

MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES

BRIEFING NOTE FOR INFORMATION

- I PREPARED FOR:** Honourable Michelle Mungall, Minister of Energy, Mines and Petroleum Resources
- II ISSUE:** Zero Emission Vehicle (ZEV) mandate regulation for light duty vehicles and complementary vehicle purchase incentives under the Clean Energy Vehicle (CEV) Program

III BACKGROUND:

British Columbia (BC) is among the leading jurisdictions in North America with regard to market transformation actions taken to achieve a clean energy transportation sector. This sector currently accounts for 40% of provincial emissions.

The CEV Program's suite of activities, along with the Renewable and Low Carbon Fuel Requirement Regulation and various other policy initiatives led or supported by branches within the Electricity and Alternative Energy Division, have set a strong foundation for supporting the transition to a decarbonized transportation sector in BC.

The CEV Program has been highly successful, with accelerating consumer uptake depleting program funds earlier than expected. A separate note is forthcoming with recommendations to address that issue and maintain momentum with the Ministry's market transformation efforts. See **Appendix A** for summary of current offerings under the Program's \$40 million budget.

Market transformation strategies often use incentives to build market share, followed by regulatory measures to prevent backsliding within the marketplace. In the transportation sector, this regulatory strategy is commonly known as a ZEV mandate and is gaining increasing attention as a potential option for BC. Specifically, the Climate Action Secretariat (CAS), in consultation with Energy, Mines and Petroleum Resources (EMPR) staff, has developed a draft Intentions Paper for its Climate Advisory Council, to be followed by public review in Summer 2018, that proposes the Province pursue a ZEV mandate for 2019. While EMPR staff continue to develop their policy recommendations on this option, the concept has made its way into the media in recent weeks. Both CAS and EMPR recognize that this will be a key policy item that bridges both the Climate Strategy and EMPR's Energy Roadmap.

A ZEV mandate provides a progressively increasing regulatory "backstop" to ensure market penetration levels achieved through electric and hydrogen fuel cell vehicle incentive programs are maintained, and to prepare the auto industry for the eventual removal of government incentives. The intended impact of the regulation is to obligate automakers to ensure sufficient vehicle supply and a variety of makes and models are provided in a jurisdiction to facilitate accelerated adoption by consumers and fleets. In addition, the regulation is intended to motivate automakers to invest more heavily in marketing ZEVs, along with accelerating the development of new vehicle models to suit market needs, such as the introduction of an electric

pickup truck or electric crossover SUV. See **Appendix B** for details on the implementation of a ZEV mandate.

All jurisdictions that have adopted a ZEV mandate continue to offer vehicle purchase incentives after the mandate regulation is implemented, along with continued investments in charging infrastructure deployment and outreach and education campaigns.

ZEV mandates have had significant positive market impacts in California (adopted in 1990, with subsequent updates), Quebec (adopted in January 2018,) and nine other US states, including Oregon (adopted in 2013). BC explored a ZEV mandate in 2016, upon recommendation from the 2015 Climate Leadership Team, but government at that time did not implement a regulation.

IV DISCUSSION:

A fundamental consideration regarding a ZEV mandate for BC is that numerous examples are emerging showing the Quebec market is receiving preferential access to automakers ZEV models over the BC market, explicitly due to the existence of Quebec's ZEV mandate. In other words, BC is at a growing disadvantage in securing vehicle supply as the Quebec regulation requires manufacturers to meet annual increases in ZEV sales targets. The same has been true in California, where for many years only that state's market has received a wide variety of ZEV models not available anywhere else in North America.

Concerns from Industry and Suggested Responses

The adoption of a Quebec and California ZEV mandate model, coupled with time-limited purchase incentives (to the early 2020s), is strongly supported by a variety of BC stakeholders. However, some industry representatives, notably the New Car Dealers Association of BC and the Global Automakers of Canada, have proactively voiced concerns over the implementation of a ZEV mandate vehicle supply regulation, claiming such regulations are not effective and can have harmful impacts on industry and consumers. Below are some of the primary concerns stated by these organizations *and the Ministry's own conclusions*:

1. Automaker and dealer business models will suffer negative economic impacts due to the fact that ZEVs will preclude sales of other, more profitable fossil fuel-powered vehicle types.
 - *The regulated requirements in California and Quebec are expected to achieve approximately 10% of sales required as ZEVs for large manufacturers in 2025. This is a small percentage of the overall sales total, and there is little or no evidence that dealers and compliant automakers have to date suffered economic losses in California due to the introduction of that state's ZEV mandate. Quebec and California have developed approaches to work collaboratively with car dealers, automakers and other stakeholder groups under their respective ZEV mandates, and a similar approach could be developed in BC.*

2. As a specific example of the concerns around economic impacts, automakers and dealers assert that ZEVs require substantially less servicing than conventional vehicles, which dealerships rely on for a significant portion of their ongoing revenue from customers.
 - *This argument effectively suggests that consumers should not be widely encouraged to adopt technologies that provide more affordable ownership. In addition to significantly reduced servicing costs, fuel costs for electric vehicles are approximately one-fifth of costs for conventional fossil fuel vehicles. The auto industry will need to adjust its business and service offerings over the longer- term to respond to reduced revenue from vehicle service agreements.*
3. Insufficient lead time from announcement of the ZEV mandate regulation to the first required sales percentage period makes it more difficult for automakers to comply.
 - *This concern can be addressed by allowing one to two reporting-only years before automakers are required to meet ZEV mandate requirements.*
4. Automakers state that they prefer to have governments set emissions reductions targets for vehicles, but to not prescribe specific technological solutions to achieve the reductions targets.
 - *Federal regulations for light duty vehicle emissions reductions remain in place, driving technology improvements in automobiles while leaving the industry to develop the technology pathways. Note that these regulations are currently under review in the United States (US), which could also impact Canada's approach.*
5. Automakers would prefer a collaborative, partnership approach to addressing emissions reductions, rather than a regulatory approach.
 - *Arguments made by automakers against ZEV mandate regulations have proven particularly compelling in Ontario, where auto manufacturing represents a key economic sector. In that province, rather than implement a ZEV mandate, which government had initially signalled it would pursue, a voluntary initiative with industry and other stakeholders was created called the Electric and Hydrogen Vehicle Advancement Partnership (EHVAP), which had its first reporting period in 2017. It is too soon to tell whether EHVAP will be successful. See **Appendix C** for further details on EHVAP.*

V RECOMMENDATION:

Direct staff to work with CAS on consultation and development of a ZEV mandate and complementary incentives under the Ministry's Energy Roadmap process.

DRAFTED BY:

Chris Frye, A/Dir
778-698-7255

APPROVED BY:

Nat Gosman, A/ED, AEB ✓
Les MacLaren, ADM, EAED ✓
Dave Nikolejsin, DM ✓

Appendix A

Summary of Suite of CEV Program Initiatives

To achieve the program target of 5% of all new light duty vehicle sales to be CEVs by 2020, the CEV Program allocates its \$40 million budget across a suite of complementary market transformation initiatives.

| Program Name | Description | Budget April 2017- March 2020 (March 2021 for some programs as noted) |
|---|---|---|
| CEVforBC Vehicle Incentive Program | Offers point of purchase incentives of \$2,500, \$5,000 and \$6,000 depending on battery size of CEV. Administered by the New Car Dealers Association | \$27 million –expected to be depleted by October 2018. Separate note forthcoming to provide options for continuation of program in conjunction with ZEV mandate |
| Charging Solutions and Incentives Program | Provides incentives for home and workplace charging, and expert consultation for workplaces and multi-unit residential buildings (MURBs). Administered by Fraser Basin Council. | \$2,000,971 – expected to be depleted by September 2018. Options for continuation to be provided in a future briefing note. |
| Specialty Use Vehicle Incentive (SUVI) Program | Reduces the capital cost barrier, primarily for commercial vehicles, in all classes other than the light-duty passenger vehicles captured in the CEVforBC incentive program | \$2.5 million |
| DC Fast Charger Deployment Program | Leverages investment by partners to deploy public fast charging on main travel corridors and in municipalities across the province | \$2 million Leverages 2:1 funding from Natural Resources Canada |
| SCRAP-IT BC sub-program: Transportation Options | Provides incentives to access transit passes, credit with a car sharing organization, or new electric bicycles | \$750,000 |
| Hydrogen Fuelling Station Network Program | Targets a minimum of six new, public hydrogen fuelling stations by 2020 | \$3 million |
| Advanced Research and Commercialization Program | Will provide support until March 2021 for BC companies that invest in product development and commercialization activities through to long-term demonstration projects related to clean energy transportation | \$1.5 million |
| Consumer Outreach and Education | Emotive Program: consumer outreach and support for communities to March 2021, and Electric Vehicle Technician Training development with BCIT | \$1.05 million |
| Data and Industry Association Membership | Various contracts and memberships to support program staff and partners | \$199,029 |

Appendix B

Details, Considerations and Possible Models for a ZEV Mandate in BC

A ZEV mandate requires automakers to report all vehicle sales to the regulating jurisdiction, while also setting mandatory, increasing annual sales targets for manufacturers of light duty (passenger) ZEVs, based on a credit calculation. In commonly used terminology for this kind of regulation, ZEVs are comprised of battery electric vehicles (BEVs, such as the Nissan Leaf or Chevrolet Bolt), fuel cell electric vehicles (FCEVs, such as the Toyota Mirai) and plug-in hybrid electric vehicles (PHEVs, such as the Chevrolet Volt).

Under the Quebec and California regulations, BEVs and FCEVs earn higher credits for automakers than PHEVs, providing more than one credit per BEV and FCEV sold. As a result, automakers can gain more credits toward the regulation's percent credit requirement than the actual percent of ZEV sales achieved. Therefore, a regulation credit requirement of 9.5% is projected to result in approximately 5-6% of actual market sales. If ZEV credit targets are not met, non-compliant automakers can purchase surplus credits from other automakers, or must pay penalties to the regulating jurisdiction.

The regulated credit target for automakers in California and Quebec is 9.5% for vehicle model year (MY) 2020, which will equate to ZEVs comprising approximately 5-6% of the new vehicle sales market. The BC CEV Program has a goal of 5% of new vehicle sales being ZEVs by 2020, with the 2017 market share in BC reaching approximately 1.5%. Under the California and Quebec ZEV mandates, the ZEV credits target rises annually, reaching 22% for MY2025, or approximately 10% of the new vehicle sales market. Analysis by Ministry staff indicates that in the near term, directly adopting the Quebec and California targets would be appropriate for the BC market and would create consistency for regulated automakers.

The following table presents a possible ZEV mandate model for BC, following the schedule for increasing requirements as adopted by Quebec, along with complementary vehicle purchase incentives until 2022, and a PST exemption for the longest range zero emission vehicles (which could be implemented in 2019 or later):

Table 1

| Model Year | Regulation Credit Percentage | Estimated Sales Percentage | Projected number of clean energy vehicles sold* | Projected new CEV Program incentive budget |
|--|------------------------------|----------------------------|---|--|
| 2018 | No mandate | 2% | 4,905 | \$15.1 million |
| 2019 | Reporting only | 3.5% | 7,358 | \$29.5 million |
| 2020 | 9.5% | 5.5% | 11,036 | \$18.4 million ** |
| 2021 | 12.0% | 7% | 16,554 | \$20.4 million |
| 2022 | 14.5% | 7.5% | 24,832 | \$30.5 million |
| 2023 | 17.0% | 8% | 37,247 | PST exemption only |
| 2024 | 19.5% | 9% | 55,871 | PST exemption only |
| 2025 + | 22.0% | 10% | 83,807 | PST exemption only |
| Regulation review in 2025 for development of post-2025 targets | | | | |
| *Number of vehicles sold projected to be higher than the minimum required percentage under a ZEV mandate – the regulation provides a minimum floor to “backstop” the incentive program and prepare | | | | |

the industry for the eventual removal of incentives.

**April 2020 – March 2022 incentive values could be halved following introduction of the ZEV mandate; PST exemption could be implemented for eligible vehicles (highest battery capacity/zero emission range)

An alternative, more ambitious timeline could target a 2030 50% credit target for automakers in BC, as follows (incentive budget and timing remains identical to table above):

Table 2

| Model Year | Regulation Credit Percentage | Estimated Sales Percentage | Projected number of clean energy vehicles sold* | Projected new CEV Program incentive budget |
|---|------------------------------|----------------------------|---|--|
| 2018 | No mandate | 2% | 4,905 | \$15.1 million |
| 2019 | Reporting only | 3.5% | 7,358 | \$29.5 million |
| 2020 | 9.5% | 5.5% | 11,036 | \$ 18.4 million ** |
| 2021 | 12.0% | 7% | 16,554 | \$20.4 million |
| 2022 | 14.5% | 7.5% | 24,832 | \$30.5 million |
| 2023 | 17.0% | 8% | 37,247 | PST exemption only |
| 2024 | 19.5% | 9% | 52,146 | PST exemption only |
| 2025 | 22.0% | 10% | 62,576 | PST exemption only |
| 2026 | 27.0% | 13% | 75,091 | PST exemption only |
| 2027 | 35.0% | 17 % | 78,845 | PST exemption only |
| 2028 | 40.0% | 20% | 82,787 | PST exemption only |
| 2029 | 45.0% | 25% | 86,927 | PST exemption only |
| 2030 | 50.0% | 30% | 91,273 | PST exemption only |
| *Number of vehicles sold projected to be higher than the minimum required percentage under a ZEV mandate – the regulation provides a minimum floor to “backstop” the incentive program and prepare the industry for the eventual removal of incentives. | | | | |
| **April 2020 – March 2022 incentive values could be halved following introduction of the ZEV mandate; PST exemption could be implemented for eligible vehicles (highest battery capacity/zero emission range) | | | | |

Appendix C

Ontario Electric and Hydrogen Vehicle Advancement Partnership Action Matrix

Under EHVAP, a matrix of key activities to advance ZEVs was created (see below), and automakers provide confidential bi-annual plans to a third party, who reviews all of the plans to determine whether collective commitments by all automakers and other parties will result in the provincial targets for ZEV adoption being met. As a motivator to participate, an automaker's ZEVs cannot receive the rich provincial incentives offered to consumers, unless the automaker participates fully in EHVAP. At this time, it is too soon to determine the success of EHVAP in assuring Ontario will meet its ZEV targets. The future of EHVAP and ZEV incentives in Ontario may be in jeopardy with the recent change in government in that province. The new government has committed to eliminating the province's Cap-and-Trade policy.

