

MINISTRY OF ENERGY, MINES AND LOW CARBON INNOVATION



ESTIMATES 2023/24

EMLI 2023 Estimates Table of Contents

Electricity and Alternative Energy Division

Clean Transportation

CleanBC Go Electric Programs.....	1
Zero Emission Vehicle Act / Regulation	2
Low Carbon Fuel Standard	3
Renewable and Low Carbon Fuel Production Goal.....	4
Clean Transportation Action Plan	5

Energy Efficiency

Clean Buildings Strategy.....	6
Clean BC – Better Homes and Better Buildings Program	7
Utility Demand Side Management.....	8

BC Hydro

Affordability and BC Hydro Rates (Update on the CCF; Affordability Credit; F22-F24 RRA).....	9
Site C Update	10
Energy Purchase Agreements Renewals.....	11
BC Hydro Integrated Resource Plan.....	12
Industrial Electrification and the North Coast Expression of Interest	13
Rates and Rate Design (Tiered Residential Rates & Income Impacts, Industrial Rate Flattening & BCH’s planned engagements on rate design)	14
DRIPA Action Plan/Indigenous Clean Energy Opportunities process.....	15

Communities

Remote Community Energy Strategy.....	16
BC Indigenous Clean Energy Initiative.....	17

Innovative Clean Energy (ICE) Fund

ICE Fund	18
\$25M Contingencies Access - Federal Partnerships.....	19

Climate Leadership

Geothermal Energy.....	20
CleanBC	21
Decarbonising BC's Gas Grid (GGRR, GHG Reduction Standard).....	22
BC Hydrogen Strategy	23
Centre for Innovation and Clean Energy	24
Climate Aligned Energy Framework.....	25
Evolving Role of the BCUC.....	26

Mines, Competitiveness and Authorizations Division

Mining Regulatory Excellence.....	1
Permitting Regional Mines	2
Major Mines Permitting Timelines	3

Exploration

Mining and Mineral Exploration in BC	4
British Columbia Geological Survey.....	5
Geoscience BC.....	6
Mining Exploration Tax Incentive Programs	7

Region Projects/Issues of Concern

Carlyle Commodities – Newton Project.....	8
Joe Rich Quarry.....	9
Pavilion Mine	10
Lightening Rock/Sumas Mountain	11
Bamberton Quarry (Malahat)	12
Placer Projects and permitting in Atlin.....	13

Mine Development Projects

Table: Mine Development Projects in B.C.....	14
• <i>Significant Active Projects (in pre-application or review) [>300 employed]</i>	
• <i>Active Projects (in pre-application or review)[<300 employed]</i>	
• <i>Forecast but No Current Permitting Applications</i>	
Cariboo Gold.....	15
Blackwater	16
Highland Valley Copper	17

Operating Mines

Operating Coal Mines in B.C.....	18
Operating Metal Mines in B.C.	19
Map – Operating Mines & Selected Major Exploration Projects in BC....	20
Mineral Tax Revenue Forecast / Revenue Sharing with First Nations....	21
Financial Securities for Mines	22
SE BC Initiatives (Joint ENV/EAO note).....	23

Major Amendments approved in 2023

Table: Major Amendments	24
-------------------------------	----

- *Mine Expansion Amendments*
- *Other Major Amendments*

Red Chris Block Cave..... 25

Eskay..... 26

Policy

Mining Competitiveness..... 27

International Joint Commission Reference and BC’s Transboundary Relations with Neighbouring States 28

- *Attachment: Appendix A – BC’s Transboundary Relationship with Alaska and Washington*

Potential IJC Reference in SE on selenium in Koochanusa Reservoir 29

Placer and Jade Mining in BC..... 30

Mineral Tenure Act Reform/Modernization
(w/ Banks Island Gold/Gitxaala Reference) 31

Critical Minerals 32

Mines Health, Safety and Enforcement Division

Mining Oversight..... 1

Code Review 2

- *Attachment: Code Review to BN*

Health and Safety of BC Mines 3

Abandoned Mines..... 4

Mine Audits Unit..... 5

Mines Investigations 6

Mines Digital Services..... 7

Quinsam Coal Receivership 8

Tulsequah Chief Mine 9

Yellow Giant Mine (Banks Island) 10

Oil and Gas Division

Tenuring and Resource Stewardship

Petroleum and Natural Gas Tenuring and Disposition	1
• <i><u>Attachment</u>: Petroleum and Natural Gas Tenure Disposition and Management Processes</i>	
Petroleum and Natural Gas Tenure Revenue	2
• <i><u>Attachment</u>: Petroleum and Natural Gas Tenure Revenue</i>	
Resource Stewardship Initiatives with treaty 8 First Nations	3
Petroleum, Natural Gas Development and Agriculture	4
• <i><u>Attachment</u>: ToR Task Force</i>	

Energy Information and Analysis

Overview of British Columbia's Natural Gas Industry	5
LNG Projects: Status and Facts (inc Emissions)	6
• <i><u>Attachment</u>: LNG Projects Status and Facts</i>	
Government's Five Conditions for LNG	7
LNG Bunkering	8
Gasoline Prices (Fuel Price Transparency Act)	9
• <i><u>Attachment</u>: Gasoline Prices Across Canada</i>	
• <i><u>Attachment</u>: Taxes on Gasoline Across Canada</i>	

