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2. How many new FTEs have been funded as part of Budget 2022?

Approval	2022/23	2023/24	2024/25
Regional Permitting	13	13	0
Major Mines*	25	25	0
Clean Transportation	11	11	11
Building Pathway	1	1	1
Low Carbon Fuels	19	19	19
Reduce Emissions from Natural Gas	2	2	2
Advancing Industrial Decarbonization	8	9	9
TOTAL	79	80	42

*Includes FTEs in FLNR, EAO and ENV with funding recovered from EMLI.

3. What is the Clean BC budget lift being spent on?

Budget 2022 CleanBC Details	2022/23	2023/24	2024/25	TOTAL
<ul style="list-style-type: none"> Regulatory Compliance, Enforcement & Data Tools 	120	120	120	360
<ul style="list-style-type: none"> Additional 11 FTEs 	1,553	1,625	1,659	4,837
Clean Transportation	1,673	1,745	1,779	5,197
<ul style="list-style-type: none"> Better Home, Better Buildings FTEs (3 FTEs previously funded from LCELF) 	365	372	383	1,120
<ul style="list-style-type: none"> Home Energy Rating System (1FTE) 	118	121	125	364
Buildings Pathway	483	493	508	1,484
Low Carbon Fuels Standard (19 FTEs)	1,968	2,537	2,609	7,114
Reduce Emissions from Natural Gas (2FTEs)	296	309	317	922
<ul style="list-style-type: none"> Methane Monitoring & Elimination 	226	231	235	692
<ul style="list-style-type: none"> Coordinated CCS Approach 	111	113	115	339
<ul style="list-style-type: none"> Net Zero 2050 Requirements 	334	341	347	1,022

• CO2 Storage and Critical Minerals	213	463	472	1,148
Advancing Industrial Decarbonization (8 FTEs)	884	1,148	1,169	3,201
• Go Electric	0	7,700	5,000	12,700
ICE Fund	0	7,700	5,000	12,700
TOTAL CleanBC Approvals	5,304	13,932	11,382	30,618

4. How much has Budget 2022 committed over the next three years for Clean BC?

Including the Budget 2022 increase of \$30.618 million, Budget 2022 commits \$125.291M over three years for Clean BC programs in ministry base budget.

CleanBC Initiative	2022/23	2023/24	2024/25	TOTAL
Low Carbon Fuel Standard	1,968	2,537	2,609	7,114
Clean Transportation	1,673	1,745	1,779	5,197
Advancing Industrial Decarbonization	884	1,148	1,169	3,201
Building Pathway	483	493	508	1,484
Reduce Emissions from Natural Gas	296	309	317	922
Go Electric funded by ICE Fund	0	7,700	5,000	12,700
Sub Total Budget 2022	5,304	13,932	11,382	30,618
<i>Previous Budget Approvals:</i>				
Efficiency BC Expansion (Better Buildings Better Homes)	23,490	23,490	23,490	70,470
Efficiency BC Expansion (Clean Building)	3,000	3,000	3,000	9,000
Go Electric	1,843	1,843	1,843	5,529
Low Carbon Fuels	1,732	1,732	1,732	5,196

Clean Energy Vehicle Supply Standard	948	948	948	2,844
Low Carbon Fuels - BC Hydrogen	240	240	240	720
Remote Community	164	165	165	494
Building Energy Codes	140	140	140	420
Sub Total Prior Year	31,557	31,558	31,558	94,673
TOTAL CleanBC Base Budget	36,861	45,490	42,940	125,291

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2022/23 Estimates Note Advice to the Minister

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

Title: CleanBC Go Electric Program

Drafted: March 15, 2022

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 (BC) is a leader in clean transportation, with the highest ZEV adoption rate in North America in 2021 (13% of new light-duty vehicle sales), one of the largest public charging networks in Canada, the largest public hydrogen fuelling network in Canada, and a world-leading hydrogen and fuel cell industry.
- 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 BC; 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, ferries, and airport and port ground equipment, and makes investments in infrastructure, training, public outreach, and economic development.
- Budget 2022 includes \$66 million for the CleanBC Go Electric Program, including: \$10 million for home and workplace charger rebates; \$20 million for investments in public charging; \$30 million for zero-emission commercial vehicle projects; and \$0.375 million for local and Indigenous government planning.
- In 2022/23, the CleanBC Go Electric Vehicle Rebate program is implementing means testing, and transitioning its funding source to revenues from BC Hydro's sales of credits obtained through the Low Carbon Fuel Standard.
- 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 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 BC.

