

# Intentions Paper

# **CLEAN**

# **TRANSPORTATION**

Building a clean growth future for B.C.



# 1. TOWARDS A CLEAN GROWTH FUTURE

B.C. is developing a long-term clean growth strategy for release in the fall and inviting British Columbians to share their ideas.

It's part of the government's commitment to stimulating sustainable growth and jobs using our clean energy to power our economy while driving down greenhouse gas (GHG) emissions. The same innovations that reduce our emissions and improve our quality of life can help us capture a larger share of the global market for clean energy, technologies, products and expertise.

The strategy will be a living document, continually updated and expanded as new opportunities arise. The document released this fall will lay out a framework for clean growth and a pathway to meeting our GHG emission reduction targets.

As we begin to implement the strategy in the coming years, we will continue to seek public input on priority areas as outlined in *Towards a clean growth future for B.C. – Introduction*. This will help us update and expand the strategy as new ideas are presented and more opportunities arise.

We will also continue to collaborate with the federal government through the Pan Canadian Framework on Clean Growth and Climate Change. We will work in full partnership with Indigenous communities. And we will continue to receive advice from the Climate Solutions and Clean Growth Advisory Council.

We are seeking public input as we move towards a clean growth future for B.C., with the release of intentions papers for transportation, buildings and industry.

In this paper, we're looking for your thoughts and feedback on potential actions to support cleaner transportation across the province.

## What is B.C.'s strategy for a clean growth future?

It will bring together our action on climate change and work underway on our energy roadmap to drive sustainable economic growth with cleaner energy and fewer emissions.

It will be integrated with the province's:

- ▶ Economic Development Strategy
- ▶ #BCTech Strategy
- ▶ Emerging Economy Task Force

It will set out our vision for a clean growth future and a pathway to our GHG targets.

***We encourage everyone to take part in these and upcoming engagement opportunities. Visit [EngageBC](#) to learn more.***

## 2. CLEAN TRANSPORTATION

Whether it's getting the kids to school or getting goods to market, transportation is part of daily life. B.C. has taken many steps to make it cleaner, from investing in transit and regulating cleaner fuels to providing incentives for zero emission vehicles. These actions are making a difference but we still have lots of work to do. With a fast-growing population and economy, emissions from transportation are rising – up 1% since 2007.

The good news is that our actions on climate change have positioned B.C. as a leader in clean transportation, with a world-renowned hydrogen and fuel cell industry, and growing investments in low carbon fuels and battery applications such as hybrid electric ferries.

As our economy continues to grow, so too will our transportation needs. To encourage emission reductions and clean growth in this sector, the province is proposing a range of actions in three areas:

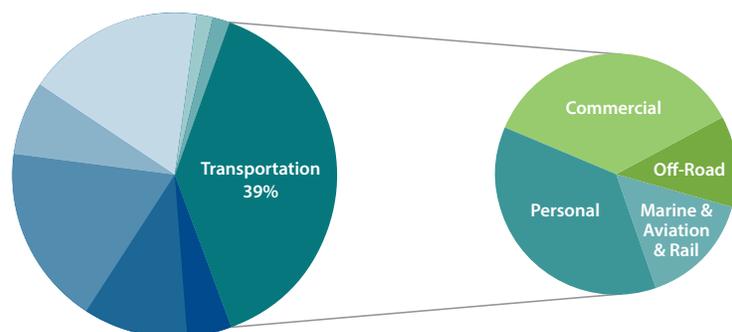
- ▶ Cleaner vehicles,
- ▶ Cleaner fuels, and
- ▶ Cleaner transportation systems.

Ultimately, we envision a province where almost all vehicles have no emissions; where smart infrastructure allows us to move quickly and easily between work, home and other destinations; where we have more and cleaner transportation options; and where British Columbians are finding new solutions we can market to the rest of the world. That may be in the future, but the actions proposed in this paper are real steps in the right direction. British Columbians are already benefiting from good jobs in clean transportation technologies and lower fuel costs when driving electric vehicles.

