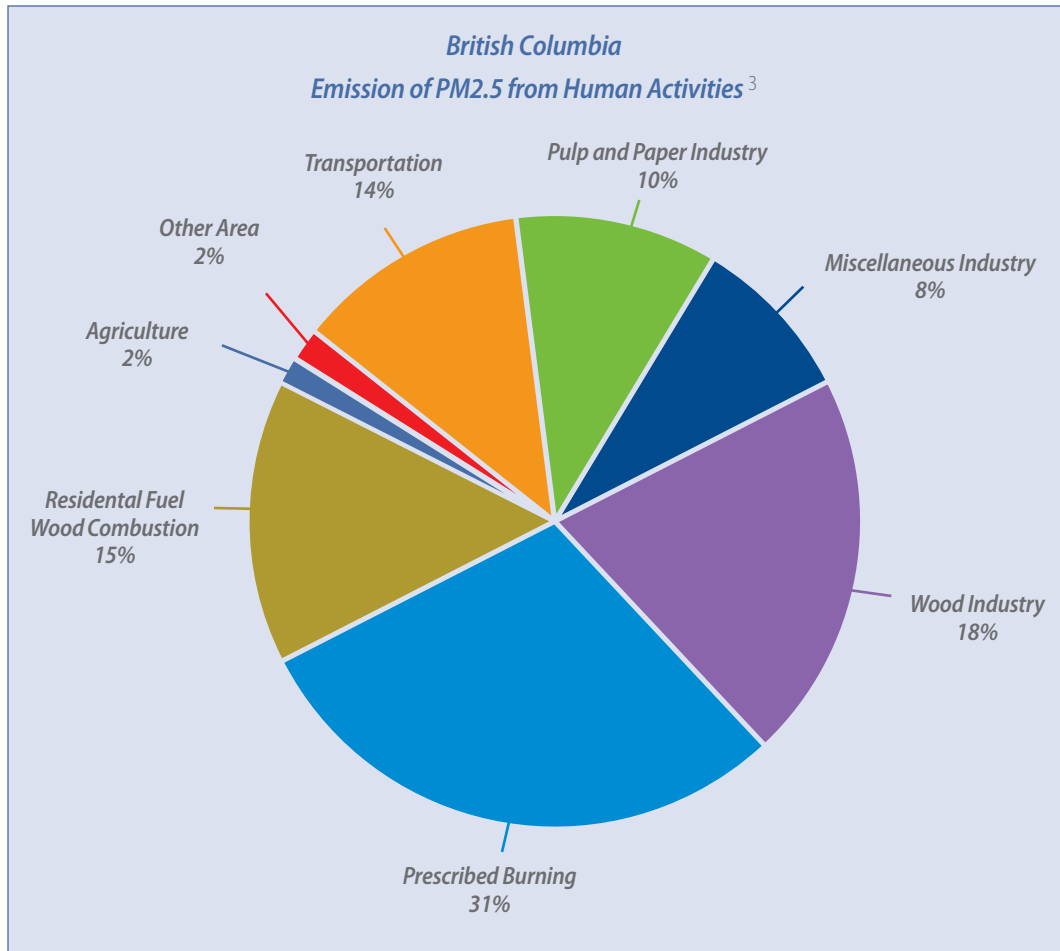


- » Sites represented in this chart were selected to reflect the range of concentrations observed in populated areas around the province.
- » In 2003 Kelowna experienced a spike in PM_{2.5} levels due to nearby forest fires.
- » Annual PM_{2.5} concentrations are compared against two benchmarks:
 - The World Health Organization's recommended guideline of 10 ug/m³
 - B.C.'s proposed air quality objective of 8 ug/m³
- » The proposed air quality objective is the best in Canada and is competitive with the most stringent criteria in use elsewhere (e.g. Australia).
- » It is expected that implementation of this Plan, including continued support for local airshed management will reduce PM_{2.5} emissions from a range of sources and improve local air quality.



Where Do Air Pollutants Come From?

Sources of PM2.5 vary across B.C., but the three main contributors are prescribed burning, forestry operations and residential woodstoves. Transportation also contributes, especially in more densely populated areas. The pie chart below shows the relative contributions from various sources.



³ Based on Ministry of Environment emissions inventory data for the year 2000.

AIR POLLUTION AND CLIMATE CHANGE

Greenhouse gases and air pollutants share a number of common sources, so the actions we take to improve air quality can also help us meet our target of reducing greenhouse gas (GHG) emissions by 33 per cent by 2020. For example, burning fossil fuels is a major contributor to both GHG emissions and air pollutants, so most measures to reduce fossil fuel combustion will both benefit air quality and support climate action. That is why clean transportation is a major focus of this Air Action Plan.