Matrix of Actions addressing uptake in Electric and Hydrogen Vehicles

| Draft for discussion | FUELING & CHARGING INFRASTRUCTURE | EDUCATION & MARKETING | CONSUMER SUPPORT PROGRAMS | DEALERSHIP PROGRAMS | FLEETS | COMPLEMENTARY ACTIONS |
|----------------------|---|---|---|---|--|--|
| | Provincial public EVSE support program | EV showcase facility | ZEV purchase rebate program | Establish recognition awards for excellence | Green government fleets & vehicles | Co-Investments in R&D |
| | Municipalities require EV charging in parking lots | Specialized plates including free HOV/HOT lane access for ZEVs | Eliminate HST at point-of-sale | Provide detailed info on ZEV incentives, tax credits, utility rebates | Private fleet awareness campaign | Low carbon commercial vehicle technology |
| | Build out network of low-emission fueling stations | Education/Awareness campaigns for businesses and public/consumers | Free overnight charging | Dealer incentives | Zero emission school bus pilot program | Municipal planning for ZEVs |
| | EV-ready homes, workplaces | College ZEV curriculum | Low- to moderate-income household vehicle scrappage program | Sales staff training, incl. how to calculate savings, different cars and benefits of ZEVs | Fleet owner/manager training | Promote innovation in ZEV technologies |
| | Charging at government locations | ZEV campaigns and promotions | Finance incentives for consumers | Expand the network of ZEV certified dealerships | How-to guide, introducing ZEVs into your fleet | Undertake and publish research in ZEVs |
| | Promote the expansion of ZEV* charging/fueling infrastructure | Provide free leases to EV showcase facilities | Partner with federal government for support & incentives | Sales people have experience driving ZEVs | | Dissemination of best practices in R&D |
| | Partner with federal & municipal governments for additional charging & fueling infrastructure funding | Improve & expand dealer/sales training | ZEV promotion on websites | Ensure ZEV availability | | Work with LDCs to send info to customers about rebates, charging stations, savings |
| | | ZEV specs, benefits and rebate information provided on websites | Partner with federal government for support & incentives | ZEV promotional material on display in dealerships | | |
| | | | ZEV promotion on websites | Install charging/fueling at dealerships | | |
| | | | Provide info on locating chargers to customers (apps) | Participate in test-ride events | | |
| | | | Draft purchase rebate forms in advance for customers | Provide sales staff with ZEV training | | |
| | | | Help enrol buyers in charging station networks | Recognize/reward high-performing dealerships | | |
| | | | | Schedule customer visits at dealerships for ZEVs | | |
| | | | | Dealer training and how-to sell ZEVs | | |

LEGEND

- Government actions
- OEM actions
- Dealers & dealerships actions
- Advocacy & NGO actions

* For the purposes of this document, ZEV refers to zero emission vehicles which includes battery electric, plug-in hybrid, hydrogen and fuel cell electric vehicles.

**MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES
BRIEFING NOTE FOR DECISION**

I PREPARED FOR: Honourable Michelle Mungall, Minister of Energy, Mines and Petroleum Resources

II ISSUE: Clean Energy Vehicle Program – Design and Delivery for Fiscal Year 2019

III BACKGROUND:

There are six main barriers to increased zero-emission vehicle (ZEV) adoption: lack of vehicle supply (both availability and variety); higher up-front costs for consumers; lack of charging / refuelling infrastructure; lack of public awareness; and technological advancement and specialized skills training. The Ministry is applying a market transformation approach to transition the transportation sector to ZEVs, starting first with measures and investments to address market barriers and develop a solid consumer base, and following with regulatory standards to manage fiscal impacts and prevent a return to lower-quality technologies.

British Columbia (BC) currently has the highest rate of CEV adoption in Canada, at over 4 per cent (%) of new light-duty vehicle sales, and one of the largest charging and hydrogen fuelling infrastructure networks, despite making much lower incentive investments than Quebec's and Ontario's (now ended) similar programs. Consumer awareness of ZEVs in BC is higher than the rest of Canada, and customer uptake in both the vehicle and infrastructure incentive programs regularly exceeds projections.

Budget 2019 Direction

Table 1 in Appendix A summarizes the CleanBC ZEV program offerings to be delivered by the Ministry, and approved funding allocations in Budget 2019. Funds are frozen pending a report-back to Treasury Board on the key parameters and delivery partners for each sub-program, interactions with any Federal programs, and the breakdown of funding towards new staff resources.

The CleanBC Transportation Budget 2019 submission committed to centralize ZEV program offerings, along with information on measures and quarterly reporting on progress, onto one central online hub and under one CleanBC brand for the public and stakeholders. This would make the ZEV offerings easier to access for consumers, and streamline and coordinate program information across delivery partners and funders.

Budget 2019 only approved one year of vehicle incentives, and deferred funding decisions for 2020 – 2022 to Budget 2020 based on a better understanding of program uptake, performance, and other funding sources such as the federal government. The Budget 2020 submission will need to include options for the continuation of the vehicle incentives, including a reduction of incentives, and a transition to either a PST exemption or incentive delivery by utilities.

Federal Budget 2019

The 2019 Federal Budget committed to a two-year, cross-Canada, point-of-sale vehicle incentive program. Program details announced April 17, 2019 indicate vehicles with battery

capacities over 15 kWh will receive a \$5,000 incentive, while vehicles with a battery capacity below 15 kWh will receive a \$2,500 incentive. This aligns with BC's current incentive design. The Manufacturer Suggested Retail Price (MSRP) Federal vehicle eligibility thresholds will be set as follows: for vehicles with six seats or less, base level MSRP limits of \$45,000 up to a maximum trim-level MSRP of \$55,000; and for vehicles with more than six seats, base level MSRP limits of \$55,000 up to a maximum trim-level MSRP of \$60,000.

s.16

IV DISCUSSION:

The new ZEV targets set by the Province in legislation, along with the expanded ZEV program commitments in CleanBC, require taking the program and outreach efforts to the next level. There is a significant need to streamline the customer experience, while ensuring all relevant stakeholders (automakers, dealers, utilities, infrastructure providers, local governments, and ZEV interest groups) are working together to achieve the ambitious targets. There is also a need to consider the level and scope of provincial vehicle incentives in the context of the new federal vehicle incentives.

There are five key decisions required to finalize the CleanBC ZEV program design for fiscal year 2019/2020:

1. Delivery model;
2. Marketing funds;
3. Vehicle price eligibility for provincial incentives;
4. Base vehicle incentive levels; and
5. Affordability incentive mechanism.

The design of the current CEV Program is detailed below in the context of the above-noted five decision areas.

Current CEV Program (Status Quo)

1. Delivery Model

The CEV Program offerings are delivered on behalf of the Province by numerous delivery agents to reduce internal administration costs and extend program reach, by leveraging their administration systems, existing public and business relationships, and in-kind contributions.

However, the CEV Program currently suffers from lack of a coordinated communications strategy and mixed branding across the suite of program offerings.

Customer experience for receiving the light-duty vehicle incentives is streamlined at the point-of-sale by working directly with the BC New Car Dealers Association (NCDA). These are marketed as Government of BC CEVforBC incentives. Home and workplace infrastructure incentives are delivered through a separate application process post-installation, resulting in a less streamlined experience for consumers than the vehicle incentives. These are marketed as Government of BC incentives delivered by Plug-In BC.

Public fast charging and hydrogen fuelling investments are marketed as Government of BC investments, but delivered by Natural Resources Canada and the Canadian Hydrogen Fuel Cell Association, respectively, to allow for a streamlined process for proponents accessing provincial and federal funding. The medium- and heavy-duty vehicle incentives are offered as mail-in rebates for consumers and marketed as Government of BC Specialty Use Vehicle incentives delivered by Plug-In BC.

While the www.gov.bc.ca/cleanenergyvehicleprogram site provides one online platform for consumers to find information on all CEV Program offerings, it is not a marketing site, and largely re-directs customers to a variety of other sub-program websites, namely: CEVforBC; Plug-In BC; the Advanced Research and Commercialization Program of BC; and the Canadian Hydrogen and Fuel Cell Association. s.13

s.13

2. Marketing funds

s.13

s.13

Approximately \$100,000 per year is allocated to marketing of the CEVforBC vehicle incentives and delivering consumer ride-and-drive events around the province. Approximately \$200,000 per year is allocated to the development and dissemination via partners of public awareness information and materials on ZEVs, and to support public outreach activities and ride-and-drives led by local governments and community organizations.

For targeted public education and outreach, the Province has an existing agreement with the Fraser Basin Council, with funds already allocated, that runs until March 31, 2021, for the Emotive outreach program. Emotive is a partnership program, borne out of a need to help grass-roots-level ZEV outreach activities have consistent messaging and strategies without being tied to one organization. Through Emotive, the Province develops consistent ZEV outreach materials on behalf of local governments and community organizations to support their public outreach on ZEVs including events and ride-and-drives. The Emotive program also provides financial support and guidance to community-run ZEV events. s.13

s.13

3. Vehicle price eligibility threshold

Vehicle incentives are only available on ZEVs with a base model Manufacturer Suggested Retail Price (MSRP) below \$77,000. The CleanBC Transportation Budget 2019 submission committed to reduce the vehicle MSRP eligibility threshold from \$77,000 to \$65,000.

4. Base vehicle incentive levels

Hydrogen fuel cell vehicles receive a \$6,000 incentive, battery-electric and plug-in hybrid electric vehicles with batteries over 15 kWh receive a \$5,000 incentive, while those with batteries below 15 kWh receive a \$2,500 incentive.

5. Affordability incentives

The current program does not offer affordability incentives. The CleanBC Transportation Budget 2019 submission proposed an affordability incentive of \$2,000/ZEV on top of the base ZEV incentives if the Province was not pursuing a used ZEV PST exemption.

V OPTIONS:

Options for the CleanBC ZEV program design for fiscal year 2019/2020 are detailed below.

1. Delivery Model

Option 1 (Recommended): ZEV program under one CleanBC brand: Province-BC Hydro partnership on marketing. Other delivery partners offering back-end administration where necessary for ease of consumer access (e.g. NCDA on vehicle incentives, FortisBC on infrastructure within their territory) or ensuring funds are outside of the Government Reporting Entity within the fiscal year (e.g. NRCan on public charging stations).

Considerations:

- Streamlines the ZEV customer experience by providing customers with a single access point for comprehensive ZEV incentive and program information;
- Leverages utility experience and program marketing expertise to ensure robust adoption of ZEVs to meet CleanBC targets;
- Maintains vehicle incentives for customers at point-of-sale by using the NCDA as the back-end administrator;
- Both BC Hydro and FortisBC have indicated an interest in partnering with the Province on the ZEV program. This model involves the marketing of the vehicle incentives branded as Province-BC Hydro only;
- To ensure Province-wide coverage of the CleanBC transportation programs, FortisBC would still need to be involved in delivering infrastructure programs within their service territory. For these programs, the Province-BC Hydro co-branding would need to be carefully coordinated with any separate FortisBC messaging;
- Ensures Budget 2019 funds are expended outside the Government Reporting Entity within fiscal year 2019 by maintaining some back-end administration role for third party delivery agents. Where funds can be spent within the fiscal year (e.g. home and workplace charging incentives, some fleet and medium/heavy-duty projects), funds would be allocated directly to BC Hydro for programs. Where that is not possible (e.g. public fast charging, hydrogen fuelling, some fleet and medium/heavy-duty program components), the Province will need to continue to work with third parties to allocate the funds to projects over time; and
- GCPE-HQ is planning on having the one-stop web portal available for the launch of the incentives in May / June 2019, with expansion of the portal to include the other program areas in time for fall 2019.

Option 2: ZEV program under one CleanBC brand: Province-utility (BC Hydro & Fortis) partnership on marketing, with other delivery partners only offering back-end administration where necessary for ease of consumer access (e.g. NCDA on vehicle incentives) or ensuring funds are outside of the Government Reporting Entity within the fiscal year (e.g. NRCan on public charging stations).