Royalty Policy and Administration

Royalty Review – programs, outcomes, and next steps	10
Healing the Land and Emissions Reduction	11
• <i><u>Attachment</u>: Estimated Deep Well Account Balances for Specified Operators</i>	
Upstream Investment Environment, Social and Governance	12
• <i><u>Attachment</u>: BC Oil and Gas Upstream Industry Capital Investment and Percentage of Canadian Investment</i>	
Questions on Subsidies	13

- *Attachment: Inventory of production and consumption fiscal measures pertaining to the oil and gas sector*

Regulatory and Infrastructure

Oil and Gas Legislation and Regulatory Development	14
CleanBC Roadmap to 2030 - Oil and Gas Industry.....	15
Carbon Capture and Storage	16
• <i>Attachment: Provincial Funding by Program for CCS projects</i>	
Hydraulic Fracturing and Responsible Resource Development	17
Federally Funded Programs for Dormant and Orphan Well Clean-up	18
Sierra Yoyo Desan Road	19

Infrastructure Projects and Strategic Initiatives

Trans Mountain Expansion Project Overview	20
• <i>Attachment: Trans Mountain Expansion Project Construction Benefits</i>	
• <i>Attachment: Maps of Trans Mountain Expansion Project</i>	

Clean Energy Major Projects Office

Clean Energy Office Overview	1
Energy Action Framework.....	2

LNG Canada Implementation Secretariat

Project and 5 Conditions	1
LNG Canada Terminal Overview	2
Coastal GasLink Pipeline Overview	3
Coastal GasLink: Section 7 construction.....	4
LNG Canada Phase 2.....	5

Woodfibre Implementation Group

Woodfibre LNG Terminal Project	1
Eagle Mountain Pipeline Project	2

Strategic & Indigenous Affairs Division

UNDRIP Implementation..... 1
SIAD Overview 2
Tahltan Overview..... 3
Blueberry River FN & Treaty 8 Implementation..... 4
Fed/Prov Energy Transition and Economic Opportunities 5

Questions Deferred from other Ministries

2023 Deferred Estimates Questions *

CSNR Financials and Service Plan

Budget and Ministry Key Documents (Prepared by CSNR)	
Budget Highlight	1
i Minister Briefing Slides	
ii Estimates Summary	
Service Plan & Estimates Blue Book.....	2
Minister Mandate Letter	3

Mandate Letter Commitments

Minister Josie Osborne’s Mandate Letter.....	1
CleanBC Go Electric Programs BN #1 (EAED).....	2
CleanBC Better Homes and Better Buildings Program BN #7 (EAED).....	3
CleanBC Roadmap to 2030 - Oil and Gas Industry BN #15(OGD).....	4
CleanBC BN #21 (EAED)	5
Decarbonising BC’s Gas Grid (GGRR, GHG Reduction Standard)	
BN #22 (EAED).....	6
CleanBC Better Homes and Better Buildings Program-BN #7 (EAED)	7
Climate Aligned Energy Framework and BCUC Mandate	
BN #25 (EAED).....	8
Permitting Regional Mines BN #2 (MCAD).....	9
Major Mines Permitting Timelines BN #3 (MCAD)	10
Industrial Electrification and the North Coast Expression of Interest	
BN #13 (EAED).....	11
Rates and Rate Design (Tiered Residential Rates & Income	
Impacts Industrial Rate Flattening & BCH’s planned engagements	
on rate design) BN #14 (EAED)	12
CleanBC Roadmap to 2030 - Oil and Gas Industry BN #15 (OGD).....	13

Carbon Capture and Storage BN #16 (OGD).....	14
• <i>Attachment: Provincial Funding by Program for CCS projects</i>	
Clean Transportation Action Plan BN #5 (EAED).....	15
Climate Aligned Energy Framework and BCUC Mandate	
BN #25 (EAED).....	16
Healing the Land and Emissions Reduction BN #11 (OGD).....	17
• <i>Attachment: Estimated Deep Well Account Balances for Specified Operators</i>	
Critical Minerals Strategy BN #32 (MCAD).....	18
Mineral Tenure Act Reform/Modernization (w/ Banks Island	
Gold/Gitxaala Reference) BN #31 (MCAD).....	19
Royalty Review – programs, outcomes, and next steps. BN # 10	
(OGD).....	20
CleanBC Go Electric Programs BN #1 (EAED).....	21
Zero Emission Vehicle Act / Regulation BN #2 (EAED)	22
Centre for Innovation and Clean Energy BN #24 (EAED)	23

Statistics

Statistics Table	1
------------------------	---

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Honourable Josie Osborne

Title: CleanBC Go Electric Program

Drafted: March 15, 2023

Issue: Investments to stimulate increased uptake of zero-emission vehicles (ZEVs), and further economic development in the ZEV sector in British Columbia

Response:

- British Columbia (B.C.) is a leader in clean transportation, with the second highest zero-emission vehicle (ZEV) adoption rate in North America in 2022 (18.1% of new light-duty vehicle sales in B.C. compared to 18.8% in California), one of the largest public charging networks in Canada, the largest public hydrogen fuelling network in Canada, a world-leading hydrogen and fuel cell industry, and a ZEV maintenance training program offered at four post-secondary institutions.
- The CleanBC Go Electric Program has been highly successful in: reducing market barriers; encouraging the adoption of ZEVs by British Columbians; leveraging private, municipal, and federal investment in ZEVs and infrastructure in B.C.; and supporting new economic opportunities in the ZEV sector.
- The CleanBC Go Electric Program provides rebates for zero-emission light-duty vehicles, medium- and heavy-duty trucks and buses, marine vessels, and airport and port ground equipment, and makes investments in infrastructure, training, public outreach, and economic development.
- Budget 2023 includes an additional \$40 million for the Go Electric Commercial Vehicle Pilots Program.
- In 2023, the CleanBC Go Electric Passenger Vehicle Rebate program is transitioning its funding source to revenues from BC Hydro's sales of credits obtained through the Low Carbon Fuel Standard.
- In August 2022, the CleanBC Go Electric Passenger Vehicle Rebate program implemented income testing to improve ZEV affordability and accessibility for low- and middle-income customers.
- In May 2019, the Province passed the *Zero-Emission Vehicles Act* (ZEV Act) which 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 CleanBC Roadmap to 2030 accelerated the ZEV sales targets to 26% by 2026, 90% by 2030 and 100% by 2035, and announced the introduction of new ZEV targets for medium- and heavy-duty vehicles. The purpose of the ZEV Act is to ensure increased ZEV availability and choice at more affordable prices in B.C.

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Honourable Josie Osborne

Background/Status:

- In 2011, B.C. introduced ZEV programming, currently called the CleanBC Go Electric Program (the Program). Including Budget 2023, and fiscal year-end funding in Fiscal 2023, more than \$515 million has been committed to make ZEVs more affordable and reduce greenhouse gas emissions.
- A total of \$45.7 million was approved for 2022-2023 fiscal year-end funding, which includes \$26 million for the Public Charging program, \$19.5 million for Medium and Heavy-Duty Infrastructure program, and \$0.2 million for First Nations low-carbon transportation planning. Budget 2023 approved a further \$40 million for the Commercial Vehicle Pilots Program.
- As of December 31, 2022, the Program has led to:
 - almost 110,000 new light-duty ZEVs on the road;
 - over 1,000 ZEVs in commercial applications, such as forklifts, medium/heavy duty vehicles, cargo e-bikes and port and airport ground equipment;
 - over 70 early-market commercial medium/heavy-duty ZEVs for diverse on-road and off-road applications, as well as 60 commercial vehicle charging points;
 - over 70 electric school buses;
 - over 3,000 public Level 2 charging stations, and 854 fast-charging stations across 277 locations;
 - a network of four public hydrogen fueling stations in Metro Vancouver and Greater Victoria, with two more planned to be operational by the end of 2023, the majority of which are at existing gas stations;
 - automotive technician training at four B.C. technical institutions, electrician training, and eleven research and academic projects;
 - an economic development program for B.C.'s ZEV sector supporting 21 ZEV projects leading to approximately 180 additional full-time equivalent jobs; and
 - a multi-faceted outreach and awareness program called Emotive, including include community awareness and planning funding.
- There are multiple Program streams:
 - The income-tested passenger vehicle rebate provides up to \$4,000 for small light-duty ZEVs priced below \$55,000, or for larger light-duty ZEVs priced below \$70,000, including minivans, sport utility vehicles, and pickup trucks. The rebate may be combined with federal rebates, for a total rebate of up to \$9,000 per ZEV.

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Honourable Josie Osborne

- Home and workplace charger rebates, which provide up to \$350 for charging stations in homes, and up to \$2,000 for charging stations and free EV advisor services in apartments, condos and workplaces. Rebates up to \$3,000 are available to complete an EV Ready Plan for condominiums and apartments and up to \$600/parking stall for electrical infrastructure upgrades (maximum of \$120,000 per complex). Increased rebates are available for Indigenous communities and businesses.
- Public infrastructure funding, which provides up to 50% funding for public fast charging stations (up to \$80,000). Increased rebates of up to 90% of project costs (to a maximum of \$130,000) per station are available for Indigenous-owned DCFC stations.
- Hydrogen fuelling infrastructure funding, which provides funding for public hydrogen fuelling stations. Through the 2021 RFP, five stations received capital funding of \$850,000 per station and an additional \$100,000 to support operations and maintenance.
- Commercial Vehicle Pilots Program, which provides funding for vehicles, infrastructure, and data analysis to support zero-emission technologies. The fourth funding call is open and accepting applications until March 31, 2023. The first two funding calls allocated funding to 22 projects.
- Supporting a pilot program with the Vancouver Fraser Port Authority that is expected to support the deployment of twelve low and zero-emission drayage trucks, a biofuel-based switch locomotive, and a biofuel-based harbour patrol vessel.
- Specialty Use Vehicle Incentive program which provides a rebate up to 33% for e-cargo bikes, electric motorcycles, low-speed vehicles, medium/heavy-duty vehicles, airport and port vehicles, and utility vehicles. Medium/-heavy-duty rebates may be combined with federal rebates, for total rebates of up to \$300,000.
- Fleets program which provides funding for ZEV fleet and infrastructure assessments, electrical upgrades, installations of charging stations, and advising services.
- School Bus program which provides public, private, and Indigenous schools with funding for ZEV buses and charging stations.
- “Emotive”, the province-wide ZEV public outreach program developed and delivered under partnerships with local governments and community organizations, including Indigenous communities.
- Funding to upgrade electrician and automotive technician training to incorporate charging infrastructure and ZEVs.