Did You Know?

The number of hybrid-electric vehicles on B.C. roads has grown from 1,500 in 2005, to more than 10,000 today. This is an increase of 560 per cent in three years.

Did You Know?

Each old vehicle scrapped keeps an average of more than five tonnes of greenhouse gases out of our air every year.

Did You Know?

Twenty per cent of the vehicles on the road in the Lower Mainland (those manufactured before 1991) account for more than 50 per cent of the area's air pollution.

CLEAN TRANSPORTATION

British Columbians rely on a modern transportation network to support the movement of people and goods and to keep our economy growing. The B.C. government has unveiled a commitment to invest \$14 billion in the transportation infrastructure that connects our communities, and connects us to the world.

But we're not just doing more of the same. As part of its transportation plan, the provincial government is making unprecedented investments in public transit, cycling and pedestrian infrastructure – the largest in B.C.'s history. These investments reflect the government's commitment to keeping our air clean, our people healthy, and our economy strong. The B.C. government is also a major investor in new planned rapid transit lines that will carry tens of thousands of commuters every day.

CLIMATE ACTION HELPS CLEAR THE AIR

As part of its plan to reduce greenhouse gas emissions by 33 per cent by 2020, B.C. has introduced legislation for strict tailpipe emission standards for all new vehicles sold in the province. These standards are expected to reduce carbon dioxide emissions from automobiles by 30 per cent. They will also help to reduce air pollutants from fossil fuel combustion, which is a leading source of ground-level ozone precursors and a significant contributor to fine particulate matter.

THE GATEWAY PROJECT

The B.C. government established the Gateway Project to help keep traffic and the economy moving in the Greater Vancouver area. The program reflects the need for a balance of transit, road and bridge improvements. It also includes a total investment of \$60 million for cycling and pedestrian access – promoting cleaner choices that help our environment and support improvements in our health.

HYDROGEN HIGHWAY

The Hydrogen Highway is a large scale, coordinated demonstration and deployment program for hydrogen and fuel cell technologies. This developing network includes Hydrogen Highway refuelling stations, as well as mobile, stationary, portable and micro-fuel cell applications throughout British Columbia's southwest corner. The initiative is part of the government's strategy to address climate change, reduce air pollution, and create new opportunities in the research, development and deployment of innovative energy solutions. For details please visit www.hydrogenhighway.ca

ENCOURAGING CLEANER CHOICES

The choices people make every day have a big impact on local air quality. For example, each time we choose to walk, cycle or take transit instead of driving somewhere, we keep harmful pollutants out of our environment. Given the impact of personal actions, the first three initiatives in this plan are designed to encourage cleaner transportation choices.



Action #1: Make green transportation easy and attractive. The government is making significant investments in public transit, walking and cycling infrastructure, and targeted PST exemptions which make cleaner choices easier and more accessible for British Columbians. The government will continue to explore a number of options, such as tax credits for bus passes.

Action #2: Maintain the tax break on buying a hybrid-electric vehicle and implement tax breaks for fuel efficient vehicles. Hybrid-electric vehicles that run on a combination of fossil fuels and electricity generally have a smaller environmental footprint than conventional vehicles, helping to clear the air and reduce our greenhouse gas emissions. In 2005, the government introduced a provincial sales tax rebate for British Columbians buying new hybrids. That incentive has been extended to April 1, 2011. It means you could save up to \$2,000 on a new hybrid. In 2008, the government will also provide a PST reduction for certain fuel efficient vehicles that meet the fuel efficiency criteria set out in the federal government's current ecoAuto rebate program. The tax reduction is \$1000, \$1500, and \$2000, and is based on the fuel efficiency and vehicle type.

Action #3: Get more old cars off the roads. Currently operating in the Lower Mainland, the Scrap-It program is designed to get older, high-polluting vehicles off our roads. It offers drivers a range of incentives – including cash – to help them switch to cleaner alternatives. For example, under the current program, depending on the age and condition of your vehicle, if you trade it in to Scrap-It you could receive \$2,000 towards transit passes or the purchase of a zero or very low-emission vehicle, such as a hybrid-electric car; up to \$1,000 towards a newer low-emission vehicle, including qualifying four-cylinder models; or up to \$500 towards a newer, moderate emissions vehicle. The Air Action Plan will continue to support the program and help it locate additional funding opportunities and partners in order to enhance current incentives and expand to other areas of the province. In fact, out of the \$28.5 million dedicated to this Air Action Plan, \$15 million have been invested in this program. For more on Scrap-It, go to www.scrapit.ca

PUTTING THE BRAKES ON IDLING

Idling engines are a major contributor to air pollution, especially in our cities. One way to reduce idling is to keep traffic flowing freely. That's why investments in transportation infrastructure are so important.