Considerations:

- Same benefits as Option 1, with the exception of including FortisBC from marketing.
- BC Hydro has indicated a concern with co-branding with FortisBC on ZEVs, as it could put its own brand at risk because of the association of FortisBC with fossil fuels through their natural gas offerings. GCPE-HQ and BC Hydro will need to agree on the final branding and one-stop-shop online portal design that can leverage the positive BC Hydro brand but still ensure provincial coverage across the two utility territories.

Option 3: Status Quo

Considerations:

- Not aligned with the CleanBC Transportation Budget 2019 submission intent to streamline program offerings under one CleanBC brand.
- Does not leverage full potential of utility partners.

2. Marketing Funds

Option 1 (Recommended): Seek Treasury Board approval for additional marketing funding for ZEV programming, either through GCPE-HQ or by re-profiling a portion of the existing ZEV program funding. BC Hydro also provides an increased contribution.

Considerations

- Higher cost than current planned GCPE-HQ investment. Total estimated marketing investment of \$2.2 million - \$2.8 million in 2019: Government contribution of \$1.9 million - \$2.3 million, and BC Hydro contribution of \$585k - \$785k.
- GCPE-HQ is planning to build the central online portal for ZEV programming and is currently proposing to brand it as www.goElectricbc.ca. This will ultimately become the one stop shop for all ZEV program offerings in BC once all program elements were launched. For the June 2019 re-launch of the vehicle incentives the site will focus on incentives.
- One risk with the “Go Electric” contemplated by GCPE-HQ is the alienation of hydrogen (although hydrogen fuel cells are electric drive) and other low-carbon fuels (e.g., biofuels) from the public discourse on CleanBC transportation programs. This could hamper the ability of the Ministry to effectively promote and increase the adoption of the range of zero- and low-carbon fuels needed to meet the CleanBC targets. There may be an opportunity for the Ministry to intervene in the branding exercise to support a more fuel-neutral approach.
- Some local governments have indicated an interest in being able to top-up the provincial home and workplace charging incentives for their residents. These local

governments have indicated a preference for one-stop online portal where their incentives could be advertised and accessed by customers along-side CleanBC and utility incentives. This further emphasizes the value of the one-stop online portal.

- GCPE-HQ is also planning production and media buy for ZEV broadcast/digital advertising for late spring 2019. BC Hydro is planning a campaign around infrastructure, focused on “Dave’s electric road trip” around the province, for the fall of 2019.
- Any information related to incentives that are delivered through Emotive events would have the CleanBC branding, and, under the new model, BC Hydro has indicated they could work with Emotive partners to improve delivery of outreach activities.
- Aligned with BC Hydro proposal.
- GCPE-HQ has indicated that Treasury Board might be reluctant to approve more marketing funds out of the program budget. In this case, the Province would work with BC Hydro within the limits of the current combined funds available and scale the marketing efforts accordingly.

Option 2: Use existing approved marketing budgets between GCPE, BC Hydro and the ZEV programming. Await direction from GCPE-HQ on potential need to request re-allocation of ZEV program budgets to support greater marketing efforts.

Considerations

- Total estimated marketing investment of <\$1 million in 2019, including: BC Hydro planned \$285k; ZEV programming \$300k (a portion of which for Emotive); and GCPE-HQ planned spending on website, production and media buy for ZEVs.
- Still has same online portal and Spring 2019 marketing spend by GCPE-HQ, but lower ongoing funding towards marketing and outreach.
- This amount is already a significant increase from previous ZEV program marketing budgets.
- Provides higher investment than previous years towards ZEV program marketing, without needing to propose additional marketing budgets to Treasury Board.

3. Vehicle price eligibility for provincial incentives

Option 1 (Recommended): Reduce the MSRP eligibility threshold for base vehicle incentives to \$65,000, as per the CleanBC Transportation Budget 2019 submission. Allow the Minister to exempt some early-market vehicles from the eligibility threshold, such as hydrogen fuel cell vehicles and upcoming electric pick-up trucks.

Considerations

- One set threshold is less complicated to communicate to industry and consumers.
- Larger SUVs, pick-up trucks, and the longer-range ZEVs are expected to still be priced above \$45,000 as they come to market. Consumers in this market segment are expected to be more difficult to encourage to move into a ZEV.
- Placing the price eligibility cap at \$65,000 allows the Province to support customers only willing to purchase SUVs or light trucks in this early market where there a limited ZEV options. This ability to ensure customer affordability in these bigger vehicle classes will be critical to achieving the CleanBC targets in rural and northern regions.
- It reduces the price threshold slightly from the current \$77,000, indicating a move towards directing more funds towards the more affordable ZEVs.
- This would eliminate the Volvo plug-in hybrids that offer a low all-electric range and currently only make up a fraction of the ZEV program expenditures.
- Hydrogen fuel cell vehicles are still priced over \$70,000. In order to support their entrance into the ZEV market, it is proposed to keep the price eligibility threshold at \$77,000 for hydrogen fuel cell vehicles.

Option 2: Align the MSRP threshold with the federal limits: for vehicles with six seats or less, \$45,000 base-level MSRP up to \$55,000 for higher trim levels; for vehicle with over six seats, \$55,000 base-level MSRP up to \$60,000 for higher trim levels.

Considerations

- Federal eligibility requirements are more complicated for industry and consumers to understand, although general messaging on incentives in BC would be simplified (i.e. “aligned with federal incentives”).
- This would remove some more luxury brands such as BMW, Volvo, and Mercedes-Benz from the incentive program.
- This would reduce fiscal pressures of the program.
- It would reduce the overall ability of the program to support SUVs and pick-up trucks, a key market segment necessary for growth in ZEV uptake in BC.
- Lastly, it would remove any hydrogen fuel cell vehicles from the customer program, although these vehicles would still be eligible under the hydrogen fleets program for commercial fleet purchases.
- The Minister could allow exceptions to the threshold for early offerings in certain vehicle segments such as SUVs, pick-up trucks, and hydrogen fuel cell vehicles.

4. Base vehicle incentive levels

Option 1 (Recommended): Allow full stacking of the incentives, such that vehicles that receive a federal incentive could also receive the full \$5,000 in provincial funding, resulting in a maximum combined incentive of \$10,000/ZEV.

Considerations

- Allows continuity and simplicity of the provincial vehicle incentives through 2019.
- Aligns with the Quebec approach. Quebec has indicated that they will be allowing full stacking of the incentives for the foreseeable future, resulting in a \$13,000/ZEV incentive.
- Meets the expectations of the public to-date that the incentives would be stacked.
- The higher incentives might be more important at this stage of market transformation as the program moves beyond the early movers to try to influence the broader, and more hesitant, general public.
- Does not allow the Province to benefit from some cost-savings on vehicle incentives.

Option 2: As soon as possible, implement a stacking rule on the vehicle incentives. For vehicles eligible for the federal incentive, the maximum combined incentive would be \$8,000 for vehicles with batteries above 15 kWh, and \$4,000 for vehicles with batteries below 15 kWh (i.e. a provincial contribution of \$3,000 and \$1,500, respectively). For vehicles priced above the federal threshold limits but still within the provincial threshold limits (\$65,000), maintain the current status quo (\$6,000; \$5,000; and \$2,500).

Considerations

- Allows customers purchasing the most affordable ZEVs to receive higher incentives than previously, while still maintaining continuity of the current level of incentives on vehicles not eligible for the federal incentive.
- Allows the Province to reduce fiscal pressures on the ZEV program, the savings of which can be re-allocated to the affordability incentive, infrastructure investments, or other government priorities.
- Increases complexity of communicating the program to consumers.
- For clarity, public materials on the provincial incentives will need to indicate a lower provincial incentive on vehicles priced below \$45,000 - \$60,000, and the higher provincial incentive for vehicles above the federal levels. This could generate some criticism of more provincial funding going towards higher priced vehicles than lower-priced vehicles.
- The Province could be criticised for pulling back support for the ZEV market in BC while at the same time introducing the *Zero Emission Vehicle Act*, even though BC's ZEV adoption rate is the highest in Canada at lower incentive levels.
- Until the revised provincial rules are approved and launched in the late May/early June time frame, customers purchasing ZEVs will have access to a combined maximum \$10,000/ZEV incentive. The program will likely experience increased customer complaints over the summer months from customers who were unable to get in during the short transition window.

Option 3: Remove the provincial vehicle incentive for vehicles that receive the federal incentive.

Considerations

- Provides a cost savings.
- Would be viewed negatively by stakeholders and the public, as the Province backing out of commitments made in CleanBC.

s.12; s.13

Page 17 of 62

Withheld pursuant to/removed as

s.12; s.13

VI RECOMMENDATIONS:

CleanBC ZEV program design for fiscal year 2019/2020:

| Design Element | Recommendation | Decision |
|------------------------------|--|----------------------------|
| 1. Delivery Model | Option 1: ZEV program under one CleanBC brand: Province-BC Hydro partnership on marketing, other delivery agents on back-end administration where necessary (e.g. NCDA for incentives at point-of-sale, FortisBC for infrastructure in their service territory) | Approved / Not Approved |
| 2. Marketing funds | Option 1: Seek Treasury Board approval for additional marketing funding for ZEV programming, either through GCPE-HQ or by re-profiling a portion of the existing ZEV program funding. (\$1.9 - \$2.3M) | Approved / Not Approved |
| 3. Vehicle price eligibility | Option 1: Reduce the MSRP eligibility threshold for base vehicle incentives to \$65,000, as per the CleanBC Transportation Budget 2019 submission. Allow the Minister to exempt some early-market vehicles from the eligibility threshold, such as hydrogen fuel cell vehicles and upcoming electric pick-up trucks. | Approved / Not Approved |
| 4. Base vehicle incentive | Option 1: Allow full stacking of the incentives, such that vehicles that receive a federal incentive could also receive the full \$5,000 in provincial funding, resulting in a maximum combined incentive of \$10,000/ZEV. | Approved / Not Approved |
| s.12; s.13 | | |



Honourable Michelle Mungall
Minister of Energy, Mines, and Petroleum Resources

DRAFTED BY:

Christina Ianniciello, Dir, CTB
250-952-2613

APPROVED BY:

Dan Green, ED, AEB ✓
Les MacLaren, ADM, EAED ✓
Dave Nikolejsin, DM ✓__

Appendices:

Appendix A Budget 2019 ZEV Program
Appendix B BC Hydro EV Partnership Proposal

Appendix A

Table 1: Budget 2019 – ZEV Program

| CleanBC Transportation Budget 2019 | | 2019/20 | |
|--|------------------|--------------------|-------------------|
| \$ thousands | Base | Contingency | Total |
| EMPR - CEV Program expansion: Light-Duty Vehicles | | | |
| Basic vehicle incentives | \$ 41,506 | \$ 10,000 | \$ 51,506 |
| Affordability top-up vehicle incentives | \$ - | \$ 9,460 | \$ 9,460 |
| Home & workplace charging incentives | \$ 4,807 | \$ - | \$ 4,807 |
| Public fast charging & hydrogen stations | \$ 20,000 | \$ - | \$ 20,000 |
| Fleet challenge | \$ 6,000 | \$ - | \$ 6,000 |
| Public outreach | \$ 300 | \$ - | \$ 300 |
| New EMPR Staff (2 FTEs) | \$ 315 | \$ - | \$ 315 |
| EMPR Subtotal | \$ 72,927 | \$ 19,460 | \$ 92,388 |
| EMPR - CEV Program expansion: Medium/Heavy-Duty, Port/Airport ground equipment, Bus, Marine, Rail, etc. | | | |
| Pilot projects | \$ 5,000 | \$ - | \$ 5,000 |
| Vehicle incentives | \$ 2,500 | \$ - | \$ 2,500 |
| Infrastructure & Fuels investments | \$ 2,500 | \$ - | \$ 2,500 |
| New EMPR Staff (2 FTEs) | \$ 315 | \$ - | \$ 315 |
| EMPR Subtotal | \$ 10,315 | \$ - | \$ 10,315 |
| EMPR - CEV Program expansion: General | | | |
| CEV Jobs Training | \$ 1,000 | \$ - | \$ 1,000 |
| CEV Advanced Research & Commercialization | \$ 5,000 | \$ 10,000 | \$ 15,000 |
| Research, Analysis, Reporting | \$ 300 | \$ - | \$ 300 |
| EMPR Subtotal | \$ 6,300 | \$ 10,000 | \$ 16,300 |
| CleanBC Transportation Programs TOTAL | \$ 89,542 | \$ 29,460 | \$ 119,002 |
| EMPR - Zero-Emissions Vehicle Act (ZEVA) | | | |
| Studies, Enhancement to online reporting tool | \$ 500 | \$ - | \$ 500 |
| New EMPR Staff (5 FTEs) | \$ 805 | \$ - | \$ 805 |
| CleanBC Transportation - ZEVA TOTAL | \$ 1,305 | \$ - | \$ 1,305 |

BC Hydro Briefing Note

EV Partnership Proposal

This note outlines BC Hydro's proposed model to support the EV strategy in CleanBC for this year. There is an opportunity for BC Hydro and the Ministry to co-lead an integrated EV program with a focus on charging infrastructure and information this year followed by additional incentives next year.