2022/23 Estimates Note Advice to the Minister

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

Background/Status:

- In 2011, BC introduced ZEV programming, currently called the CleanBC Go Electric Program (the Program). Not including Budget 2022, more than \$420 million has been committed to make ZEVs more affordable and reduce greenhouse gas emissions.
- To date the Program has led to:
 - Almost 80,000 new light-duty ZEVs on the road;
 - over 812 ZEVs in commercial applications, such as forklifts, medium/heavy duty vehicles, cargo e-bikes and port and airport ground equipment;
 - over 2,350 public Level 2 charging stations, and 720 fast-charging stations across 262 locations;
 - a network of four public hydrogen fueling stations, with two more planned to be operational by the end of 2022, the majority of which are at existing gas stations;
 - automotive technician training at seven BC technical institutions, electrician training, and eleven research and academic projects;
 - an economic development and recovery program for BC's ZEV sector supporting 18 ZEV projects leading to approximately 178 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 point-of-purchase vehicle rebate provides up to \$3,000 for light-duty ZEVs priced below \$55,000. The rebate may be combined with federal rebates, for a total rebate of up to \$8,000 per ZEV. The program will transition to income-testing in Summer 2022.
 - 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. 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) and up to 33% funding for public hydrogen fueling stations. Increased rebates of up to 90% of project costs

2022/23 Estimates Note Advice to the Minister

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

(to a maximum of \$130,000) per station are available for Indigenous-owned DCFC stations.

- Commercial vehicle pilots program, which provides funding for vehicles, infrastructure, and data analysis to support zero-emission technologies. The first and second rounds of application reviews are complete and will be allocating funding to 29 medium/heavy duty ZEVs and related infrastructure across eight projects. Advice/Recommendations
Advice/Recommendations

- Specialty Use Vehicle Incentive program which provides a rebate up to 33% (66% for tourism operators) for e-cargo bikes, electric motorcycles, low-speed vehicles, medium/heavy-duty vehicles, airport and port vehicles, and utility vehicles.
- Fleets program including school bus fleets, which provides funding for ZEVs and infrastructure assessments, installations of charging stations, and supports including training and advising services.
- “Emotive”, the province-wide 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.
- The Advanced Research and Commercialization program which supports projects that create jobs and lead to economic growth and recovery in the ZEV industry sector in BC.

- The Program supports growth of BC’s ZEV sector, which has over 250 companies and organizations involved in all aspects of the supply chain employing more than 10,000 jobs, producing \$1.9 billion in total economic output and contributing \$1.1 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	Government Financial
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2022/23 Estimates Note Advice to the Minister

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

Title: Zero-Emission Vehicles Act / Regulation

Drafted/Revised: March 18, 2022

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 submitted their first compliance reports in October 2021.
- BC joined Quebec and 12 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 2022 includes an additional \$120,000 per year to enable development and ongoing operation of online regulatory reporting tools for both the ZEV Act and Low Carbon Fuel Standard.

2022/23 Estimates Note Advice to the Minister

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

Background/Status:

- The ZEV Act passed on May 30, 2019, and the ZEV Act 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).
- The ZEV Act initially focuses on light-duty vehicles (cars and light-trucks) but enables Government to set future targets for other vehicle classes, such as buses and heavy-duty trucks.
- 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.
- A technical review of the ZEV Act will be held at regular intervals to review market trends, receive input from stakeholders, and allow for any necessary adjustments. The first technical review is anticipated to start in Spring 2022, as part of the plan to implement the Roadmap 2030.
- A ZEV Advisory Council will be 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 2021, BC continued to have the highest uptake in North America. New ZEV sales averaged 13% of light-duty vehicle sales over the year despite the pandemic.
- The ZEV Act is based on legislation already in place in Quebec, California, and 11 other U.S. states, with adjustments for BC. BC's ZEV Act was the first in the world to include a 100% ZEV target.
- In 2021, the Government of Canada announced a mandatory target for all new light-duty cars and passenger trucks sales to be zero-emission by 2035, accelerating Canada's previous goal of 100 percent sales by 2040, but has not yet confirmed a national ZEV mandate.

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

Contact:

Les MacLaren

ADM

Electricity and Alternative
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Government
Financial

2022/23 Estimates Note Advice to the Minister

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

Title: Low Carbon Fuel Standard

Drafted: March 16, 2022

Issue: Repeal and replace the legislation governing the BC Low Carbon Fuel Standard (LCFS)

Response:

- Proposed legislation will repeal the *Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act* (Existing Act) and replace it with the *Low Carbon Fuels Act* (New Act) that broadens its scope and makes it easier to understand, administer, and enforce.
- The effectiveness of the New Act is increased by implementing a number of policy improvements which extends 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 LCFS was 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 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 July 2020:
 - extended the LCFS from a 10% reduction in carbon intensity in 2020 to a 20% reduction by 2030.
 - reduced the exemption threshold from 75 million litres in 2020 to 25 million litres in 2021, and 200,000 litres in 2022 and thereafter. The exemption was reduced to: strengthen the overall effectiveness of the LCFS; advance market transformation; and address an unfair competitive advantage (i.e., removing the exemption will result in price balancing between previously exempt suppliers and those complying with the LCFS).