*How can the province best support continued moves in these directions? We want your feedback on the proposals outlined in the next section.*

### Reducing B.C. Transportation Emissions

Transportation accounts for 39% of B.C.'s greenhouse gas emissions, or 25 million tonnes per year of carbon pollution. B.C. is committed to reducing GHG emissions steadily, over the next few decades.



## 3. PROPOSALS FOR CLEAN TRANSPORTATION

### 3.1 Support for Cleaner Vehicles

Zero emission vehicles (ZEVs) are becoming increasingly common as more and more drivers discover their benefits. Fuel costs are up to 80% lower, compared to conventional vehicles. And greenhouse gas emissions are reduced substantially.

Zero emission vehicles include plug-in hybrids, battery electric vehicles, and those powered by hydrogen fuel cells. As these clean technologies improve, ZEVs are becoming more reliable and affordable, especially in a province with abundant clean and competitively priced electricity.

To continue building consumer acceptance, B.C. is focusing on several areas:

- ▶ vehicle purchase price and consumer awareness,
- ▶ charging and refuelling stations, and
- ▶ market capacity to meet demand.

To help address the first two issues, B.C. has introduced the Clean Energy Vehicle (CEV) Program, which offers incentives to offset the costs of zero emission vehicles. It also supports the expansion of charging and refueling infrastructure as well as education and economic development initiatives. As of June 2018, the program has supported:

- ▶ over 10,000 new zero emission vehicles on the road, including direct incentives for over 7,000 vehicles,
- ▶ over 1,300 residential and public charging stations including 64 DC fast charging stations, and
- ▶ the first of five planned hydrogen fueling stations.

#### Potential Action for Cleaner Vehicles

- ▶ Incentives for purchase of zero emission and specialty use vehicles
- ▶ New supply requirement for ZEVs
- ▶ Supports for ZEV infrastructure:
  - more charging and fueling stations
  - preferential parking and access
  - enabling charging stations in buildings

#### Leading Jurisdictions

Like B.C., Norway is rich in clean, renewable hydroelectricity. And now, more than half of new vehicle sales in Norway (52% in 2017) are electric or hybrids, thanks to an innovative combination of substantial tax reductions and other incentives on ZEVs.

California is the North American leader in ZEV adoption, and has a combination of ZEV supply requirements on automakers and extensive consumer programs that include investments in incentives, infrastructure and public awareness that, combined, result in more vehicle choice for consumers at lower overall costs. This has also stimulated jobs and economic growth in a cleaner automotive sector in California.

To build on this momentum, the province is proposing to:

### Increase investments in zero emission vehicles

- ▶ Under this proposal, incentives could continue under the CEV Program until ZEVs make up 5% of all new light-duty vehicle sales. Light duty vehicles include SUVs, light trucks and passenger vehicles under 4500 kg. Once the 5% target is reached, incentives would be phased out. The price gap between ZEVs and gasoline vehicles is anticipated to close in the mid-2020s.
- ▶ Zero emission vehicles already have access to high occupancy vehicle lanes regardless of the number of passengers in the car. Additional non-financial incentives, such as preferential parking and access, could be considered.
- ▶ The province could continue to support our growing charging and refuelling infrastructure allowing zero emission vehicles to travel throughout B.C. safely and conveniently.
- ▶ The province could take measures to encourage charging station installations at businesses and other buildings, helping to expand our clean vehicle infrastructure.
- ▶ The province could consider incentives such as a PST exemption on zero emission vehicles.
- ▶ The Specialty Use Vehicle Incentive Program, which supports the purchase of clean heavy duty vehicles, buses, transport trucks, motorcycles and heavy equipment, could be expanded. It could also support electric charging and hydrogen fuelling infrastructure at ports, service yards and truck stops.