Summary

- BC Hydro has developed a proposal for its role in supporting the implementation and delivery of EV and infrastructure incentives as outlined in CleanBC.
- The proposal aligns with the strategy developed by the Ministry while leveraging BC Hydro's strengths to ensure robust adoption of EVs to meet CleanBC targets.

BC Hydro's Role

- There is an opportunity to create a streamlined customer experience by enabling BC Hydro to provide customers with a single access point for comprehensive EV incentive and program information.
 - BC Hydro will expand on existing programs, such as charging infrastructure and customer awareness campaigns, to accelerate development of the EV space.
 - Where feasible, BC Hydro will provide funding (in addition to existing funding) to supplement the provincial budget outlined in the treasury board submission.
 - BC Hydro will leverage its customer service capacity to support anticipated queries from the public regarding EV incentives.
- BC Hydro has the experience and expertise to support government's EV plan through the program areas outlined below.

Communications & Outreach

Communications Strategy

- BC Hydro will deliver a consistent and streamlined communications strategy via a digital hub so that customers have a clear source of information on the suite of EV incentives available under Clean BC.
 - **Marketing Campaigns:** BC Hydro will implement a five-week campaign in the Fall of 2019 and a sustained lower level of marketing throughout the year to increase awareness of EV incentives.

- **Website:** BC Hydro will create a digital hub where customers can find comprehensive information on all EV incentives available under CleanBC.
- **Research:** BC Hydro will conduct market research to monitor performance of the communications strategy.
- **Customer Service:** BC Hydro will leverage its existing customer service centre to respond to public inquiries regarding EV incentives.

Information and Outreach

- BC Hydro will leverage and expand its existing outreach team to promote awareness and share information regarding EV incentives.
- BC Hydro could work with eMotive to improve delivery of outreach activities.

Communications & Outreach Funding Options

- BC Hydro has developed two options for funding a communications and marketing strategy in Fiscal 2019/20 that will support implementation of EV incentives.

Option 1: CleanBC-BC Hydro partnership – medium investment of \$2.2M

| | Government Contribution | BC Hydro Contribution |
|------------------------------|--------------------------------|------------------------------|
| Marketing | \$1,700,000 | s.17 |
| Expanded Outreach activities | \$200,000 | |

* BC Hydro is currently spending approximately s.17 on EV marketing and s.17 on outreach in 2019.

Option 2: CleanBC-BC Hydro partnership – high investment of \$2.8M

| | Government Contribution | BC Hydro Contribution |
|------------------------------|--------------------------------|------------------------------|
| Marketing | \$2,000,000 | s.17 |
| Expanded Outreach activities | \$300,000 | |

Option 2 would increase reach, frequency and comprehension of the message thus ensuring a higher level of awareness and achievement of the programs targets.

CEV Incentives & Program Support

Clean Energy Vehicle Incentives

- To support EV incentive implementation in 2019, BC Hydro will work with the NCDA under a hybrid model to leverage existing benefits of the current arrangement with the NCDA.

CONFIDENTIAL

- BC Hydro will deliver, in partnership with the NCDA, information regarding EV purchase incentives so that customers continue to receive incentives at the point-of-sale while benefitting from a streamlined experience managed by BC Hydro.
- s.12; s.13

Clean Energy Rebate

- BC Hydro will implement an annual clean energy rebate of \$300 per car to offset the cost of charging an EV at home. Funding for this would come from LCFS credits and is contingent on approval from the Ministry.
- This would be a short-term measure to reduce the barrier of existing tiered rates until an EV charging rate can be implemented.

Affordability Incentive

- BC Hydro would administer the proposed affordability incentive, which would require customers to have their income verified before receiving a coupon code to provide to dealers.

Home and Workplace Charging

- Starting in September 2019, BC Hydro will be the delivery agent for home and workplace charging incentives with funding provided in part by the province.
 - BC Hydro may be able to provide some funding to supplement the provincial charging station rebate. We will continue to explore this possibility and work with the ministry to discuss implementation.
- Under this model, BC Hydro would provide customers with access to incentives at vehicle point-of-sale as well as through a single source of information.
 - BC Hydro will work with the NCDA to improve the dealer training program so that customers are provided with more comprehensive information.

Public Charging Station Infrastructure

- BC Hydro and the Ministry will continue to invest and work collaboratively to expand the existing DC fast charging network across B.C.

CEV Incentives & Programs Offer Summary

- The table below outlines BC Hydro's estimates for the funding required to implement various program elements and identifies those that could be administered by BC Hydro.

CONFIDENTIAL

| Program element | Funds | Source | Lead administrator |
|--|-------|---------------------------|-----------------------------|
| CEV incentives for new vehicles | s.17 | Province | New Car Dealers Association |
| Home & workplace charging infrastructure incentives Medium Duty/Heavy Duty vehicle incentives | | Province | BC Hydro |
| Annual clean energy charging rebate (\$300 per car) | | BC Hydro | BC Hydro |
| Affordability incentive for new vehicles | | Province | BC Hydro |
| General electric vehicle information and community outreach | | Province | BC Hydro |
| Public fast charging network | | Province, BC Hydro, NRCAN | MEMPR & BC Hydro |

MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES

BRIEFING NOTE FOR DECISION

PREPARED FOR: Honourable Michelle Mungall, Minister of Energy, Mines and Petroleum Resources

ISSUE: Zero Emission Vehicles Act Regulation Consultation Plan

BACKGROUND:

The Province passed the *Zero-Emission Vehicles Act* (ZEV Act) on May 30, 2019. The ZEV Act requires automakers to meet ZEV sales targets reaching 10% of new light-duty vehicle sales by 2025, 30% by 2030, and 100% by 2040. The legislation aims to ensure a greater availability of ZEVs at more affordable prices in British Columbia (BC), as well as provide a regulatory backstop to ensure the Province's greenhouse gas reduction targets are met.

While the ZEV Act provides the overarching framework for the ZEV requirements in the province, some of the more technical components are to be prescribed by regulation. The Ministry of Energy, Mines and Petroleum Resources (Ministry) plans to develop the ZEV Act regulations in fall/winter 2019, to be in force in 2020.

DISCUSSION:

As occurred with the development of the ZEV Act, the Province has indicated it would conduct targeted, technical consultations with key stakeholders to inform the policy and drafting of the ZEV regulation. It is proposed that these consultations take place from early-October to mid-November. Following implementation of the ZEV Act regulation, a ZEV Council will be established as a formal venue for regulated parties and stakeholders to both provide ongoing input into the Province's ZEV policies and programs, and collaborate on actions to increase ZEV uptake.

The regulatory approach, as outlined in the ZEV Act Regulation Intentions Paper (see Appendix A), has been designed to prescribe items from the ZEV Act that require implementing regulations. The regulatory approach aligns closely with that of Quebec and California to provide consistency across jurisdictions, but there are three main points of differentiation:

- 1) The legislated targets in Quebec and California only go to 2025, while BC's legislated targets go to 2040. ^{s.16}

s.16

s.16

For this reason, while the Quebec and California yearly ZEV credit requirements currently end in 2025, the Intentions Paper identifies yearly credit requirements and related credit-per-vehicle formulas out to 2040 to meet the targets in BC's ZEV Act.

- 2) The Quebec and California legislations do not allow for the purchase of ZEV credits from Government, while the ZEV Act in BC does allow for this compliance pathway, albeit in extenuating circumstances. As such, the Intentions Paper prescribes matters related to the purchase of credits from Government.
- 3) In Quebec, the credits earned through the sale of used ZEVs are less per vehicle than those earned through the sale of a new ZEV. In BC, to further encourage supply of more affordable used ZEVs, it is proposed that the ZEV regulation enables used ZEVs to receive ZEV credits under Initiative Agreements, and that used ZEVs receive the same number of credits as new ZEVs.

Purpose of the Consultation

The purpose of the consultation is to seek feedback on the general intent of the regulations as outlined in the ZEV Act Regulations Intentions Paper (see Appendix A), and to receive specific input on the following:

1. *Credit modelling/targets* – to seek input on realistic compliance pathways and yearly ZEV credit requirements to reach the sales targets;
2. *Initiative Agreements* – to seek input on the types of initiative agreements that stakeholders might consider of value, and on the criteria and limits set on initiative agreements; and
3. *Compliance reporting* – to seek input on the development of an online reporting tool, so that it can be efficient and effective for all parties involved.

Method, Timeline and Stakeholder Groups to be Consulted

The following methods, timeline, and stakeholders are proposed for the consultations:

- General public/all stakeholders – through govTogetherBC website, seek general input on the ZEV Act Regulations Intentions Paper;
- Technical stakeholders – through webinars and in-person sessions, seek input on specific topics from all technical stakeholders who were consulted during the development of the legislation (See Appendix B for detailed list):
 - All major vehicle manufacturers represented in Canada (the regulated parties), as well as the associations they belong to; and
 - Additional stakeholders who provided input during the CleanBC and ZEV Act consultations.
- Regulated parties – working with Government's Agile team, a user testing group will be formed from the regulated parties to inform the development of the online tool for compliance reporting.

| Summary of ZEV Act Regulation Consultation Plan | | | |
|---|---|----------------------------------|--|
| <i>When</i> | <i>Purpose</i> | <i>Who</i> | <i>How</i> |
| October to Early Nov | General Input on Intentions Paper | General public/ all stakeholders | Online – govTogetherBC |
| Mid-Oct to Early Nov | Technical input: – initiative agreements – credit modelling/targets | All technical stakeholders | In-person or Webinars: – by topic – with follow up written input |
| Fall/Winter 2019 | Technical input on online model year reporting tool | Regulated parties | User testing advisory group |

In addition to the formal consultations proposed above, staff plan to continue to be available for one-on-one direct input from stakeholders. Continued engagement with Quebec and California regarding lessons learned is also planned to occur as needed.

The proposed consultation plan and the planned timing of consultation sessions outlined above are intended to facilitate the ZEV Act regulations coming into force, as intended, in 2020 with the support of the public and technical stakeholders.

RECOMMENDATION:

Approve the consultation plan and the release of the Intentions Paper as set out above.

Approved / Not Approved



Michelle Mungall, Minister
Ministry of Energy, Mines and Petroleum Resources

October 17, 2019

Date

Appendices:

- A. ZEV Act Regulation Intentions Paper
- B. Technical Stakeholders to be Consulted

DRAFTED BY:

Mary Storzer
Senior Economist, CTB
250 356-5515

APPROVED BY:

Christina Ianniciello, Dir, CTB ✓
Dan Green, ED, AE ✓
Les MacLaren, ADM, EAED ✓
Dave Nikolejsin, DM ✓

Appendix A – ZEV Act Regulation Intentions Paper

ZEV Act Regulation Intentions Paper

1. Context

Government recently released its CleanBC plan as part of its commitment to stimulating sustainable growth and jobs using clean energy to power B.C.'s economy while driving down greenhouse gas (GHG) emissions. Transportation accounts for 39% of B.C.'s greenhouse gas emissions, or 25 million tonnes per year of carbon pollution. The CleanBC plan identified concrete actions to reduce GHG emissions across sectors, including a plan to introduce a zero-emission vehicles (ZEV) standard. Budget 2019 has further supported the implementation of CleanBC with increased financial support to complementary demand-side ZEV programs.

The Province fulfilled a CleanBC commitment when it passed the *Zero-Emission Vehicles Act* (ZEV Act) on May 30, 2019. The ZEV Act requires automakers to meet ZEV sales targets reaching 10% of light-duty vehicle sales by 2025, 30% by 2030, and 100% by 2040. The legislation is intended to ensure a greater availability of ZEVs at more affordable prices in B.C., as well as, provide a regulatory backstop to ensure the Province's GHG reduction targets are met. With the passage of the legislation, B.C. joined a growing number of jurisdictions with ZEV standards, including Quebec, California, and nine other U.S. states, and became the first jurisdiction in the world to legislate a 100% ZEV target.

2. Discussion

While the ZEV Act provides the overarching framework for the ZEV standard in the Province, some of the more technical components will be prescribed by regulation. This paper outlines the Province's intentions with respect to the ZEV Act regulations in order to seek input from the public and technical stakeholders.

2.1 Who is being regulated?

Vehicle manufacturers, or suppliers, are being regulated. Section 2 of the Act identifies that a person is a supplier of a vehicle make if that person supplies motor vehicles of the vehicle make for consumer sale or lease in B.C.

Government intends for the ZEV Act and regulations to ensure that compliance is required by suppliers representing 99% of the light-duty vehicle sales market, with 90% of the market having to also provide a certain percentage of battery electric vehicles (BEVs), hydrogen fuel cell vehicles (FCEVs), or extended-range electric vehicles (EREVs). To do this, the ZEV Act provides for the ability to establish different classes of suppliers.