If you're not stuck in traffic, there's no need for idling. Contrary to popular belief, it's not an effective way to warm up a vehicle – today's engines are designed to let you drive away after only 30 seconds in most weather conditions. Besides, idling for just 10 seconds burns more fuel than shutting down and re-starting your engine. This is why the government has developed the following initiative:

*Did You Know?
British Columbia's
Hydrogen Highway
program was honoured at
the World Energy Congress
meeting in Rome in 2007.
The program, developed
through a government-
industry partnership, won
the Technical Achievement
Award from the
International Partnership
for the Hydrogen Economy.*

*Did You Know?
Maintenance makes a big
difference in how much
pollution vehicles create.
For example, a newer car
that's badly out of tune
can produce emissions
equivalent to those from
several hundred brand new
cars. Keeping your car tuned
up is one way to reduce
your own contributions to
air pollution.*

*Did You Know?
If everyone in Canada
idled their cars for five
fewer minutes per day,
we would reduce our fuel
consumption by 680 million
litres a year – and keep
3,060 tonnes of smog out of
the air we breathe.*

Did You Know?

By 2009, B.C. Transit will have the world's largest fleet of buses powered by hydrogen fuel cells. Twenty buses are scheduled for delivery, with testing beginning in 2008. Hydrogen fueling stations are also being developed and will be online by mid-2009.

Did You Know?

About one fifth of B.C.'s school bus fleet has already been retrofitted with filters that significantly reduce their emissions of air pollutants. Benefits to the environment and human health are, to date, equivalent to taking 17,000 vehicles off the road entirely.

Action #4: Build a province-wide anti-idling movement. A growing number of communities, businesses and schools across B.C. have introduced their own anti-idling campaigns. The Ministry of Environment is a founding partner in Idle-Free B.C., an organization that raises awareness about the health, environmental and economic consequences of idling, while providing the support necessary to help minimize these impacts. The more British Columbians participate in anti-idling initiatives, the greater the benefits of the program. The target is to reduce idling by at least 50 per cent by 2010.

What is a tonne of PM2.5?

In 2000, close to 70,000 tonnes of PM2.5 were released into B.C.'s air. To put things in perspective: one tonne of PM2.5 emissions is equivalent to having ten conventional woodstoves burning constantly for three months. Seen another way, reducing PM2.5 by one tonne would be equivalent to removing 10,000 motorcycles -- over half the motorcycles in B.C. -- from the road for one year. Or still another way of looking at it is, if you fill B.C. Place stadium with one tonne of PM2.5 and sat in the first row, you would not be able to see the playing field.

MAKING HEAVY-DUTY VEHICLES CLEANER

The sight and smell of diesel fumes from heavy-duty engines are off-putting. And we're right to be concerned. Older commercial and industrial vehicles can emit up to 60 times more fine particulate matter than those with new, modern engines. And modern engines can run even cleaner when they switch from 100 per cent diesel fuel to a biodiesel blend.

This Air Action Plan includes the following initiatives to reduce pollution from heavy-duty vehicles:

Action #5: Retro-fit heavy-duty diesel vehicles. The government will retrofit its own heavy-duty diesel vehicles, most of which are ambulances, and actively promote the use of biodiesel wherever possible. New requirements will be introduced to make mandatory retrofits of all commercial on-road heavy-duty diesel vehicles by 2009. Retro-fits involve the installation of diesel oxidation catalyst (DOC) filters or any equally effective technology.

DOC filters can be easily installed on most vehicles, require virtually no maintenance, do not reduce performance or fuel efficiency, and are compatible with biodiesel. This initiative will reduce emissions of fine particulate matter by at least 30 tonnes per year.



Action #6: Retro-fit Transit buses. Like heavy-duty trucks, transit buses can be in service for up to 30 years or more. So, even as new, cleaner models become available, it makes sense to clean up the older models that are still in use. B.C. Transit is working with the provincial government to develop a plan to reduce PM2.5 emissions from transit buses through retro-fits and other improvements, such as the use of biodiesel, which is already fueling B.C. Transit fleets in Kelowna and Victoria.

Action #7: Clean up school buses. The government is investing more than \$10 million in new clean-energy school buses. The funding, which is being provided to school districts through the Ministry of Education, will support the purchase of more than 80 new state-of-the-art school buses province-wide. All existing school buses are also being retro-fitted with new clean diesel technology such as DOC filters.

Action #8: Get AirCare on Road out to more communities. This program has operated in Greater Vancouver since the mid-1990s. Two mobile testing vans are strategically deployed to test heavy-duty vehicles for visible pollutants. As part of this Air Action Plan, the government is expanding the program to cover more communities and regions of the province. Testing of heavy-duty vehicles in high traffic areas will be underway by 2009 to help ensure that vehicles meet B.C.'s diesel emission standards.