### Gas and Diesel Engines Being Phased Out

Seven countries have either announced a future ban of the sale of new gasoline and diesel cars, or targeted 100% of vehicle sales to be clean energy vehicles.

- ▶ Ireland, Netherlands, Germany and India by 2030
- ▶ Scotland by 2032
- ▶ France and UK by 2040

Shell, one of the world's biggest oil and gas companies, has backed calls for the UK to bring forward its 2040 ban on new gas and diesel car sales, noting it would provide clarity and make it easier for companies like Shell to make investment decisions and also shift consumer attitudes.

The Clean Energy Ministerial, of which Canada is a member, has endorsed a 30% target by 2030. Some regions such as Quebec, California, and China also have zero emission vehicle requirements. In fact, 10 other states have signed on to the California mandate, such that 30% of the U.S. market is now subject to the ZEV mandate.

## Introduce a zero emission vehicle mandate

B.C.'s CEV Program is helping to increase demand for zero emission vehicles. Under the proposed ZEV mandate – similar to Quebec's and 30% of the US vehicle market – B.C. would require that automakers supply zero emission vehicles for the light duty vehicle market. This would help meet increasing demand while providing more choices for clean transportation.

Starting in 2019, B.C.'s proposed supply requirement for ZEVs would require automakers to report on their sales.

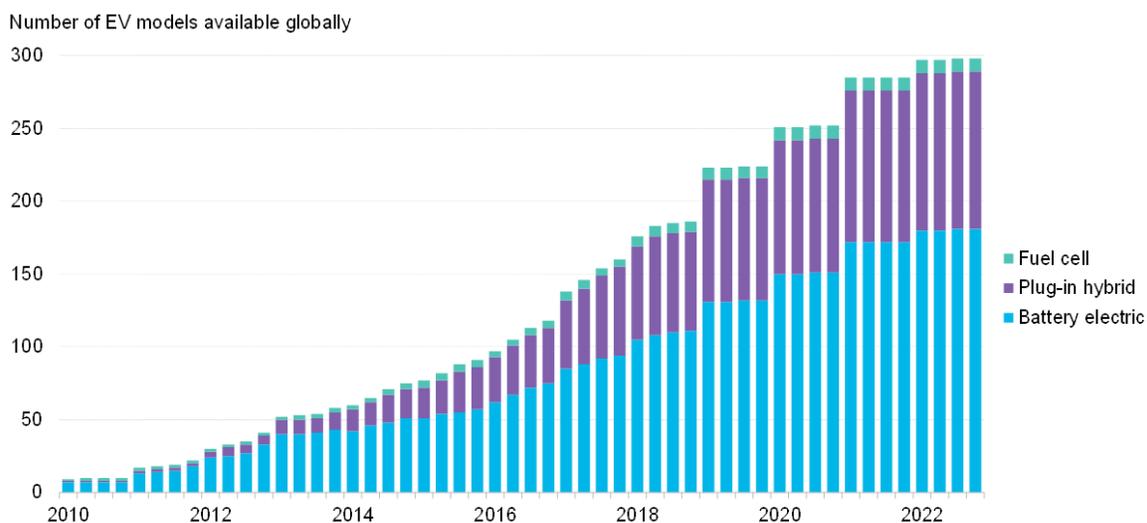
Then in 2020, automakers would have to meet targets for new vehicle sales. These could increase annually, reaching at least 10% in 2025 and 30% in 2030, as ZEVs become increasingly common and affordable, and convenient charging options become more available.

By 2040, B.C. could ban the sale of new gasoline and diesel light duty vehicles.

### The Number of EV Models is Rising

Zero emission vehicles are rising to the top of B.C. drivers' wish lists as every year they offer more choices, longer range and better value.

Take battery electric vehicles as an example: the number of models with longer range and affordable prices has grown exponentially. More than 30 options are available in B.C., ranging from small cars to SUVs, and the proposals in this paper are designed to support an even wider range of affordable clean choices for consumers.