It is proposed that the ZEV regulation:

- *Define the following classes of suppliers based on the average annual sales volumes of the 3 previous consecutive years (e.g. MY 2017-2019 for MY 2020):*
 - *Small – under 1,000 vehicles sold per year on average;*
 - *Medium – 1,000-7,999 vehicles sold per year on average; and*
 - *Large – 8,000+ vehicles sold per year on average.*
- *Identify that the ZEV Act does not apply to the “small” class of suppliers unless they opt-in.*

2.2 What kind of vehicles are being regulated?

Together, the ZEV Act and regulation will identify to which motor vehicles the ZEV requirements apply. In CleanBC, Government identified that the ZEV standard would be applied to the sale or lease of new light-duty vehicles with the possibility of placing ZEV requirements on additional vehicle classes in the future.

The ZEV Act identifies that the legislation only applies to light-duty motor vehicles. However, it leaves to regulation any additional definition of the vehicles to which the ZEV Act applies. One key issue to be set by regulation is the definition of light-duty. In Canada and the U.S. light-duty vehicles have a standard meaning - gross vehicle weight ratings (GVWR) equal to or below 3,856 kg. This is mirrored in California's ZEV mandate. Quebec's ZEV legislation includes medium-duty passenger vehicles by placing the weight limit at 4,500 kg.

Other vehicle classes are not being regulated at this time, however, the sale or lease of zero emissions medium and heavy-duty vehicles is proposed to be eligible for credits under initiative agreements

It is proposed that the ZEV regulation define the following vehicle class:

- *Light-duty motor vehicle – to mean vehicles and trucks up to and including GVWR 3,856kg*

In addition, it is proposed that the ZEV regulation ensures the ZEV Act:

- *Include neighbourhood zero emission vehicles; and*
- *Exclude motorcycles, golf carts, implements of agriculture, industrial utility vehicles, all-terrain vehicles, off-road side-by-side vehicles, and snowmobiles*

2.3 What is the compliance and reporting date?

Compliance under the ZEV Act will be assessed each year on the same date. Under Section 17 of the ZEV Act, a model year report is due within a prescribed number of days after the compliance date. California has a May 1st deadline for suppliers to submit their main report, and September 1st to submit any supplemental report. Quebec uses September 1st in the calendar year following the model year of a vehicle make for its compliance date and model year report due date.

It is proposed that the ZEV regulation:

- *Set the compliance date for September 30 in the calendar year following the model year of a vehicle make (e.g. the compliance date for model year 2020 vehicle sales would be September 30, 2021).*
- *Set that the model year reports are due within twenty days after the compliance date for a model year (e.g. the reporting date for model year 2020 vehicle sales would be October 20, 2021).*

2.4 How will model year be defined?

Compliance under the ZEV Act is based on model year. The federal *On-Road Vehicle and Engine Emission Regulation* provides a standard definition for model year in Canada. Section 1 of the ZEV Act provides for the definition of model year to be prescribed by regulation.

It is proposed that ZEV regulation:

- *Define model year as the year used by a motor vehicle supplier to designate a particular vehicle model irrespective of the year in which the vehicle was produced*

2.5 ZEV Types

The legislation is designed to ensure B.C. has the cleanest vehicle options so that the Province can meet both the CleanBC emissions and ZEV targets. The purpose of establishing ZEV types is to be able to assign different rules (e.g. regarding credits earned) to each type, as well as to be able to assign each type to a ZEV class. ZEV classes are used so that targets can be set for different ZEV classes.

Section 1 of the ZEV Act defines ZEVs as motor vehicles that are propelled by electricity or hydrogen from an external source and emits no GHGs at least some of the time. The regulation proposes to further categorize types of ZEVs.

It is proposed that the ZEV regulation define the following ZEV types:

| Type | Definition | Variation | Range | Applicable years |
|--|---|-----------|-------------------|------------------|
| Battery Electric Vehicle (BEV) | 1. ZEV that is propelled solely by an electric motor powered solely by a battery | Standard | 80.47km minimum | 2020-2040 |
| | | Short | Less than 80.47km | 2020-2040 |
| Hydrogen Fuel Cell Electric Vehicle (FCEV) | 1. ZEV that is propelled solely by an electric motor powered solely by a hydrogen fuel cell | Standard | 80.47km minimum | 2020-2040 |
| | | Short | Less than 80.47km | 2020-2040 |
| Extended range electric vehicle (EREV) | 1. Capable of plugging into an electricity source 2. Its drive wheels are always driven solely by electric motor(s), with the on-board internal combustion engine used solely as a generator to charge the batteries | Standard | 121km minimum | 2020-2025 |
| | | | 80.47km minimum | 2026-2040 |
| | | Medium | 16km to 121km | 2020-2025 |
| | | Short | Less than 16km | 2020-2025 |
| | | | Less than 80.47km | 2026-2040 |
| | | | | |
| Plug-in Hybrid Electric Vehicle (PHEV) | 1. Capable of plugging into an electricity source 2. Can be driven solely using electricity and can be propelled by an electric motor powered by a battery | Standard | 16km minimum | 2020-2025 |
| | | | 80.47km minimum | 2026-2040 |
| | | Short | Less than 16km | 2020-2025 |
| | | | Less than 80.47km | 2026-2040 |
| Hydrogen Internal | | Standard | 16km minimum | 2020-2025 |

| Type | Definition | Variation | Range | Applicable years |
|--|--|-----------|-------------------|------------------|
| Combustion Engine Vehicles (HICE) | 1. Propelled entirely by an internal combustion engine that burns hydrogen | | 80.47km minimum | 2026-2040 |
| | | Short | Less than 16km | 2020-2025 |
| | | | Less than 80.47km | 2026-2040 |
| Neighbourhood Zero Emission Vehicle (NZEV) | 1. As per the Motor Vehicle Act Regulations ¹ : a vehicle that travels on 4 wheels and is powered by an electric motor that is designed to allow the vehicle to attain a speed of 32km/hr but not more than 40 km/hr in a distance of 1.6 km on a paved level surface | n/a | n/a | 2020-2040 |

2.6 ZEV Classes

The purpose of establishing ZEV classes within the ZEV Act and the regulations is to be able to distinguish ZEV unit requirements for different ZEV classes.

It is proposed that the ZEV regulation:

- *Define the following ZEV classes:*
 - *“ZEV Class A” to consist of the following types of ZEVs:*
 - *BEV*
 - *FCEV*
 - *EREV*
 - *“ZEV Class B” to consist of the following types of ZEVs:*
 - *PHEV*
 - *HICE*
 - *EREV – medium*
 - *NZEV*
 - *“ZEV Class C”:*
 - *PHEV-short*
 - *EREV-short*
 - *BEV-short*
 - *HICE-short*
 - *FCEV-short*

2.7 Supply of ZEVs and compliance ratios

The ZEV Act establishes a ZEV unit system in which suppliers must earn positive ZEV units (credits) for a model year equal or greater than the ZEV units that will be deducted (as established by the formula in section 11) from their ZEV unit ‘account’ each year. To be in compliance, the balance of ZEV units in a regulated party’s ‘account’ at the end of every

¹ http://www.bclaws.ca/civix/document/id/complete/statreg/26_58_01#division_d2e855

compliance year must be zero or positive, although one grace year is allowed as long as the supplier can make up both ZEV units from the previous year and the current year. Large volume suppliers will also need to meet battery-electric or hydrogen fuel cell-electric or extended range electric vehicle credit levels (i.e. ZEV Class A credit requirements) as part of meeting their ZEV compliance targets. The two requirements are needed because the ZEV Act sets the framework to require certain classes of suppliers to have to accumulate certain types of ZEV units, all set by regulation.

It is proposed that the ZEV regulation:

- *Set that the certain class of supplier that has to meet the minimum ZEV Class A % requirement as the large supplier; and*
- *Set the compliance ratios as follows (Note: In 2026, the formula for credit values-per-ZEV switches from the credit formulas established in California and Quebec for pre-2025 sales (where some ZEVs can earn up to 4 credits) to a one-credit-per-vehicle formula. This results in a reduced credit requirement from 2025 to 2026, but in practice the result will be a slightly higher vehicle requirement. This switch is made to start to better align the credit requirements with legislated vehicle targets.):*

| Model Year | Total ZEV % Requirement | Minimum ZEV Class A % Requirement of total |
|------------|-------------------------|--|
| 2020 | 9.5% | 6% |
| 2021 | 12.0% | 8% |
| 2022 | 14.5% | 10% |
| 2023 | 17.0% | 12% |
| 2024 | 19.5% | 14% |
| 2025 | 22.0% | 16% |
| 2026 | 14% | 10% |
| 2027 | 18% | 13% |
| 2028 | 22% | 16% |
| 2029 | 26% | 19% |
| 2030 | 30% | 21% |
| 2031 | 37% | 26% |
| 2032 | 44% | 31% |
| 2033 | 51% | 36% |
| 2034 | 58% | 41% |
| 2035 | 65% | 46% |
| 2036 | 72% | 51% |
| 2037 | 73% | 56% |
| 2038 | 86% | 61% |
| 2039 | 93% | 66% |
| 2040 | 100% | 70% |

2.8 ZEV Credits – consumer sales

Consumer sales of ZEVs is one of the ways the ZEV Act enables suppliers to accumulate ZEV credits towards their compliance targets. The ZEV Act provides authority for regulations to be made regarding the accumulation of credits from consumer sales. The legislation allows for regulations to specify how many ZEV credits will be received for each ZEV consumer sale.

Both California and Quebec use a standard equation for calculating ZEV credits. Their ZEV targets however only go to 2025.

It is proposed that the ZEV regulation:

- *For model years 2020-2025, set the equation to determine ZEV credits per sale as follows:*
 - *For BEV, FCEV and EREV:*
 - *Each consumer sale is equal to $(R \times 0.006214) + 0.50$ of ZEV Class A credits*
 - *ZEV Class A credits earned per ZEV is capped at 4 ZEV credits*
 - *For PHEV, HICE, EREV-medium:*
 - *each consumer sale equal to $(R \times 0.006214) + 0.30$ of ZEV Class B credits*
 - *ZEV credits earned per ZEV is capped at 1.1 ZEV credits*
 - *Where R = the electric range determined by the US Environmental Protection Agency Light-duty Urban Dynamometer Driving Schedule (UDDS) method provided for in U.S. 40 CFR Appendix I to Part 86²*
- *For the 2026-2040 timeframe, set the following rules:*
 - *For BEV, FCEV, EREV with a minimum range of 80.47km, each consumer sale is equal to one ZEV Class A credit*
 - *For PHEV, HICE with a minimum range of 80.47km, each consumer sale is equal to one ZEV Class B credit*
- *Identify that each consumer sale of an NZEV is equal to 0.15 ZEV Class B credits*
- *Identify that where the result of a calculation above contains more than 2 decimals, it is rounded to the nearest second decimal*

2.9 Credits from Initiative Agreements

Initiative agreements are another compliance pathway where the ZEV Act enables suppliers to accumulate ZEV credits towards their targets. The ZEV Act gives the director, with the approval of the Minister, authority to enter into an agreement to issue credits for actions taken by suppliers to reduce GHG emissions from motor vehicles and increase consumer sales or use of ZEVs in B.C.

It is proposed that the ZEV regulations:

- *Specify that the director may only enter into initiative agreements to issue credits for the following actions:*
 - *Sale or lease of the following types of used ZEVs being sold or leased in B.C. for the first time (i.e. new to B.C.)*
 - *BEV*
 - *FCEV*
 - *EREV*
 - *EREV-medium*
 - *PHEV*
 - *Sale of medium-duty passenger ZEVs or heavy-duty ZEVs, to be defined in the regulations for the purposes of initiative agreements as:*

² <https://www.govinfo.gov/app/details/CFR-2016-title40-vol21/CFR-2016-title40-vol21-part86-appl>

- *Medium-duty passenger vehicle – to mean greater than GVWR 3,856kg but less than 4,536kg, and designed to transport people and not equipped with open cargo;*
- *Heavy-duty vehicle - Class 2B – to mean a class of heavy-duty vehicles that has a GVWR of more than 3,856 kg but not more than 4,536 kg;*
- *Heavy-duty vehicle - Class 3 – to mean a class heavy-duty vehicle that has a GVWR of more than 4,536 kg but not more than 6,350 kg;*
- *Heavy-duty vehicle - Class 4 – to mean a class of heavy-duty vehicle that has a GVWR of more than 6,350 kg but not more than 7,257 kg;*
- *Heavy-duty vehicle - Class 5– to mean a class of heavy-duty vehicle that has a GVWR of more than 7,257 kg but not more than 8,845 kg;*
- *Heavy-duty vehicle - Class 6– to mean a class of heavy-duty vehicle that has a GVWR of more than 8,845 kg but not more than 11,793 kg;*
- *Heavy-duty vehicle - Class 7– to mean a class of heavy-duty vehicle that has a GVWR of more than 11,793 kg but not more than 14,969 kg; and*
- *Heavy-duty vehicle - Class 8– to mean a class of heavy-duty vehicle that has a GVWR of more than 14,969 kg.*
- *Identify that the cap on initiative agreement credits that can be earned in a compliance period is 5% of the manufacturer’s total ZEV units requirement for the previous model year for each manufacturer*

2.9 Credit from purchase agreements

The ZEV Act provides authority for the creation of regulations respecting purchase agreements.