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Honourable Josie Osborne

- The Advanced Research and Commercialization program which supports projects that create jobs and lead to economic growth in the ZEV industry sector in B.C. A new Commercial Vehicle Innovation Challenge is expected to launch shortly to help attract international investment to B.C. companies and address the current technology gap in the hard-to-decarbonize commercial vehicle sector.
- CleanBC Go Electric Programs support growth of B.C.'s ZEV sector, which has over 270 companies and organizations involved in all aspects of the supply chain employing more than 11,000 jobs, producing \$2.1 billion in total economic output and contributing \$1.15 billion to the provincial gross domestic product.

Cross Reference:

Zero Emission Vehicles Act

Low Carbon Fuel Standard

Clean Transportation Action Plan

Contact:

Les MacLaren	ADM	Electricity and Alternative Energy Division	778 698-7183
--------------	-----	--	--------------

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Honourable Josie Osborne

Title: Zero-Emission Vehicles Act / Regulation

Drafted/Revised: March 10, 2023

Issue: The *Zero-Emission Vehicles Act / Regulation (ZEV Act)* requires automakers to increase their supply of zero-emission vehicles (ZEVs) to British Columbia (BC)

Response:

- BC's ZEV Act delivers on the Province's CleanBC plan commitment to make ZEVs more affordable and accessible to British Columbians.
- The ZEV Act requires automakers to meet an escalating annual percentage of new light-duty ZEV sales, reaching 10% by 2025, 30% by 2030, and 100% by 2040, which will ensure greater supply and availability of ZEVs.
- The CleanBC Roadmap to 2030, released in 2021, included commitments to increase the ZEV Act targets to 26% of light-duty vehicle sales to be ZEV by 2026, 90% by 2030, and 100% by 2035, and to implement medium- and heavy-duty regulations.
- The ZEV Act provides flexible pathways (through sales, trading of compliance units, initiative agreements for sales of used and medium/heavy duty ZEVs, or purchase agreements), for suppliers to achieve compliance while ensuring that the Province meets its ZEV and GHG targets.
- The Ministry of Energy, Mines and Low Carbon Innovation (Ministry) has developed an online ZEV Reporting System which regulated parties use to demonstrate their compliance with the ZEV Act. Eighteen automakers are actively using the system and have been submitting annual compliance reports since October 2021.
- BC joined Quebec and 14 US states in having a ZEV standard, as well more than 20 countries worldwide who have now either announced a future ban on the sale of new gasoline and diesel cars or targeted 100% of vehicle sales to be ZEVs.
- The ZEV Act is part of a coordinated, and expanding, program of activities under the Province's highly successful CleanBC Go Electric Program that aims to: reduce market barriers; encourage the adoption of ZEVs by British Columbians; leverage private, municipal and federal investment in ZEVs and infrastructure in BC; and support new ZEV sector economic opportunities.
- Budget 2023 includes an additional \$600,000, for total annual funding of \$1,320,000 to enable development, deployment and sustainment of online regulatory reporting tools for both the ZEV Act and Low Carbon Fuel Standard.

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Honourable Josie Osborne

Background/Status:

- The ZEV Act passed on May 30, 2019, and the ZEV Regulation on July 30, 2020, to ensure that more ZEVs are available for purchase in BC.
- The ZEV Act was informed by engagement and consultation with the auto industry, local governments, and environmental non-governmental organizations (ENGOs).
- In the Roadmap to 2030, Government announced that the light-duty ZEV targets will be increased, and targets will be developed for medium- and heavy-duty vehicles.
- The ZEV Act sets phased-in annual targets and other compliance requirements, ensuring automakers increase ZEV availability to meet demand.
- Technical reviews of the ZEV Act are held at regular intervals to review market trends, receive input from stakeholders, and allow for any necessary adjustments.
- In July 2022, as part of the first formal review of the ZEV Act, the Ministry released an Intentions Paper on its proposed amendments to the Act and Regulations to stakeholders, including vehicle suppliers, ENGO's, local governments, and other relevant industry stakeholders. The feedback received from stakeholders informed the forthcoming proposed amendments to the Act and Regulations.
- A ZEV Advisory Council is being established to provide input into the Ministry's ZEV programming and policies including the ZEV Act. The ZEV Advisory Council will be comprised of industry, ENGOs, local governments, Indigenous organizations, infrastructure providers, and academics.
- In 2022, BC had the highest uptake of ZEVs in Canada and the second highest in North America. New ZEV sales averaged 18.1% of light-duty vehicle sales over the year.
- In 2022, the Government of Canada announced a mandatory target for all new light-duty cars and passenger trucks sales to be zero-emission by 2035. The mandate includes interim targets of at least 20% by 2026 and at least 60% by 2030, and assumes that B.C. will implement its Roadmap ZEV commitments. BC's ZEV Act was the first in the world to include a 100% ZEV target.