Source: Bloomberg New Energy Finance, Marklines, press releases from automakers

0 April 10, 2018

Bloomberg  
New Energy Finance

## 3.2 Support for Cleaner Fuels

Using lower-carbon fuels in our vehicles is one of the easiest ways to make transportation cleaner. For consumers, it is literally effortless: you fill your tank the same way you always have, but generate less carbon pollution.

B.C.'s Low Carbon Fuel Standard, which ensures a supply of cleaner fuels, has been in place since 2008, encouraging suppliers to use methods such as blending renewable with traditional petroleum-based sources to lower carbon intensity.

Under current regulations, by 2020, fuel suppliers must decrease the average carbon intensity of their fuels by 10%, compared to 2010 levels. As part of our clean growth strategy, the province is proposing to increase that requirement to 15% by 2030. The government could consider raising it further to 20% when they review the standard again in 2020.

A number of actions could be taken between 2020 and 2030 to support this change in the Low Carbon Fuel Standard. These include:

- ▶ tax exemptions for blends of renewable fuels,
- ▶ support in developing the commercial production of renewable and low carbon fuels in the province,
- ▶ programs for industry and fuel suppliers to promote investments in infrastructure such as renewable fuel blender pumps and storage tanks, and
- ▶ a centre of excellence for biofuels that leverages the work of the BC Bioenergy Network.

In the long term, we can produce more low-carbon fuels in B.C. and advance related clean tech industries. Commercial-scale production of clean fuels will require continued investment and research, with a renewed focus on clean synthetic fuels and converting organic materials such as forest and agricultural residues into renewable crude oil and natural gas that can be processed in B.C.

### Potential Action for Cleaner Fuels

- ▶ Increased Low Carbon Fuel Standard
- ▶ Tax exemptions for renewable blends
- ▶ Support for commercial production
- ▶ Programs to promote investment in fuelling infrastructure
- ▶ Centre of excellence for biofuels

### Long Range Signals Drive Change

Fuel suppliers in B.C. are adjusting to the Low Carbon Fuel Standard and making investments in their infrastructure.

For example, Parkland Refining is making investments in its Burnaby refinery allowing it to process renewable, organic feedstock along with traditional crude. This will create gasoline and diesel that meet quality standards while lowering the carbon intensity of all the refinery's products.

### 3.3 Cleaner Transportation Systems

In addition to supporting the use of cleaner fuels and cleaner vehicles, B.C. is developing a plan to reduce emissions from transportation systems. It's complex work, spanning our interconnected network of streets, highways, ports, railways, airports, ferries, sidewalks, bike lanes, transit routes and more.

Because this work is so far-reaching, the province is taking time to gather more data, analyze results and engage with stakeholders before proposing specific actions. Following are some options to be considered further:

- ▶ Expanding and exploring ways to make vehicle use more efficient, such as vehicle co-ops, carpooling supports like our park and rides, and autonomous vehicles.
- ▶ Continuing investments in transit to help reduce emissions and congestion, including support for transit projects in the Lower Mainland and more transit friendly communities throughout B.C.
- ▶ Investing in clean transportation infrastructure that is inter-connected, providing easy access to cleaner options and reducing demand for vehicles. This would involve partnering with other levels of government on areas such as community design and land use, walking, cycling, and transit. It would also involve development of demand-management programs, which focus on finding ways to reduce traffic overall, so people ultimately drive less.
- ▶ Integrating transportation and land use planning for interconnected infrastructure, transit and cycling.
- ▶ Working with local and federal governments to ensure infrastructure is located, designed and maintained to withstand extreme weather. This reduces the potential risk and costs from things like flooding, disruption of work and services – all of which affect our economy.
- ▶ Working with partners to explore innovative design and technology for ferries, such as electric ferries.