Action #9: Get big diesels to stop idling. Every year, a typical inter-city tractor trailer unit spends 1,800 hours idling. This is equivalent to 75 days of wasting fuel, costing money and releasing fine particulate matter and greenhouse gases into the air. The problem is partly due to the fact that many tractor trailers have refrigeration units and other critical systems that cannot be shut down until they reach their destination.

B.C. is working with neighbouring jurisdictions to create electrified truck stops – letting tractor trailer units plug into clean Hydro outlets instead of running their engines. The government is also examining other options for reducing emissions from heavy-duty idling.

Action #10: Green vehicle fleets: we're making it happen. Led by the Fraser Basin Council, this partnership initiative helps the owners of commercial and public sector vehicle fleets improve their fuel efficiency and reduce emissions. The program has already identified opportunities for smog reduction that could have an impact equivalent to taking 50,000 cars off the road.

Over the next three years, Green Fleets B.C. (GFB.C.) will help remove over 900 tonnes of smog-causing emissions and 200,000 tonnes of greenhouse gases from our air. That's the equivalent of taking 50,000 light-duty vehicles off the road – and it is a key part of our government's plan to improve air quality in British Columbia.

*Did You Know?
British Columbia is the first province in Canada to mandate installation of clean technology, such as DOC filters, to reduce emissions from older heavy-duty diesel vehicles. An expanded AirCare On Road program will enforce compliance.*

*Did You Know?
A single tractor-trailer can emit up to 20 tonnes of greenhouse gases and two tonnes of fine particulate matter every year – just from idling.*

*Did You Know?
If all diesel vehicles in B.C. used a 10 per cent biodiesel blend, we could reduce our annual production of fine particulate matter by more than 60 tonnes per year – equivalent to taking about 7500 heavy duty diesel trucks off the road.*

Did You Know?

The B.C. Government is inviting applications to the new \$25 million Innovative Clean Energy fund to support the development of clean power and energy efficiency technologies in the electricity, alternative energy, transportation, and oil and gas sectors. For more information, go to www.gov.bc.ca/empr/popt/innovative_clean_energy_fund.html

GFB.C. will be a key information hub for the latest on green technologies for private and public sector fleets, including taxis, emergency vehicles, delivery vans and commercial freight trucks. It also forms part of government's climate change strategy, which includes the reduction of greenhouse gas emissions by 33 per cent by 2020.

Action #11: Use biodiesel in government diesel vehicles. Biodiesel is a renewable fuel made from plant or animal-based fats and oils. It is most often blended with diesel fuel and can be used wherever diesel is used, with few or no equipment modifications. Communities with a biodiesel supply have the opportunity to divert waste from businesses such as restaurants and rendering plants away from sewers and landfills.

Action #12: B.C. Buys Green. The government has tremendous purchasing power in the marketplace and uses that power to influence development of more environmentally friendly choices. The government will implement its own environmentally responsible procurement strategy. For example, by requiring the use of biodiesel in government vehicles, the government supports ongoing efforts to make biodiesel more commercially available.

Environmentally responsible strategies are being incorporated into the government's policies regarding buildings, vehicle fleets and the purchase or lease of other goods and services. The B.C. government already operates a fleet of 584 hybrid-electric vehicles – the largest such fleet in Canada – and since 2007, has had a policy of only leasing or purchasing hybrid-electric vehicles for government use.

Action #13: Support greener ports and marine vessels. Ports play a crucial role in B.C.'s economy. Almost 80 million tonnes of cargo moved through the Port of Vancouver in 2006 – up about four per cent from the year before – and, with a major expansion underway in Prince Rupert and Deltaport, we can expect to see accelerated growth in years ahead.

As part of this Air Action Plan, the government will work in partnership with ports and related industry organizations to test new ways to reduce emissions from port operations. These pilot projects will build on the work underway to support green ports and marine vessels. We will be working with ports and the shipping industry from jurisdictions up and down the West Coast, including California, to establish environmental standards for Pacific ports. We'll be seeking federal cooperation to electrify our ports, so cruise ships can plug in while they're docked, rather than idling their engines.

PORTS GOING GREEN

The Vancouver Fraser Port Authority recently announced a plan to reduce particulates in soot, smoke, exhaust and diesel fumes from docked ships by 70 per cent by 2010; this will be achieved in part through the increased use of biodiesel and ultra-low-sulphur fuel.

The Prince Rupert Port Authority's container terminal development is also environmentally sensitive. It includes measures to protect and enhance the local marine ecosystem.