It is proposed that the ZEV regulation:

- *Specify that the director must consider whether the supplier has no other options for ensuring that their balance at the end of a compliance date does not contain less than zero ZEV units.*
- *Set the purchase agreement price per ZEV unit to the automatic administrative penalty rate + \$500 CAD*

2.9 Credit from transfers

The ZEV Act provides authority for the creation of regulations respecting transfer of credits between suppliers. Given the authority already provided in the Act, no regulation is contemplated at this time.

2.10 Credit from early issuance from consumer sales

The ZEV Act provides authority for regulations to be made to prescribe how and when an application for issuance of ZEV credits for consumer sales can be made (i.e. early issuance)

It is proposed that the ZEV regulation:

- *Specify that an application for early issuance of credits in relation to consumer sales can only occur between December 1 and July 31, and only for the period from (and including) January 2 of the calendar year preceding the calendar year of the model year until July 31 of the calendar year after the calendar year of the model year (e.g. for a MY 2021, from January 2 of 2020 until July 31, 2022)*

2.10 Monitoring compliance – model year and supplementary reporting

The ZEV Act provides authority for the creation of regulations respecting the timing, form, content and manner of submission of model year and supplementary reports.

It is proposed that the ZEV regulation:

- *Set 20 calendar days after the compliance date (i.e. October 20) as the number of days after the compliance date for a model year that the model year report must be submitted; and*
- *Identify that a supplementary report should be provided as an updated model year report and in the form and manner that the director has identified for the model year report.*

2.11 Non-compliance – Automatic and discretionary administrative penalties

The ZEV Act provides authority for the creation of regulations respecting discretionary administrative penalties.

It is proposed that the ZEV regulation:

- *Set the automatic administrative penalty rate at \$5,000 CAD per ZEV unit for all model years, the light-duty vehicle class and all ZEV classes; and*
- *Identify discretionary administrative penalties will apply if a supplier fails to: provide a model year or supplementary report; provide written notice as required; retain records as required; provide complete and accurate reports; provide additional information; and/or pay an administrative penalty when it is due.*

3. Providing Input

The Ministry of Energy, Mines and Petroleum Resources requests your written input on the ZEV Regulations Intentions Paper by no later than November 10, 2019 to CEVENquiries@gov.bc.ca.

Appendix B – Technical stakeholder groups to be consulted

1. All major Canadian vehicle manufacturers and the associations they belong to:

- Global Automakers of Canada
 - BMW
 - Honda
 - Hyundai
 - Jaguar/Land Rover
 - Kia
 - Maserati
 - Mazda
 - Mercedes-Benz
 - Mitsubishi Motors
 - Nissan
 - Porsche
 - Subaru
 - Toyota
 - Volkswagen
 - Volvo
 - Ferrari
 - Isuzu
 - McLaren
- Canadian Vehicle Manufacturers Association
 - Fiat Chrysler Automobiles (FCA) of Canada
 - General Motors of Canada Company
 - Ford Motor Company of Canada
- Tesla
- BYD Heavy Industries Inc.

2. Stakeholders who provided input during the CleanBC consultations and the ZEV Standard legislation development:

- BC Sustainable Energy Association
- Canadian Hydrogen and Fuel Cell Association
- Electric Mobility Canada
- Clean Energy Canada
- Pembina Institute
- David Suzuki Foundation
- Local Government EV Peer Network
- New Car Dealers Association of BC
- Vancouver Electric Vehicle Association
- Victoria Electric Vehicle Club
- Plug-in Richmond
- Sierra Club of Canada
- International Council on Clean Transportation

MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES

BRIEFING NOTE FOR DECISION

PREPARED FOR: Honourable Bruce Ralston, Minister of Energy, Mines and Petroleum Resources

ISSUE: Zero-Emission Vehicles Act Regulation – Consultation Summary and Recommendations

BACKGROUND:

The Province passed the *Zero-Emission Vehicles (ZEV) Act* on May 30, 2019. While the *ZEV Act* provides the overarching framework for the ZEV requirements in the province, some of the more technical components are to be prescribed by regulation. The Ministry of Energy, Mines and Petroleum Resources (Ministry) is currently developing the ZEV Act Regulation which is anticipated to be in force in spring of 2020.

As part of the development of the ZEV Act Regulation, the Ministry has been engaging with technical stakeholders, including industry, local governments and environmental non-governmental organizations (ENGOS) since October 2019. A ZEV Act Regulation Intentions Paper (Intentions Paper - Appendix A), outlining major components of the proposed ZEV Act Regulation and inviting written feedback from technical stakeholders was posted on October 23, 2019 on the Ministry's website. In addition, a series of webinars were held to answer questions about the policy proposals outlined in the Intentions Paper. These included a November 5th overview webinar for all stakeholders, a November 19th manufacturer's session to discuss credit modelling/targets, and a November 26th credit modelling/targets webinar for all stakeholders.

DISCUSSION:

Analysis of Stakeholder Input

In response to the Intentions Paper, the Ministry received 40 individual submissions, including 12 from regulated parties and their associations, and over 150 emails (with almost identical content) from elected local government officials and members of the public as part of a coordinated campaign. Appendix B provides a summary of input received and the Ministry's comment on that input.

In general, the automotive industry is looking for more flexibility and a decrease to the regulation's ambitions. For example, industry suggested softening the ZEV requirements by not setting compliance targets until 2021/2022, delaying setting compliance targets for 2026 and beyond, and/or starting compliance targets much lower for 2020 and ramping up to 2025.

In contrast, local governments, members of the public and the ENGOS, in general, were looking for an increase to the regulation's ambitions by: increasing compliance/annual sales targets;

increasing the proportion of Class A ZEV credits required; increasing the weight threshold for the light-duty vehicle definition to regulate more vehicles; limiting the use of and phasing out purchase agreements; setting limits on banked credits; and, pursuing a ZEV mandate now for medium and heavy-duty vehicles.

There were three points of consensus across the stakeholders:

1. Commit to a formal, regular review process of the ZEV Act Regulation, to take into account market changes and adjust policy and programs as necessary.
2. Establish a dedicated fund for fees or penalties collected under the *ZEV Act* to flow back into ZEV programming.
3. Keep a consistent per-vehicle-credit formula throughout the regulated time period, i.e. 2020-2040, rather than establishing a different formula now for 2026.

Ministry Policy Recommendations

Appendix B includes a table that summarizes the feedback received on the Intentions Paper and provides the Ministry's corresponding analysis. The Ministry supports a number of the stakeholder suggestions, and proposes leaving some suggestions to address within future review processes. The following outlines the Ministry's recommendations with respect to the main issues raised by stakeholders.

Recommendation #1: Commit to a formal, regular, review process of the ZEV Act Regulation, led by the Ministry.

There was consensus across stakeholder groups for including a formal review process to assess progress on the regulations (with industry wanting this written into the regulation). The market is rapidly changing and as a result it may be necessary to adjust the regulation to match the ZEV sales and greenhouse gas (GHG) outcomes committed to by Government. s.16

s.16

s.13

s.16 The Ministry proposes to establish a ZEV Advisory Council comprised of industry, ENGOs, local governments, First Nations, infrastructure providers, and academics. The Council would meet annually to review the latest market updates and ZEV metrics in the province, and provide input into the Ministry's ZEV programming and policies including the ZEV Regulation. The Ministry's regular review process could be informed by both this Council's input and updated third party market assessments and forecasts. The first review process could occur in 2022 for the Model Year 2026-2030 compliance requirements. Subsequent reviews could occur every three-to-five years, depending on the market evolution.

Recommendation #2: Government directs the Ministry to explore establishing a dedicated fund for the ZEV Act.

Another area of consensus was that Government establish a dedicated fund where revenue generated under the regulations could be re-committed to support the goals and objectives of the *ZEV Act*. Under the *ZEV Act*, revenues from penalties or automaker purchases of credits from Government would currently go into general revenue, so this would require a legislative amendment. One option might be to establish a dedicated fund for the purchase of credits, but still allow any penalty revenues to flow back to general revenue. s.13

s.13

Recommendation #3: Maintain the same credit-per-vehicle formula used in 2020-2025 through to 2040, rather than moving to 1 credit-per-vehicle in the 2026-2040 period.

The Intentions Paper proposed using the California and Quebec credit formulas to 2025 where credits are based on the range and type of ZEV:

- For hydrogen fuel cell electric vehicles, battery electric vehicles and extended-range electric vehicles, each sale = $(\text{Range} \times 0.006214) + 0.5$ Class A credit, where the maximum credits one Class A vehicle could get would be 4; and
- For plug-in hybrid electric vehicles and shorter range extended-range electric vehicles, each sale = $(\text{Range} \times 0.006214) + 0.3$ Class B credit, where the maximum credits one Class B vehicle could get would be 1.1; and
- then switching to 1 ZEV sale = 1 credit from 2026 to 2040; irrespective of the range or type of ZEV.

This switch was proposed in order to simplify the compliance system by making the credit requirements align with legislated vehicle targets. It is also based on the assumption that the broader ZEV market will have evolved sufficiently to longer-range ZEVs, that there will no longer be a need for the regulation to encourage supply of the longest-range ZEVs.

Stakeholders were not supportive of a credit formula switch in 2026. In general, industry favoured delaying the determination of targets for the post-2025 period, but if post-2025 targets were set, that the credit-per-vehicle formula not be adjusted at this time. They wanted the credit formula to favour longer range, cleaner vehicles.

Local governments and ENGOs were concerned that the proposed switch post-2025 created many banked credits that would weaken the supply of ZEVs to B.C. To address this concern, their requests ranged from maintaining the 2020-2025 formula through to 2040, having a 1-credit-per-vehicle formula starting from 2020 through to 2040, or devaluing/expiring credits.

s.13

s.13

Regardless of the credit system used, the overall outcome being

pursued is the same, i.e., an increasing percent ZEV sales requirement to ensure that the ZEV sales targets and GHG commitments in CleanBC and the *ZEV Act* are met.

Recommendation #4: Use the ZEV range as determined by the 5-cycle test data, for the range used in the credit-per-vehicle formula.

The range used in the credit-per-vehicle formulas in California and Quebec (and proposed in the Intentions Paper) is the one determined by the “Urban-Dynamometer-Drive-Schedule” (UDDS), a city driving simulation that results in higher ranges than real-world driving. The US-EPA 5-cycle test gives a range that is more reflective of city and highway driving and acceleration, and is the range used for consumer information on ZEVs.

Automakers want to use the UDDS range to calculate credits-per-vehicle. Because it is a higher range, it gives them more credits per vehicle. Local governments and one ENGO requested using the 5-cycle test range because it is more reflective of real-world driving ranges.

s.13

Recommendation #5: Align compliance requirements with the sales targets in the ZEV Act, i.e. do not make targets lower or higher than original CleanBC commitment.

The Intentions Paper proposed compliance requirements aligned with California and Quebec to 2025, and then aligning with the CleanBC targets from 2025-2040 (i.e. to meet 10% ZEV sales by 2025, 30% by 2030, and 100% by 2040). Automakers^{s.21} requested targets, beginning with model year 2022, and ending in model year 2025. Local governments and some ENGOs requested higher targets, starting at 10% sales in 2020 (five years ahead of the 2025 target), to better align with the current ZEV sales rates in B.C.

The original CleanBC targets were set in 2018, when B.C.’s ZEV sales rate was at approximately 4% of new light-duty vehicle sales. Since then the market has evolved rapidly and B.C.’s ZEV sales rate was 8.6% of new light-duty vehicle sales in 2019, the highest ZEV sales rate in North America. Approximately half of the regulated parties, representing approximately 40% of the light-duty vehicle sales in B.C., had ZEV sales rates of 5% or more in 2019 (see Appendix C), one year ahead of the equivalent 2020 compliance requirement proposed in the Intentions Paper.

s.13

British Columbia is currently the only jurisdiction in the world with a legislated 100% ZEV sales target. The United Kingdom is consulting stakeholders on a 100% ZEV target by 2032. Under the UK proposal, plug-in hybrid electric vehicles would be ineligible as ZEVs. ^{s.16}

s.16

The Ministry's compliance modelling using conservative ZEV forecasts (see Appendix D) indicates that the industry is more than capable of complying with the proposed regulations, including the adjustments recommended in this note (i.e. credit formula, 5-cycle test range, medium/large threshold, etc.). If, in the proposed 2022 review, ZEV sales forecasts are updated to be higher than the Ministry's conservative forecast, then a scenario of higher targets might be possible.

s.13

Recommendation #6: Maintain Intentions Paper proposal to limit Initiative Agreements to 5% of a supplier's annual required ZEV credits.

The Intentions Paper proposed to limit Initiative Agreements to 5% of a supplier's annual ZEV credits required and to only two actions: the sale of used ZEVs new to B.C.; and the sale of medium/heavy-duty ZEVs not captured under the ZEV Regulation.

Automakers asked to increase the limits to 25%, and for increased flexibility to bring forward proposals for other actions. Some ENGOs supported increased flexibility in the actions. Local governments, and some ENGOs either supported the limits or requested stronger limits (e.g. regulating medium/heavy-duty vehicles rather than letting them earn credits, and only allowing initiative agreements in the first five years).

s.13

Recommendation #7: Change Manufacturer Volume Thresholds Defining Medium and Large from 8,000 to 5,000 average B.C. LDV sales.