#### Potential Action for Cleaner Transportation Systems

- ▶ Supports for increased carpooling, vehicle co-ops and the like
- ▶ Continued investments in transit
- ▶ Integrating transportation and land use planning for interconnected infrastructure, transit and cycling
- ▶ Supports for electric and/or electric hybrid ferries
- ▶ Increased use of clean electricity and technologies in our ports
- ▶ Cleaner and more efficient shipping corridors (e.g. shift to railways, LNG in larger marine vessels)

#### California's Plan for Clean Shipping

California has a Sustainable Freight Action Plan to help ensure it achieves its aggressive 2030 targets, including improving freight system efficiency by 25%, deploying over 100,000 vehicles and equipment that produce zero emissions, and working on pilot projects for advanced technology corridors at border ports and truck corridors. The plan helps to reduce emissions and enhance infrastructure to create efficient and reliable systems for clean growth.

- ▶ Electrifying our ports for heavy-duty cargo equipment and shore power, and using low-carbon technologies for heavy-duty marine applications.
- ▶ Working with utilities to increase incentives to stimulate investments for zero emission heavy duty vehicles as well as infrastructure for lower carbon fuels, such as electricity, hydrogen, renewable natural gas, and LNG to fuel large marine vessels.
- ▶ Examining ways to shift modes of transportation, such as moving more goods by rail. This could be done through policies such as targets, incentives and regulations.
- ▶ Working with stakeholders to make trade and shipping cleaner and more efficient in B.C.

The next series of proposals for transport will address cleaner transportation systems in detail.

### 3.4 Expected Outcomes

The actions considered in this paper would help make B.C.'s transportation sector cleaner and more efficient, while improving air quality and reducing traffic congestion.

The actions also support job opportunities in areas such as public transit, clean vehicle technologies, and alternative fuelling and charging stations while encouraging the development of renewable fuels – all of which B.C. can leverage to meet growing global demand.

In addition, clean energy vehicles cost less to drive. Currently, fuel costs are approximately one-eighth of those for conventional vehicles.

### Victoria's First Electric Transit Bus

BC Transit's first electric bus went into service in Victoria this summer, taking the corporation one step closer to its goal of low carbon fleets. While it's getting people where they need to go, the bus will also be generating data in partnership with BC Hydro and the University of Victoria Sustainability Lab. Along with providing hands-on experience for BC Transit, this pilot project will help decision-makers assess the state of electric bus technologies and their emission reduction potential. BC Hydro's work will focus on potential impacts on the power grid.

Zero-emission bus technologies include battery-electric and fuel cell electric. The former relies on power from the grid while the latter has its power supply onboard, converting hydrogen to electricity. Both have great potential to reduce GHG emissions from transportation and both are naturals for British Columbia: We have clean, renewable energy flowing into our grid, and a world leading cluster of hydrogen and fuel cell companies supporting clean growth and jobs.

### Growth Opportunities in ZEV Market

B.C. is recognized worldwide for its strength in clean tech research and development. With specialized expertise in fuel cell technology, electric battery components and controls, and smart grid infrastructure, we can play a key role in the growing market for zero emission vehicles.

With approximately 200 B.C. companies and organizations active in the ZEV sector, the province is attracting strong investment interest from major auto manufacturers and infrastructure developers as well as serving a growing domestic market. Opportunities exist across the ZEV supply chain, from raw materials to consumer products and transferable technologies and services.

## 4. PROVIDING INPUT

### What do you think?

Join in our online discussion at [engage.gov.bc.ca/cleangrowthfuture](https://engage.gov.bc.ca/cleangrowthfuture). The consultation is open until August 24, 2018.

Organizations and individuals who wish to send in additional information can email submissions to [clean.growth@gov.bc.ca](mailto:clean.growth@gov.bc.ca).

Written submissions will be posted publicly, and online comments will be summarized in a final report.

*We encourage everyone to take part in these and upcoming engagement opportunities. Visit [EngageBC](#) to learn more.*