CLEAN INDUSTRY

British Columbia has a strong track record of bringing ideas and innovation to industry – from harnessing hydro power to generate clean electricity, to developing hydrogen fuel-cell technologies. Our economy has the strength and resources to support bold choices, and the government is working with industry associations province-wide to ensure our industries are thriving and sustainable – and supporting British Columbians’ environmental and health priorities.

This Air Action Plan includes the following measures to reduce the air quality of impacts of industry. Many of these measures also support the government’s plan to reduce greenhouse gas emissions by 33 per cent by 2020.

Action #14: Encourage companies to use cleanest available practices and technologies. New policies will be introduced that support the use of the best available, economically feasible pollution-control technologies in all new or expanding industrial facilities.

For example, technologies exist to help reduce emissions from the pulp and paper industry, a major contributor to air pollution, and these can be integrated into the development of new or modernized facilities. The provincial government will consult with stakeholders as part of the policy development process.

Action #15: Clean up industrial boilers. Industrial boilers are primarily used for incinerating waste or generating heat in places like commercial greenhouses or pulp mills. Most are in industrial complexes or businesses close to populated areas. In conjunction with the BC Bioenergy Strategy, we will work with the bioenergy industry and others to develop new fine particulate standards for industrial boilers, helping to reduce pollution and improve air quality. For details, please visit www.energyplan.gov.bc.ca/bioenergy

Action #16: Reduce emissions from upstream oil and gas production. B.C.’s oil and gas sector is critical to our economy, employing tens of thousands of people and contributing nearly \$2 billion a year to provincial revenues. Initiatives in this area are guided by, and form part of, the new B.C. Energy Plan, and will help reduce emissions from oil and gas – before they reach consumers. For more on the B.C. Energy Plan, go to www.energyplan.gov.bc.ca



Did You Know?

B.C. has 50 per cent of Canada's biomass electricity generating capacity. And B.C.'s wood pellet industry alone produces one-sixth of the entire European Union market for bioenergy feedstock.

Action #17: Develop economic instruments for clean industrial choices.

Economic instruments are one of the key ways government can influence choices and behaviours. For example, government can provide financial support to aid in the development of new ideas and technologies, adjust tax and fee structures to motivate certain behaviours, or provide something like a deposit/refund system, where the cost paid upfront is designed to encourage the return of recyclable materials. Another example is the cap-and-trade system that is being designed under the Western Climate Initiative, and which will allow low-polluting businesses to exchange their carbon credits for cash. Economic instruments supporting this Air Action Plan will be developed throughout 2008.

Action #18: Support innovative pilot projects.

Pilots are a good way to test and assess new techniques and technologies. Then the experience gained can guide any needed adaptations before the new approach is adopted more broadly. As part of this Air Action Plan, the B.C. government will create a matching-funds incentive program to support the development and piloting of innovative production and control techniques, pilot projects for alternative fuels, and control technologies to reduce emissions from industrial operations. The initiative will focus on applying B.C.- based research and science, and developing techniques and technologies that could be adopted across Canada and around the world.

Action #19: Eliminate beehive burners.

The provincial government has been working with mill owners since the 1990s to phase out these old, inefficient wood-waste burners. The worst polluters – known as Tier 1 burners – were required to shut down by December 31, 2007. Action will be initiated on remaining beehive burners starting in 2010, starting with those near residential areas. This will remove over 14,000 tonnes of fine particulate matter from our air.

BEYOND BEEHIVE BURNERS – CLEANER AIR, CLEANER INDUSTRY

Williams Lake once had nine beehive burners, developed at a time when there were few alternative uses for wood waste. Today, consistent with this Air Action Plan, the beehive burners have been eliminated. The community's wood waste goes to a high-efficiency plant where it's used to generate electricity, and local air quality has shown a steady improvement since the 1990s.

Action #20: Promote better burning techniques in the forest industry. In B.C.'s rural areas, where traffic is lighter, smoke generated by forest companies burning off their excess wood waste can be a key contributor to local air pollution.

To minimize pollutants from industry operations, the B.C. government is developing a cost-shared incentive program that supports the industry to develop new and innovative burning methods, including pilot projects for the use of sophisticated smoke and venting tools, alternative burning practices, and the implementation of emerging technologies to reduce harmful emissions. Cost-sharing will help ensure that government and industry share in air quality stewardship in B.C.



Action #21: Turn more wood waste into energy. B.C. is the #1 producer of biomass energy in Canada. In 2005 alone, B.C.'s forest industries generated the equivalent of \$150 million worth of electricity and roughly \$1.5 billion in the form of heat energy - just by burning waste wood. In early 2008, the government released the BC Bioenergy Strategy, which will build on these successes and establish B.C. as a world leader in bioenergy development.