Section 2.1 (Who is Being Regulated) of the Intentions Paper identified that the *ZEV Act* and Regulation would ensure that compliance is required by manufacturers representing 99% of the light-duty vehicle sales market, with 90% of the market having to also provide a certain percentage of Class A vehicles (i.e. battery electric vehicles (BEVs), hydrogen fuel cell vehicles (FCEVs) or extended-range electric vehicles (EREVs). To do this, the paper proposed defining the classes of suppliers based on the average annual sales volumes of the three previous consecutive years (e.g. model year (MY) 2017-2019 for MY 2020):

- Small – under 1,000 vehicles sold per year on average
- Medium – 1,000-7,999 vehicles sold per year on average
- Large – 8,000+ vehicles sold per year on average

All ENGOs and half of all industry stakeholders (s.21
s.21

advocated for a reduction in volume thresholds. s.21
s.21

s.21 . Many local governments and the emails received through
a coordinated email campaign expressed an interest in having higher Class A compliance ratios
to achieve 100% Class A by 2040.

s.13

Recommendation #8: Include 0.2 additional credit provision for Class B ZEVs that meet the US06 test.

Section 2.8 (ZEV Credit from consumer sales) of the Intentions Paper sets the rules for credit formulas for each Class of ZEVs. The California and Quebec ZEV regulations allow for plug-in hybrid electric vehicles to get an additional 0.2 credits if they meet a minimum all-electric range for the US06 test (testing electric power at high speed and acceleration) – it is a measure of how “clean” the vehicles operate. The Intentions Paper did not originally propose including this credit adder. Industry recommended including this provision in the credit formulas.

s.13

Recommendation #9: Remove Hydrogen Internal Combustion Engine (HICE) Vehicles and Neighbourhood Zero Emission Vehicles (NZEVs) from ZEV credit eligibility.

Section 2.5 (ZEV Types) of the Intentions Paper defines HICE vehicles and NZEVs as types of ZEVs. Several ENGOs (David Suzuki Foundation, Pembina, Sustainable Transportation Action Research Team, and the Victoria Electric Vehicle Club) all expressed an interest in excluding HICE vehicles since they are not associated with any GHG benefits and emit nitrous oxide. Only one industry stakeholder^{s.21} expressed interest in having HICE light-duty vehicles included.

Several ENGOs (David Suzuki Foundation, Pembina, Sustainable Transportation Action Research Team, and Clean Energy Canada) also expressed an interest in excluding NZEVs from the regulation (or phasing them out in 2026). They argued that since they are not a viable alternative to regular light-duty vehicles, if they earn credits, they are decreasing the number of viable ZEVs required to be supplied. Surrey also expressed interest in establishing limits on NZEV credits for medium and large suppliers.

s.13

Recommendation #10: Identify that the application for early issuance of credits in relation to consumer sales starting from January 2, 2018 (i.e. Model Year 2019 or later vehicles) can occur at any time.

Section 2.12 (Early issuance for ZEV credits from consumer sales) of the Intentions Paper proposed that an application for early issuance of credits in relation to consumer sales could only occur between December 1st and July 31st, and only for sales occurring in the period from (and including) January 2nd of the calendar year preceding the calendar year of the model year until July 31st of the calendar year after the calendar year of the model year (e.g. for model year 2021, for sales from January 2, 2020 until July 31, 2022).

Industry stakeholders expressed interest in being able to apply for credits at any time of the year and in having the credits be confirmed automatically/in real time. In addition, the^{s.21} specifically identified an interest in being able to have any vehicles sold after the compliance date of the model year remain eligible to earn credits, since some vehicles may take longer than forecast to be sold to a consumer.

Recommendation #11: Do not pursue the other miscellaneous added stringency requested by local governments.

Many local governments and the public letter-writing campaign requested various other measures to increase the stringency of the ZEV Regulation, including the following:

- Increase the minimum range of eligible ZEVs as proposed, to reflect the higher ranges of ZEVs being sold today.
- Increase the vehicle weight limit for light-duty vehicles to match Quebec's 4,500 kg as opposed to 3,856 kg, to capture more of the truck market.
- Exclude plug-in hybrid or extended range electric vehicles from getting credits to focus the requirements on true ZEVs.

Automakers are opposed to the requests. The minimum ranges align with California and Quebec, and ensure that all the ZEVs available on the market come to B.C. The 3,856 kg weight limit for light-duty vehicles does capture SUVs and some trucks (e.g. the Ford F150). The *ZEV Act* enables Government to set targets for other vehicle weight classes in the future. In many rural regions, PHEVs remain the most viable ZEV option on the market today.

COVID-19 Assessment

The Ministry has heard from industry market analysts ^{s.21} that the auto industry has experienced a slowdown across the entire supply chain due to the pandemic. ZEV production is no more or less impacted than ICE production in the short term. Because the ZEV Regulation targets are on a percentage basis, this should not impact the industry's ability to comply in the near term.

The Ministry has also learned from industry analysts that, with the exception of regions with ZEV mandates or stringent vehicle emissions standards (e.g. Quebec, California, and Europe), automakers will likely try to jumpstart the auto economy through increased sales of ICE vehicles (on which profits per vehicle are greater) in the post-COVID-19 recovery. In addition, depending on the duration of the COVID-19 economic impacts, some automakers might delay

investment in development of new ZEV models, delaying their release to market. This underscores the importance of bringing into force as soon as possible B.C.'s *ZEV Act* and Regulation in order to continue to meet the growing demand of B.C. consumers for ZEVs and ensure legislated GHG reduction and CleanBC targets are met.

The *ZEV Act* and Regulation will create economic benefit and stimulus for B.C.'s ZEV-sector (e.g. the hydrogen fuel cell sector, medium/heavy-duty battery ZEV manufacturing). It also supports Government's recently released BC Economic Framework 2019-2020 which identifies the importance of supporting quality economic growth that fits within the CleanBC climate plan, legislated GHG emission targets, and allows all B.C. families to experience a rising standard of living over time. Given the importance of the ZEV Regulation in supporting the Province's economic and environmental goals, it is desirable to proceed with the Regulation at this time. Recognizing the challenges faced by industry, an increase of government support to the ZEV industry is being explored (e.g., increased investments in charging/hydrogen fuelling infrastructure). This is aligned with economic stimulus recommendations from

s.21

Proposed Meeting with Technical Stakeholders to Update on ZEV Regulation

The Ministry is proposing a meeting with all technical stakeholders who responded to the formal consultation in order to provide an overview of any approved revisions to the policy within the Intentions Paper. In addition, the Ministry wishes to consult stakeholders on very specific components of the draft regulation wording to ensure the regulations achieve the intent of Government's policy.

OPTIONS:

Option 1: Adopt recommendations #1-11, and for changes to the *ZEV Act* Regulation policy outlined above, inform the stakeholders of revisions. (Recommended)

Considerations:

- Responds to and strikes balance in addressing (often contradictory) stakeholder concerns, using the current market information.
- Adds some stringency to the regulations while still being possible for industry to comply.
- Considers COVID-19 situation, including requests from ENGOs and the ZEV industry to continue with the ZEV Regulation as proposed this spring.
- Supports economic stimulus in B.C. in the ZEV sector.
- Includes a review process to allow an opportunity to consider stakeholder input as the market evolves.

RECOMMENDATION:

Option 1: Adopt recommendations #1-11, and for changes to the *ZEV Act* Regulation policy outlined above, inform the stakeholders of revisions.

Approved / Not Approved



Honourable Bruce Ralston, Minister
Energy, Mines and Petroleum Resources

June 15, 2020

Date

Reference Document Attachments:

- Appendix A: Intentions Paper
- Appendix B: Stakeholder Input on Intentions Paper
- Appendix C: Automaker % ZEV Sales in 2018 and 2019
- Appendix D: Forecast ability of industry to comply
- Appendix E: Updated Credit Requirements
- Appendix F: Online Reporting Tool Status

DRAFTED BY:

Mary Storzer
250-356-5515

APPROVED BY:

Christina Ianniciello, Director ✓
Dan Green, ED, AEB ✓
Les MacLaren, ADM, EAED ✓
Dave Nikolejsin, DM ✓

Appendix A: Intentions Paper

See *ZEV Act* Regulations Intentions Paper-1-final - updated 29Oct2019 attached.

Appendix B: Stakeholder Input on ZEV Act Regulation Intentions Paper

| Regulated Parties & their Associations | Local Government | Other |
|--|---------------------------------|---|
| Tesla | Metro Vancouver | New Car Dealers Association |
| Toyota | Vancouver (City) | Clean Energy Canada (CEC) |
| General Motors (GM) | Langley | David Suzuki Foundation & Pembina & START |
| Honda | Capital Regional District | BC Sustainable Energy Association |
| Mazda | North Vancouver (City) | Victoria Electric Vehicle Club |
| Subaru | Surrey | HTEC |
| Nissan | Saanich | Plug-in Richmond |
| BMW | Kelowna | Electric Mobility Canada |
| Jaguar Land Rover | Port Moody | ChargePoint |
| Mitsubishi | Abbotsford | Natural Resources Canada |
| Global Automakers of Canada (GAC) [represents 15 automakers] | North Vancouver (District) | Hydra Energy |
| Canadian Vehicle Manufacturers Association (CVMA) [represents GM, Fiat Chrysler, Ford] | Fraser Valley Regional District | Zen Energy |
| | City of New Westminster | |
| | Richmond | |
| | Victoria | |
| | West Vancouver | |
| And approximately 150 miscellaneous emails from members of the public | | |

Page 49 of 62

Withheld pursuant to/removed as

s.13; s.21

Page 50 of 62

Withheld pursuant to/removed as

s.21; s.13

Page 51 of 62 to/à Page 54 of 62

Withheld pursuant to/removed as

s.13; s.21

Page 55 of 62

Withheld pursuant to/removed as

s.21; s.13

s.21

Appendix D: Forecast ability of industry to comply

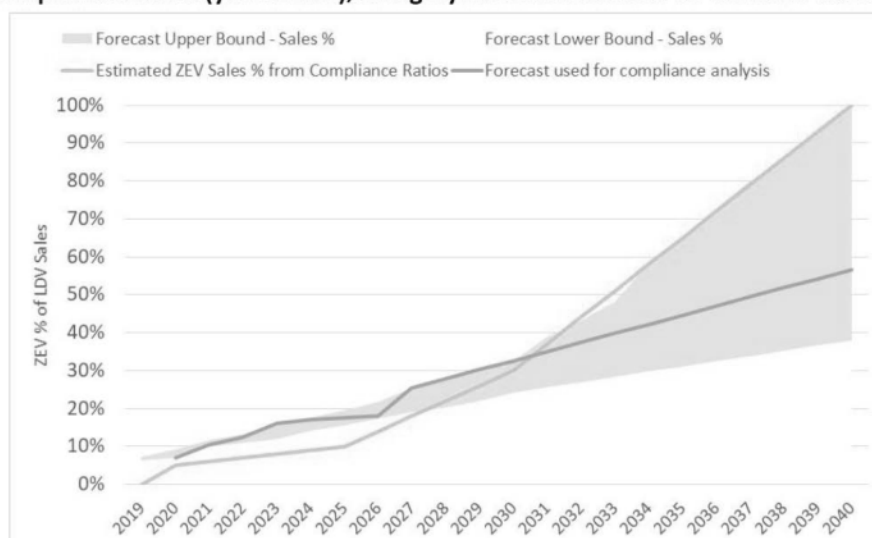
The ability of the industry to comply with the ZEV Regulation is based on the annual credit bank – i.e. the total credits across all regulated parties after subtracting the compliance requirements for any given year. The assessment assumes that the credit market is working – i.e. regulated parties are trading credits such that automakers without ZEVs to sell can purchase compliance credits from automakers who have a surplus of credits. The *ZEV Act* does provide Government with the authority to establish regulations to ensure a functioning credit trading market should that not arise naturally, such as limiting the time period over which credits are able to be applied to compliance requirements, or devaluing older model year credits.

The credit bank is calculated by the Ministry using third party forecasts of ZEV sales, translating that to credits using the per-vehicle-credit formula proposed for the ZEV Regulation and the forecast mix of Class A and Class B vehicles along with the forecast ranges, and then subtracting the credit compliance requirements from the credits arising from sales.