Cross Reference: 01 - CleanBC Go Electric Programs
05 - Clean Transportation Action Plan

Contact:

Les MacLaren ADM Electricity and Alternative 778-698-7183
Energy Division

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Josie Osbourne

Title: Low Carbon Fuel Standard

Drafted: March 13, 2023

Issue: New Legislation governing the BC Low Carbon Fuel Standard (LCFS)
Response:

- In June 2022, the Province passed the *Low Carbon Fuels Act* (New Act) which will repeal the *Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act* (Existing Act) and replace it with legislation that broadens the scope and makes it easier to administer and enforce. The New Act is expected to come into force by regulation on January 1, 2024.
- The effectiveness of the New Act is increased by implementing policy improvements which extend the authority to include new fuel categories, recognize new technologies, and ensure funding/support for low carbon fuel projects that also support other objectives of CleanBC.

Background/Status:

- The Low Carbon Fuel Standard (LCFS) was introduced in 2008 and implemented in 2010. It sets annual carbon intensity reduction targets using a lifecycle analysis encompassing all stages of a fuel product's life from raw material to final use.
- A fuel supplier's annual compliance with the LCFS is calculated in terms of compliance units, a positive number (credits) for low carbon fuels and a negative number (debits) for high carbon fuels.
- At the end of each compliance period, suppliers must have a balance of zero or positive compliance units to avoid non-compliance penalties.
- As annual carbon intensity reduction targets become more stringent, fuel suppliers will be challenged to meet their obligations, and will require access to more credits or alternative options for compliance with the LCFS.
- Amendments to the Regulation in December 2022:
 - increased the carbon intensity reduction requirement from 20% to 30% by 2030 in the gasoline and diesel fuel pools.
 - increased the low carbon fuel requirement non-compliance penalty from \$200 per tonne to \$600 per tonne.

The LCFS contribution to CleanBC:

- The LCFS is the single largest contributor to meeting the greenhouse gas (GHG) reduction targets set out under CleanBC and is an integral part of B.C.'s GHG reduction policies.

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Josie Osbourne

- Between 2010 and 2021, actions taken to comply with the LCFS have avoided over 15.7 million tonnes of global greenhouse gas emissions.
- At a 30% reduction in carbon intensity by 2030, the LCFS is expected to deliver a total of 5.7 million tonnes of reductions in B.C. GHG emissions in 2030, which represents 19% of CleanBC's current 2030 target (with indirect support for an additional 6% from ZEVA).

Investment in Clean Fuel through the Part 3 Agreement Program:

- In 2022, the Province held Agreements supporting 21 projects with potential new investments exceeding \$1.98 billion over the next eight years. Upon completion, the projects are expected to supply fuel that will reduce lifecycle greenhouse gas emissions by approximately 3.2 million tonnes of carbon dioxide equivalent globally per year.
- If successful, six projects supported by Part 3 Agreements will lead to the annual production of over 570 million litres of low carbon renewable fuel in B.C. by 2028, representing 44% of the new Roadmap target of 1.3 billion litres of renewable fuel production in BC by 2030.

Policy improvements:

- In June 2022, the Province passed the new *Low Carbon Fuels Act* (New Act) which is expected to come into force through regulation on January 1, 2024.
- The New Act will repeal the Existing Act and replace it with a legislation that broadens the scope and makes it easier to administer and enforce.
- The intention of the New Act remains the same while improving overall clarity for regulated industry, closing compliance and enforcement gaps, and incorporating policy changes announced in the CleanBC Roadmap to 2030.
- Policy changes in the New Act that are supported by the CleanBC Roadmap to 2030 include:
 - Recognizing jet fuel as a new category of fuel, and enabling regulations to create other fuel categories, such as marine fuels.
 - Recognizing the use of alternatives to diesel fuel to generate electricity in remote communities not connected to the Provincial grid.
 - Expanding the scope of Part 3 Agreements (soon to be called Initiative Agreements) to increase the supply of low carbon fuels in BC by enabling support for new proponents and new business opportunities.

Fuel Pricing:

- As the carbon intensity reduction targets become more rigorous, the cost of high carbon fuels can be expected to increase, while the cost of low carbon fuels is expected to decrease.

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Josie Osbourne

- Ministry officials estimate that the cost of the LCFS could be as high as 9.8 cents per litre in 2022 and up to 38.5 cents per litre in 2030.
- If the wholesale fuel market is competitive, a high portion of this cost could be passed forward to the consumer in the price at the pump.
- Advice/Recommendations

-
-

Cross Reference:

04 Increasing Renewable Low Carbon Fuel Production in BC

Contact:

Les MacLaren ADM Electricity and Alternative Energy Division 778 698-7183

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Josie Osborne

Title: Renewable and Low Carbon Fuel Production in British Columbia.

Drafted: March 14, 2023

Issue: CleanBC Roadmap to 2030 committed to increasing the production of renewable fuel in B.C. by 1.3 billion litres per year by 2030.