The BC Bioenergy Strategy will promote new sources of sustainable and renewable energy and take advantage of the large quantities of beetle-killed timber now being harvested in the Interior, as well as of biomass diverted from closing beehive burners, agricultural biomass and future bioenergy technologies. It supports both the B.C. Energy Plan and this Air Action Plan by contributing to B.C.'s electricity self-sufficiency, providing more alternatives to fossil fuels and helping reduce greenhouse gas emissions and other harmful air pollutants.

ADVANCING THE SCIENCE OF BIOENERGY

One of the strategies in the new B.C. Energy Plan is to generate more power from clean and renewable sources – including wood waste, which is also known as biomass. B.C. Hydro will be issuing a call for independent biomass projects in 2008, and the government is supporting that work by developing new guidelines to minimize emissions from biomass generation facilities.

This work will also support Actions #14 and #15 in this Air Action Plan: encouraging companies to use the best available technologies, and improving emission standards for industrial boilers.

CLEAN COMMUNITIES

Local and regional governments have developed a range of ways to minimize and manage air pollution. Among these, airshed planning has emerged as a key tool offering, among other things, an opportunity to integrate air quality initiatives with other aspects of community planning. The process is stakeholder-driven and recognizes that every one of us has a role to play in keeping our air, and our communities, clean.

Airshed plans are currently in place in nine communities and regional districts, supporting sustainable growth while protecting human health and the environment. As part of this Air Action Plan, the B.C. government will continue to work with communities to plan for a cleaner future through the following initiatives:

Action #22: Get involved in airshed planning. Airshed planning is a voluntary process that begins with a self-evaluation. Community members consider the specific attributes of their airshed – such as its geographic features, recent air quality trends and expectations for economic growth – and determine whether a full-scale planning process is required.

*Did You Know?
100 trees remove five tonnes of carbon dioxide from the atmosphere and about 454 kilograms of air pollutants per year.*

*Did You Know?
More airshed management plans have been completed in B.C. in the past five years than in the whole past decade. Plans are now in place in Prince George, Quesnel, Whistler, Williams Lake and the regional districts of Bulkley Valley-Lakes, Fraser Valley, Metro Vancouver, North Okanagan and Okanagan-Similkameen.*



Did You Know?

B.C. is the first province in Canada to pilot a new Air Quality Health Index. Public testing started in 2005 and now involves communities province-wide. The Index will provide information on local air quality, along with tips for reducing air pollution and its health risks. The Index received the Excellence in Health Promotion Award from the BC Medical Association in 2007. For more information, go to www.airplaytoday.org

The provincial government has developed new resources that can help airshed planning, including a Framework for Airshed Planning that sets out the key steps in the process and describes, in detail, what types of government assistance are available. The government has also developed resources such as the Online Airshed Planning Tool (www.airqualityplanning.ca) and the Clean Air Toolkit (www.cleanairkit.ca) to support effective planning at the regional and community levels.

AIRSHED PLANNING – PARTNERSHIP IN ACTION

Partnerships are crucial to airshed planning and can take many different shapes and forms from place to place. For example, in developing its plan, Quesnel used a single roundtable of stakeholders drawn from local and provincial government, industry, health agencies and environmental and community groups.

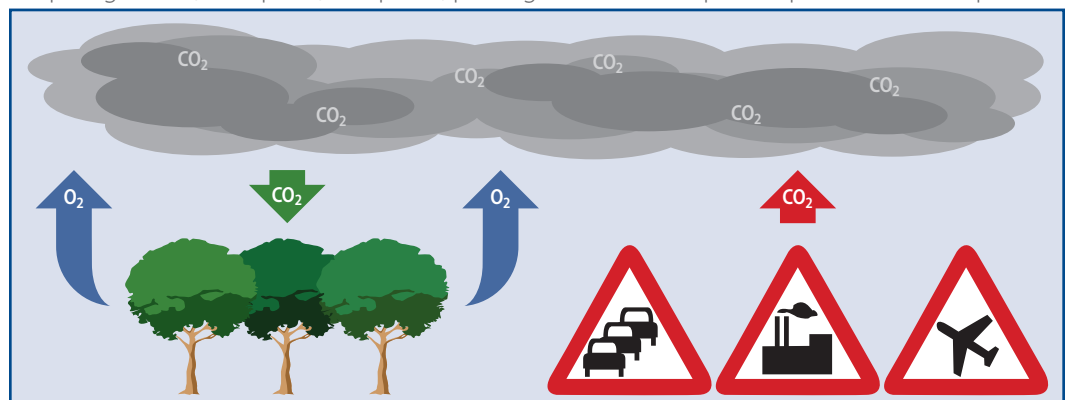
In the Bulkley Valley-Lakes District, which covers a much larger area, a more complex partnership was struck, including one regional and four community working groups reporting to a multi-stakeholder committee. For more on airshed planning, go to www.env.gov.bc.ca/pac/airquality.htm

Action #23: Make airshed planning part of community planning. The provincial government is developing a new Smart Planning initiative to support local governments in their ongoing efforts to plan for clean, sustainable, livable communities. The new initiative will bring together issues that are often dealt with separately, and their attendant funding programs, to promote a comprehensive approach to planning that simultaneously addresses energy consumption, greenhouse gas emissions and local air quality. The \$15 million initiative will be implemented over five years and includes funding dedicated to communities.