In the forecasts chart below, the shaded blue area is the range of forecasts the Ministry has. The yellow line is the estimated ZEV sales % relative to the proposed compliance targets. The proposed targets are lower than all forecasts up until approximately 2027 (i.e. all forecasts indicate industry over-compliance as a whole), while the proposed targets reach the upper bound of any forecasts as of 2030 (i.e. industry as a whole has ten years to adjust to the higher targets). The light grey line forecast is the one the Ministry has been using to assess the ability of the market to comply with the compliance ratio targets.^{s.21}

s.21

Forecasts (shaded blue area), relative to estimated ZEV sales % from proposed Compliance Ratios (yellow line), and grey line forecast used for scenario assessment

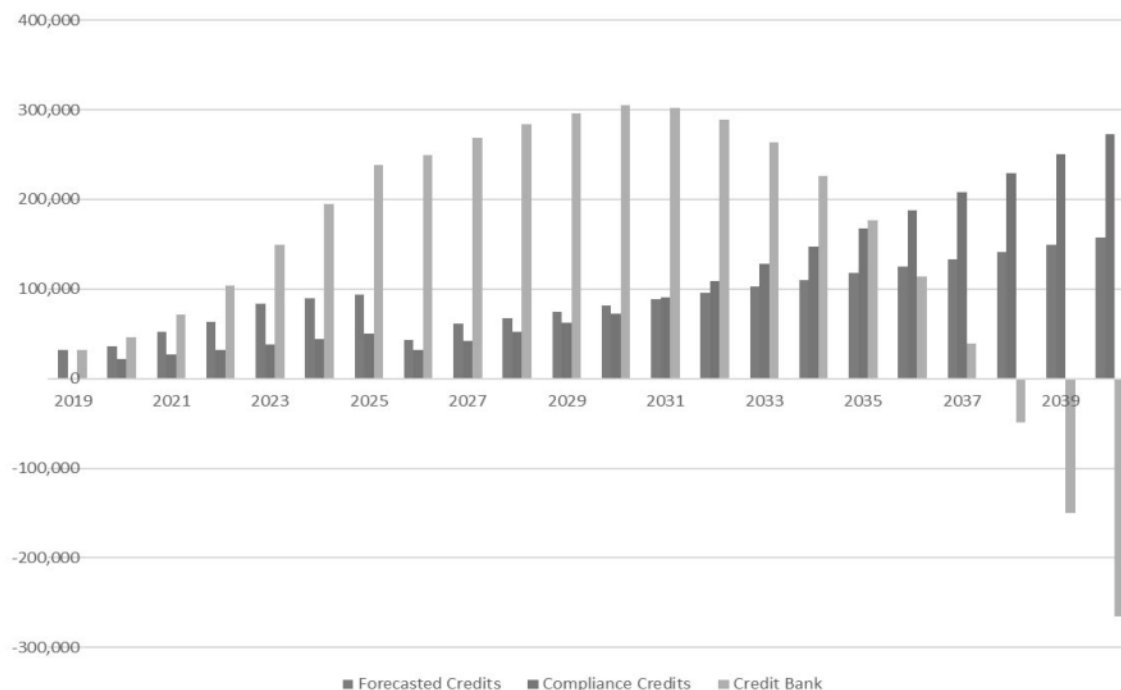


Using these forecasts, credit banks were calculated for different annual compliance ratio requirements (i.e. credit requirements).

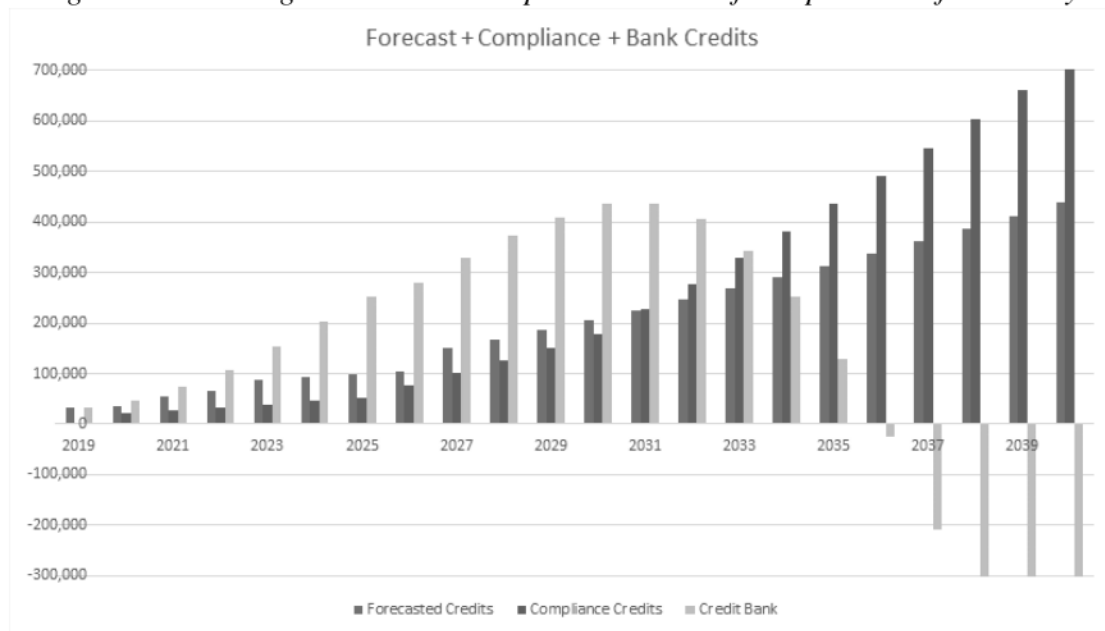
In the following series of charts, the grey line forecast was applied to measure compliance across the different scenarios. The more conservative grey line was chosen because of the current uncertainty of the technology status of ZEVs for SUV and pick-up truck vehicle types. If there is a significant technical advancement in those vehicle types in the next 5 – 10 years, a forecast closer to the yellow line might be more appropriate (and a related increase in the annual compliance requirements).

Green bars represent industry's total credit bank year-over-year, after adding credits, subtracting the annual compliance requirement, and carrying over any credit balance from the previous year. The red bars represent the annual compliance requirements, and the blue bars represent the annual estimated credits generated based on the grey line forecast above.

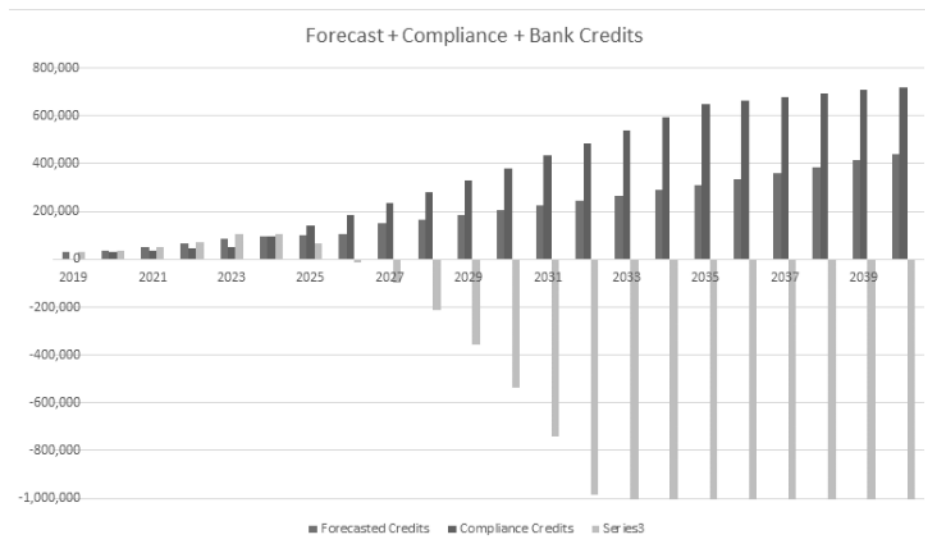
Scenario 1: Credit Bank using Intentions Paper credit formulas and proposed compliance ratios Demonstrates high ability to comply, out-of-compliance only forecast in 2038, considered far enough away to allow industry to adapt.



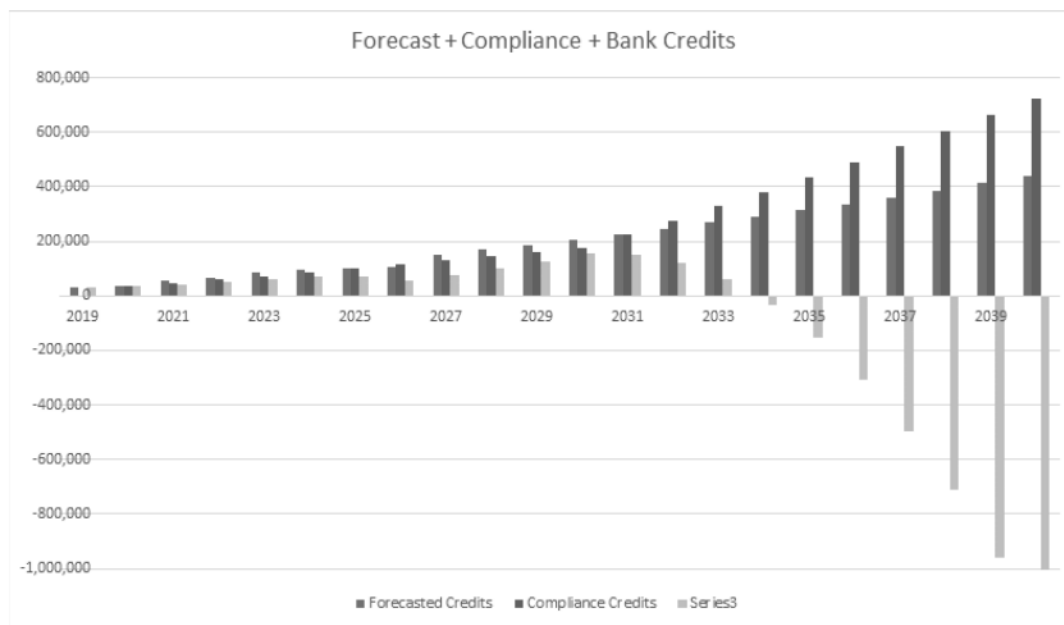
Scenario 2: Credit Bank using updated proposed credit formulas and compliance ratios. Demonstrates similar compliance ability, higher credit banks in 2026 – 2030, but slightly more stringent than the original Intentions Paper in that out-of-compliance is forecast by 2036.



Scenario 3: Credit Bank using more stringent requirements requested by public and local governments. Example has ZEV sales start at 7% sales in 2020 (up from 5%), and reaches 10% in 2023 and 100% in 2035. Industry forecast to be out of compliance by 2026. If in the proposed 2022 review, ZEV sales forecasts are updated to be higher than the Ministry’s conservative “grey line forecast”, then this scenario of higher targets might be possible.



Scenario 4: Credit Bank using more stringent requirements requested by public and local governments. Example has ZEV sales start at 7% sales in 2020 (up from 5%), but still reaches 100% in 2040. Still manageable by industry, with lower credit banks overall, approximately half of those in Scenarios 1 and 2, translating to lower ability to manage risk. Industry forecast to be out of compliance by 2034. If in the proposed 2022 review, ZEV sales forecasts are updated to be higher than the Ministry’s conservative “grey line forecast”, then this scenario of higher targets might be possible.



Appendix E: Updated Credit Requirements

The original annual compliance ratios proposed in the Intentions Paper were designed to meet the CleanBC and ZEV Act vehicle and emissions targets, assuming the originally proposed credit-per-vehicle formulas (including the switch to 1 credit per vehicle in 2026). There is no change in the compliance ratios for 2020-2025 from what was proposed in the Intentions Paper. However, maintaining the range-based credit formula from 2020 to 2040 requires the annual compliance ratios to be adjusted for 2026-2040 to still meet the ZEV and emissions targets. The higher percentage compliance ratios are because some ZEVs get up to four credits; the compliance ratios are based on the forecast mix of ZEV types in the B.C. market and the resulting fleet average credit-per-vehicle. The Intentions Paper proposals, and the updated annual compliance ratios (highlighted), are presented in the table below. Ultimately everything is designed to still meet the ZEV and GHG targets, based on third party forecasts of the ZEV market in B.C., but this modification increases the stringency slightly in 2031 – 2039.

| Model Year | Total ZEV Compliance Ratio (<i>CR in s.11(1) of ZEV Act</i>) Original → Update | Minimum ZEV Class A Compliance Ratio (large suppliers only) (<i>CR in s.11(2) of ZEV Act</i>) Original → Update | Estimated Forecast ZEV Sales % Related to Compliance Ratios Original → Update |
|------------|--|---|---|
| 2020 | 9.5% | 6% | 5% |
| 2021 | 12.0% | 8% | 6% |
| 2022 | 14.5% | 10% | 7% |
| 2023 | 17.0% | 12% | 8% |
| 2024 | 19.5% | 14% | 9% |
| 2025 | 22.0% | 16% | 10% |
| 2026 | 14% → 32.0% | 10% → 23% | 14% |
| 2027 | 18% → 41.5% | 13% → 29% | 18% |
| 2028 | 22% → 51.5% | 16% → 36% | 22% |
| 2029 | 26% → 61.0% | 19% → 43% | 26% |
| 2030 | 30% → 71.0% | 21% → 50% | 30% |
| 2031 | 37% → 90.0% | 26% → 63% | 37% → 38% |
| 2032 | 44% → 108.5% | 31% → 77% | 44% → 45% |
| 2033 | 51% → 127.5% | 36% → 90% | 51% → 53% |
| 2034 | 58% → 146.0% | 41% → 104% | 58% → 60% |
| 2035 | 65% → 165.0% | 46% → 117% | 65% → 67% |
| 2036 | 72% → 184.0% | 51% → 130% | 72% → 74% |
| 2037 | 79% → 203.0% | 56% → 144% | 79% → 81% |
| 2038 | 86% → 221.5% | 61% → 157% | 86% → 87% |
| 2039 | 93% → 240.5% | 66% → 171% | 93% → 94% |
| 2040 | 100% → 259.0% | 70% → 181% | 100% |

Page 62 of 62

Withheld pursuant to/removed as

s.13; s.16