Response:

- Under the CleanBC Roadmap to 2030 (CleanBC Roadmap), the Low Carbon Fuel Standard (LCFS) is expected to deliver about 5.7 million tonnes of reductions in British Columbia (BC)'s greenhouse gas emissions in 2030.
- As a CleanBC Roadmap commitment, the LCFS was enhanced by increasing the stringency of carbon intensity reduction targets from 20% to 30% by 2030.
- The CleanBC Roadmap also announced the intention to consider expanding the LCFS to cover aviation and marine fuels not previously subject to the requirements.
- In order to meet the increased demand for cleaner fuels from strengthening and expanding the LCFS, the CleanBC Roadmap committed the Province to work towards ramping up to 1.3 billion litres of new renewable fuel production by 2030.
- Refining our own renewable fuels with BC materials and BC workers will lead to job growth and reduce the need to import fossil fuels and renewable fuel and feedstocks from other jurisdictions.
- BC does not produce enough "conventional" feedstocks, such as canola, to meet the long-term demands for meeting the 1.3 billion litre goal. To utilize BC feedstocks, new technologies must be commercialized to convert the feedstocks into finished fuels. Potential new feedstocks include wood waste, tall oil, municipal solid waste, and sewage sludge.
- Part 3 Agreements currently support projects that could result in the production of 570 million litres of low carbon renewable fuel by 2028. The Ministry will continue to work to ensure that these projects are successful, while working with industry to achieve the 1.3 billion litre production goal for 2030.
- Increasing the demand for low carbon jet fuel through regulation, stimulates the nascent low carbon jet fuel production industry and supports the development of additional made-in-B.C. renewable fuels.

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Josie Osborne

Background/Status:

- Transportation accounts for 40% of BC's GHG emissions, with more than half being emitted from medium- and heavy-duty transportation vehicles.
- Currently, BC imports most of its renewable fuels. Producing these fuels in the province will lead to job growth and regional economic development.
- The LCFS, including Part 3 Agreements, is a strong tool for attracting investment in renewable and low carbon fuel production.
- Part 3 Agreements between a fuel supplier and the statutory director are for actions that increase the use of Part 3 fuels sooner than would have occurred otherwise.
- In 2022, the Province held Part 3 Agreements supporting 21 projects with potential new investments exceeding \$2 billion over eight years. Upon completion, the projects are expected to supply fuel that will reduce lifecycle greenhouse gas emissions by approximately 3.2 million tonnes of carbon dioxide equivalent globally per year.
- In 2021 the impact of COVID-19 reduced the credits available for Part 3 Agreements, and in 2022 inflation and supply chain issues delayed projects and increased costs, so there were no new agreements signed. The capacity for new agreements in 2023 has yet to be determined.
- Supported through a Part 3 Agreement, Tidewater Renewables is nearing completion of construction of a renewable diesel facility co-located at the Prince George Refinery which will produce 150 million litres per year of renewable diesel products starting in Spring 2023.
- Most processes that create renewable diesel fuel can be modified to produce low carbon jet fuel. Inclusion of jet fuel in the LCFS could provide significant support for this emerging opportunity.
- For several conversion technologies, the resulting product may not be completely suitable as a fuel but can be further refined by mixing the product with crude oil for processing at existing fossil fuel refineries. This enables existing refineries to transition to the production of significant quantities of renewable fuels.
- The Parkland Refinery in Burnaby and the Tidewater Midstream Refinery in Prince George are producing volumes of low carbon gasoline and diesel fuel via co-processing renewable feedstocks with fossil crude oil as inputs to their refineries. Both refineries have been receiving support through Part 3 Agreements.
- The Ministry continues to engage with companies who are producing and considering the production of low carbon fuel in BC, including: Arbios Biotech, Azure Sustainable Fuel, HTEC, Parkland, Shell, Suncor, and Tidewater Renewables.

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Josie Osborne

Cross Reference: #03 Low Carbon Fuel Standard

Contact:

Les MacLaren ADM Electricity and Alternative Energy 778 698-7183
Division

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Josie Osborne

Title: Clean Transportation Action Plan

Drafted/Revised: March 13, 2023

Issue: Clean Transportation Action Plan, a commitment under the CleanBC Roadmap to 2030

Response:

- CleanBC's Roadmap to 2030 (Roadmap) committed to developing a Clean Transportation Action Plan (CTAP) to be released by the end of 2023.
- The CTAP is part of a comprehensive approach, as outlined in the Roadmap, to meet British Columbia's (B.C.) transportation sector greenhouse gas (GHG) reduction target of 27-32% below 2007 levels by 2030, and to achieve net-zero GHG emissions by 2050.
- The Province has already taken significant actions to reduce transportation GHG emissions, including through programs, policies and regulations that support active transportation, zero-emission vehicles (ZEV), and clean fuel adoption. Examples include: the suite of Go Electric programs, the *Zero Emission Vehicles Act*, and the Low Carbon Fuel Standard (LCFS).
- Building off existing work, and other ongoing Provincial transportation work, the purpose of the CTAP is to identify the next set of concrete actions across five foundational areas – reducing vehicle kilometres travelled (VKT); mode shift to efficient modes; increasing vehicle efficiency; switching to ZEVs; and using clean fuels.
- Decarbonizing and increasing energy efficiency in B.C.'s transportation sector helps in achieving Government priorities such as supporting clean jobs and increased affordability, all while stimulating province-wide economic activity.

Background:

- The Ministry plays a leading role in developing policies, programs and standards that improve the energy efficiency and reduce GHG emissions in the transportation sector.
- B.C.'s transportation sector accounts for approximately 39% of provincial GHG emissions: approximately 14% from light-duty vehicles, 14% from medium- and heavy-duty vehicles, and 11% from marine vessels, rail, aircraft, off-road equipment.