TREES FOR TOMORROW

Trees help clean our air by filtering pollutants and absorbing carbon dioxide, in turn using it to produce oxygen. As part of the effort to work with communities for cleaner, healthier airsheds, the B.C. government is introducing the Trees for Tomorrow strategy -- a large scale, urban afforestation program that will ensure that millions of trees are planted in backyards, schoolyards, hospital grounds, civic parks, campuses, parking lots and other public spaces across the province.

By taking in carbon dioxide (CO₂) and converting it into oxygen (O₂) during photosynthesis, trees naturally remove excess carbon from the air. They also filter out a number of air pollutants.



Did You Know?

B.C. is the only province in Canada to legislate stringent emission standards for new wood burning appliances.

ONE PLAN – MULTIPLE BENEFITS

Whistler is the first community in Canada to fully integrate planning for climate change, energy efficiency and air quality. B.C.'s Framework for Airshed Planning fosters this kind of integrated approach, recognizing the inter-relationships between air pollution, greenhouse gas emissions and energy consumption.

WORKING TOGETHER FOR GREENER CITIES

B.C. communities are already recognized as leaders in innovative sustainability practices. The provincial government is building on that record with the Green Cities Project, which provides communities with additional resources to improve air quality, reduce energy consumption, and encourage people to get out and enjoy the outdoors.

The project includes the Local Motion Fund, which provides \$10 million a year for bike paths, walkways, greenways and efforts to make the outdoors more accessible for people with disabilities. It also includes incentives for local governments to make their vehicle fleets cleaner and greener.

Action #24: Get rid of smoky old wood stoves. The B.C. government is helping people replace their old wood stoves with cleaner alternatives. Wood smoke is a leading contributor to air pollution in British Columbia. In addition to particulate matter, it contains a long list of toxins, from cancer-causing dioxins and furans to formaldehyde. Wood smoke also contains fine particulate matter – tiny specks that can lodge in your lungs and interfere with breathing. These specks are so tiny that, even with doors and windows closed, you can't keep them out.

Certified wood and pellet-burning stoves and propane, oil, gas and electric alternatives, are all better for our environment and for our health. So the government is investing in a new education and incentive program to help more people make the switch.

Based on a successful pilot project in the Skeena Region, the Provincial Woodstove Exchange Program is designed to facilitate – as its initial goal – the exchange of at least 50,000 old wood stoves for newer, more fuel-efficient models or other clean heat sources. This represents about half of the old woodstoves in the province. That would reduce emissions of fine particulate matter by more than 3,000 tonnes per year – equivalent to shutting down 12 beehive burners. Our long term goal would be to eliminate the use all non-certified woodstoves by 2020.

For a community like Golden, where woodstove emissions represent approximately 40 per cent of the community's PM2.5 emissions, eliminating all 300 non-certified woodstoves would reduce PM2.5 by 18 tonnes and improve annual air quality significantly.



*Did You Know?
Keeping your tires at optimum pressure can improve your vehicle's fuel efficiency by as much as 10 per cent.*

*Did You Know?
Smaller engines aren't necessarily cleaner. In fact, they're some of the worst polluters. For example, an older gas-powered lawnmower running for an hour can produce as many harmful emissions as a car driven 550 km.*



Action #25: Tighten burning regulations. In addition to encouraging people to replace their old, inefficient wood stoves, the government will strengthen the regulation that limits allowable emissions. This will be done in 2009, expanding the regulation's scope to apply to a wider range of wood burning devices. The current regulation requires all newer devices to meet the latest standards established by the U.S. Environmental Protection Agency or the Canadian equivalent.

Action #26: Refine the ways we manage wildlands fires. British Columbia is playing a lead role in developing the Canadian Wildland Fire Strategy, and is now moving forward to develop a strategy specifically for B.C. Fire occurs normally in nature. In fact, it's often key in maintaining the health of entire ecosystems. While we must control forest fires to protect the public, aggressive fire suppression may result in dangerous build-up of forest fuels and tree encroachment on grasslands, increasing the risk of future fires. Planned burns can help minimize these effects -- this type of controlled fires are routinely used in land management to help forest growth, create better habitat for wildlife and domestic animals, and reduce the intensity of naturally occurring wildfires. One of the key objectives of a B.C.-specific wildland fire strategy will be to balance fire suppression with the use of natural and planned burns to ensure a healthy ecosystem while minimizing hazards to human health and the environment. In addition to supporting this Air Action Plan, the strategy will complement initiatives such as the Bioenergy Strategy, which is designed to increase the proportion of wood waste turned into energy.

Action #27: Make smoke-management a priority. A province-wide smoke management plan will reduce the impact of pile burning, which is also a key part of wildland fire management. Smoke management comprises strategies to improve burning practices, as well as improvements to daily and seasonal fire, weather and smoke forecasting and tracking. It will complement the actions in the wildland fire management strategy.



Action #28: Put dollars into research on air quality and health. One of the basic principles of environmental management is making decisions based on the best available science. To that end, B.C. has a history of supporting research to advance the science of air quality through partnerships with academic institutions, other levels of government and industry associations. For example, in the past the government has provided \$30,000 to support a pilot project designed to reduce emissions from cruise ships, and \$75,000 to support synthetic diesel testing.

Continuing to offer support for research will further expand B.C.'s scientific capacity, help create new partnerships and develop a forum where scientific questions can be answered.

CONCLUSION

The BC Air Action Plan helps lead the way to a cleaner, greener British Columbia. It complements the provincial government's initiatives to combat global warming, achieve energy self-sufficiency and, ultimately, lead the world in sustainable environmental management.

The actions in this plan represent the efforts of countless British Columbians across the public sector and in communities provincewide, and underlines the fact that we all have a role in – and share responsibility for – keeping our air and our environment clean.

TOP 10 WAYS YOU CAN MAKE A DIFFERENCE

- 1 **Drive less.** If you can get by without a vehicle, great. If not, try carpooling, walking, cycling or taking transit a few days a week. Every little bit makes a difference – and we all have a role to play in cleaning up our air. Driving less saves money, too. And, if you walk or cycle, you'll be healthier as well.
- 2 **Avoid idling.** It wastes fuel, wastes money, stresses your engine and pollutes the air. Worst of all, it serves no purpose. In cold climates, a block heater is a more effective, efficient option for warming up your engine, and only needs to run for about two hours. Even without a block heater, modern vehicles only need a few minutes of run time – at most – to warm up.
- 3 **Get regular tune-ups.** Vehicles that are properly serviced run more efficiently, waste less fuel and produce less air pollution. They're also less likely to break down, and tend to last longer.

*Did You Know?
Using dry, seasoned wood can reduce your wood consumption – and costs – by up to 25 per cent. Green or damp wood burns less efficiently, and creates a lot more pollution.*



Did You Know?

If you buy a new certified woodstove, get regular tune-ups and drive less, you could reduce air pollutants by almost 100 kg -- this is equivalent to taking an older model car off the road for six months.

- 4 **Consider a cleaner vehicle.** If you're in the market for a vehicle, consider something fuel-efficient. A hybrid is an option if you're buying new, but many later model, smaller vehicles are also environmentally friendly.
- 5 **Avoid using gas-powered tools, such as lawnmowers, leaf blowers and trimmers.** Push mowers, electric mowers and even modern gas-powered models are better for our health, and our environment.
- 6 **If you use wood for fuel, use it wisely.** The best option is to upgrade your stove to ensure you're making use of the latest emission reduction technologies. But changes in the way you burn can also make a difference. For example, you can reduce air pollution significantly by always using dry wood, cutting it into small pieces, and keeping your stove and chimney clean and in good working order.
- 7 **Consider a switch.** If you're buying a new stove or heating appliance, consider one fuelled by propane, natural gas or pellets. These can all be cleaner alternatives to burning wood.
- 8 **Say no to backyard burning.** Backyard burning was once considered an easy way to get rid of garbage. Today we know it's a serious hazard that exposes families, neighbours, pets and whole communities to toxic fumes. Many areas have banned the practice, and even where it is allowed, a good rule of thumb is "Don't burn unless you have to."
- 9 **Get involved.** Join or create a local air quality management group to work with your local government to improve air quality in your community.
- 10 **Plant a tree.** Trees help to filter harmful pollutants from our air.

Consider choosing several of these actions to save money, save energy, save fuel, avoid waste, reduce impact on our climate and improve your local air quality.

For example, if you avoid idling and using gas-powered tools, and if you plant one tree, you could keep over 10 kg of smog-causing pollutants out of the air. Or if you buy a new certified woodstove, get regular tune-ups and drive less, you could reduce air pollutants by almost 100 kg.



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