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Josie Osborne

- In 2019, transportation emissions had risen 22% in B.C. since 2007, largely due to increasing emissions from heavy-duty vehicles, rising vehicle populations, and increasing fuel consumption.
- CleanBC and the recently released CleanBC Roadmap to 2030 (Roadmap), identify additional transportation targets including:
 - ZEV targets:
 - accelerated *Zero Emission Vehicle Act* targets - 26% of new light-duty vehicles by 2026, 90% by 2030, 100% by 2035; and
 - new ZEV targets for medium- and heavy-duty vehicles aligned with California or leading jurisdictions.
 - VKT reduction targets: reduce light-duty VKT by 25% by 2030, compared to 2020.
 - Mode share targets: increase share of trips (e.g., commuting for work and personal activities) made by walking, cycling, transit to 30% by 2030, 40% by 2040, and 50% by 2050.
 - Energy intensity targets for personal and commercial transportation: reduce the energy intensity of goods movement (tonne-kilometres) by at least 10% by 2030, 30% by 2040, and 50% by 2050, relative to 2020.
- The CTAP will take a long-term view to realize the GHG benefits of all potential actions, such as compact, complete communities that take longer to yield results but provide significant benefits.
- To achieve the 2030 and 2050 targets, CTAP policies will need to be stringent and effective enough to change behavior in all travel modes.
- The CTAP is being developed by the Ministry of Energy, Mines, and Low Carbon Innovation, the Ministry Environment, and the Ministry of Transportation and Infrastructure.
- Ongoing engagement with Indigenous Nations on CTAP started in Summer 2022. Engagement with local governments started in Fall 2022. A consultation paper was issued to technical stakeholders in February 2023, with responses due in April 2023. The CTAP is anticipated to be released by the end of 2023.

Cross Reference:

01 - CleanBC Go Electric Programs
02 - Zero-Emission Vehicles Act & Regulation

Contact:

Les MacLaren ADM Electricity and 778 698-7183
Alternative Energy
Division

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Josie Osborne

2022 Transition Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible:

Title: Clean Buildings Strategy

Drafted/Revised: March 16, 2023

Issue: Efforts to decarbonize buildings through energy efficiency and fuel switching

Response:

- The Ministry of Energy, Mines and Low Carbon Innovation (Ministry) plays a leading role in developing policies, programs and standards that improve energy efficiency and reduce greenhouse gas (GHG) emissions in buildings.
- Making British Columbia's (B.C.'s) built environment more energy efficient and lower carbon helps achieve government priorities such as supporting clean jobs and ensuring affordability, all while stimulating province-wide economic activity.
- The Ministry has been implementing a multi-faceted Clean Buildings Strategy as part of CleanBC to support B.C. in transitioning to low-carbon buildings by 2030.
- The strategy is the basis of the Buildings Pathway commitments in the CleanBC Roadmap to 2030.
- The objective of the strategy is to drive energy efficient and low carbon solutions to a tipping point of availability, acceptability, and affordability through targeted interventions in the marketplace, followed by progressively more stringent codes and standards that backstop progress.
- The Clean Buildings Strategy includes five streams of action to drive market transformation in the sector:
 - **Research, development and demonstration** to bring B.C.-made energy efficient and low-carbon solutions to the market;
 - **Energy information** tools to help British Columbians identify retrofit opportunities and inform investment decisions;
 - **Industry training** to support workforce readiness for programs, codes and standards;
 - **Targeted incentives and financing** to drive adoption of low carbon heating systems and energy efficiency improvements; and

2022 Transition Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible:

- **Progressively more stringent energy codes and standards** to eliminate the most polluting and least efficient products and practices from the market.

Background/Status:

- Buildings account for 10% of B.C.'s GHG emissions (not including emissions from waste and deforestation). The Province has a target to reduce emissions from the built environment by 59%-64% by 2030.
- Achieving the Province's legislated 2030 and 2050 GHG reduction targets will require a shift towards low-carbon heating options and the highest performing buildings.
- In addition to reducing emissions, making B.C.'s buildings more efficient will help achieve government priorities such as advancing innovative technology development, promoting clean jobs, and ensuring affordability of housing by reducing energy costs, all while stimulating province-wide economic activity.
- Every \$1 million invested in energy efficiency is estimated to create between 30 and 57 job years and \$4-8 million of gross domestic product.
- Between 2007 and 2019, energy use per m² of floorspace was reduced by 24% in residential buildings and 11% in commercial buildings. GHG emissions¹ per m² of floorspace reduced 32% in residential buildings and 19% in commercial buildings.
- Between 2007 and 2020, the percentage of households using heat pumps for primary or secondary heating increased by 180%.
- Efficiency Canada's Provincial Energy Efficiency Policy Scorecard awarded B.C. the top ranking in Canada in every year since its inception in 2019. BC leads in both the 'Enabling Policies' and 'Buildings' categories and was praised in particular for the CleanBC Roadmap to 2030 that will make new buildings zero carbon and require new and replacement space and water heating equipment to be at least 100 per cent efficient by 2030.
- The Province's built environment initiatives are grounded in a market transformation approach that covers both existing buildings and new construction. This approach consists of five streams of action, listed below along with key initiatives:

¹ This NRCan statistic excludes emissions from electricity, which in BC are very small.

2022 Transition Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible:

Research, Development and Demonstration

- The CleanBC Building Innovation Fund provides support for research, commercialization and demonstration of advanced building designs and construction methods, and ultra-efficient building components in order to increase the availability and affordability of low-carbon buildings solutions made in B.C. To date, the program has held three intakes, distributing \$14.65 million in support to 41 projects across the province.

Energy Efficiency Information

- Better Homes and Better Buildings provides free energy coaching to British Columbians to help them identify opportunities for energy savings and emission reductions in their homes and businesses.
- The Province will be requiring realtors to provide energy efficiency ratings on listed homes to make it easier for buyers and renters to factor energy costs and GHG emissions into their decisions. The Ministry is developing a virtual home energy assessment tool to generate this rating and help homeowners connect with Better Homes program resources.

Industry Training

- The Ministry has worked with BC Hydro, FortisBC, and the Home Performance Stakeholder Council to develop best practice installation guidelines and training curriculum for heating systems and envelope improvements, and is now subsidizing the cost of this training for those becoming registered members of the Home Performance Contractor Network (HPCN). CleanBC Better Homes is transitioning to requiring use of an HPCN member in order to access incentives. This will help foster quality workmanship and maximize energy efficiency and emission reductions.

Financial Incentives

- The CleanBC Better Homes and Better Buildings program provides financial incentives and low-interest financing to help households and businesses save energy and reduce GHG emissions through heating equipment replacement and building envelope improvements. The program is funded through 2024/25.
- Budget 2022 included a PST exemption on heat pumps, paired with an increase to the PST on fossil fuel alternatives to 12 per cent. It also included a new temporary tax credit - the Clean Buildings Tax Credit - for retrofits that improve the energy efficiency of eligible multi-unit residential buildings and commercial buildings.

2022 Transition Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible:

- In 2021, BC Hydro, FortisBC Gas and FortisBC Electric spent a combined \$197 million on energy efficiency programs², enabled through a supportive regulatory framework. The Province is currently drafting amendments that will carry out the CleanBC Roadmap commitment to transition utility DSM away from conventional combustion gas equipment and towards building-envelope improvements and heat pumps.
- Local governments have requested the legislative authority to offer Property Assessed Clean Energy financing programs to support building energy retrofits. The Province is currently assessing options and timing.

Regulated Codes and Standards

- Efficiency standards are implemented as point-of-sale regulations (through the *Energy Efficiency Act*) or in the BC Building Code (by the Minister Responsible for Housing).
- CleanBC commits to setting a requirement that, after 2030, all space and water heating equipment sold and installed in BC will be at least 100% efficiency, significantly reducing GHG emissions. The Ministry is working with the Office of Housing and Construction Standards to undertake analysis and consultation on regulations that will utilize both the *Energy Efficiency Act* and the BC Building Code.
- The Province has built off its success with the Energy Step Code, by committing to adopt a “net-zero energy ready” base code for new buildings by 2032. Effective May 1, 2023, most new construction in BC must be 20% more energy efficient than the base 2018 BC Building Code, with the next incremental improvement coming in 2027. Local governments are now able to adopt the Zero Carbon Step Code, which sets out several levels of carbon intensity requirements that can be referenced. The base code will begin incorporating these requirement for the whole province starting in 2024.
- A building alterations code is also being developed that will align with a federal retrofit code, due to be completed in 2024. The alterations code will focus on raising existing building performance to today’s code level.
- The Roadmap to 2030 also commits to a new regulatory tool--placing a cap on emissions for natural gas utilities and enabling a variety of pathways to achieve it. This will drive utility investment in energy efficiency, renewable gas, fuel switching, and other decarbonization actions.

Cross Reference: 07 - Better Homes and Better Buildings Program
08 - Utility Demand-Side Management

² Based on BC Hydro results for 2021/22 and FortisBC results for 2021

2022 Transition Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible:

Contact:

Les MacLaren	Assistant Deputy Minister	Electricity and Alternative Energy Division	778-698-7183
--------------	------------------------------	--	--------------

2023/24 Estimates Note Advice to the Minister

Ministry: Ministry of Energy, Mines and Low Carbon Innovation
Minister Responsible: Josie Osborne

Title: CleanBC Better Homes and Better Buildings Program

Drafted/Revised: March 16, 2023

Issue: CleanBC Better Homes and Better Buildings Program Overview

Response:

- The CleanBC Better Homes and Better Buildings program provides financial incentives to help households, businesses and the public sector save energy and reduce greenhouse gas emissions (GHG) through heating equipment replacement and building envelope improvements.
- The program launched in September 2018 as a two-year, \$24 million retrofit program co-funded by the Province and the federal government through the Low Carbon Economy Leadership Fund.
- Under the CleanBC plan, the program was extended and provided additional funding.
- CleanBC Better Homes and Better Buildings has \$71.6 million in base funding from fiscal 2022/23 through fiscal 2024/25.
- The program portfolio includes:
 - commercial retrofit incentives for large complex buildings;
 - commercial retrofit incentives for small buildings;
 - commercial new construction incentives;
 - residential retrofit incentives;
 - residential low-interest retrofit financing;
 - residential income-qualified incentives;
 - residential new construction incentives;
 - Indigenous community retrofit incentives; and
 - specialized energy coaching support for small businesses, Indigenous communities and civic organizations.
- As of February 2023, CleanBC Better Homes and Better Buildings has provided 45,765 residential retrofit rebates and 1,361 income-qualified rebates, approved pre-registrations for 1,000 residential new construction projects and disbursed 296 incentives, and approved 327 capital incentives for commercial, institutional, and multi-unit residential building energy efficiency and fuel-switching projects.