2022/23 Estimates Note Advice to the Minister

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

- Amendments to the Regulation in June 2021:
 - corrected an error omitting authorization for the Minister to publish names and circumstances for fuel suppliers who fail to comply with the low carbon fuel requirement;
 - recognized renewable naphtha as a fuel in the gasoline category to enable a new compliance pathway for fuel suppliers; and
 - clarified the point of compliance for electricity to enable those making investments in electricity supply infrastructure to be recognized as suppliers and to monetize earned credits to offset the costs of their investments.

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 BC's GHG reduction policies in general.
- Between 2010 and 2020, actions taken to comply with the LCFS have avoided over 13 million tonnes of global greenhouse gas emissions.
- At a 20% reduction in 2030, the LCFS is expected to directly deliver 4.3 million tonnes of GHG reductions in 2030, which represents 16% of the CleanBC Roadmap to 2030 (Roadmap) provincial reduction target, and to contribute an additional 6% indirectly by supporting the *Zero-Emission Vehicle Act (ZEVA)*.
- At a 30% reduction in 2030, as contemplated in the Roadmap, the LCFS is expected to deliver an additional 2.4 million tonnes of reductions for a total of 6.7 million tonnes of reductions in GHG emissions in 2030, which represents 25% 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 2020, the Province entered into Agreements to support 22 projects with potential new investments exceeding \$2.19 billion over the next five years. Upon completion, the projects are expected to supply fuel that will reduce lifecycle greenhouse gas emissions by approximately 4.0 million tonnes of carbon dioxide equivalent globally per year.
- If successful, seven projects supported by Part 3 Agreements will lead to the annual production of over 800 million litres of low carbon renewable fuel in BC by 2026, representing 62% of the new Roadmap target of 1.3 billion litres of renewable fuel production in BC by 2030.

Policy improvements:

- More than a decade of experience developing and administering the LCFS has identified that the Existing Act, as structured, is inadequate for robust administration through 2030 and beyond.

2022/23 Estimates Note Advice to the Minister

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

- Proposed legislation will repeal the Existing Act and replace it with a New Act that broadens its scope and makes it easier to understand, 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.
 - Providing compliance credits for direct air capture with permanent sequestration of eligible greenhouse gases, such as carbon dioxide.
 - Expanding the scope of Part 3 Agreements to increase the supply of low carbon fuels in BC by enabling support for new proponents and new business opportunities.
- The Ministry of Energy, Mines and Low Carbon Innovation has prepared a Bill that is ready for introduction in the House in 2022.

Fuel Pricing:

- The British Columbia Utilities Commission inquiry into fuel pricing identified the LCFS cost impact on gasoline prices to be three and a half cents per litre in 2018.
 - Ministry officials estimate that the price impact increased to about 11.6 cents per litre in 2022.
 - 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.
- Cabinet Confidences; Advice/Recommendations

Cross Reference:

04 Increasing Renewable Low Carbon Fuel Production in BC

Contact:

Les MacLaren ADM Electricity and Alternative Energy Division Government
Financial

2022/23 Estimates Note Advice to the Minister

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

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

Drafted: March 16, 2022

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, the BC Low Carbon Fuel Standard (LCFS) is expected to deliver about 6.7 million tonnes of reductions in British Columbia (BC)'s greenhouse gas emissions in 2030.
- The CleanBC Roadmap to 2030 committed to enhancing the LCFS by considering increasing stringency of carbon intensity reduction targets to 30% by 2030.
- In order to meet the increased demand for cleaner fuels, CleanBC Roadmap to 2030 committed that the Province will work to ramp up new production of 1.3 billion litres of renewable fuels 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, sewage sludge, and carbon from direct air capture of CO₂.
- Part 3 Agreements currently support projects that could result in the production of 800 million litres of low carbon renewable fuel by 2025. 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.
- The Ministry is currently reviewing the approach to Part 3 Agreements to consider continuous intake of proposals and more effective development of agreements, including integration with BC government funding mechanisms and co-ordination with other federal and provincial programs.

2022/23 Estimates Note Advice to the Minister

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

Background/Status:

- Transportation accounts for 39% of BC's GHG emissions, with more than half being emitted from medium- and heavy-duty transportation vehicles.
- Currently, BC imports virtually most of its renewable fuels. Making 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 2020, Part 3 Agreements were signed to support 22 projects with potential new investments exceeding \$2.19 billion over five years. Upon completion, the projects are expected to supply fuel that will reduce lifecycle greenhouse gas emissions by approximately 4.0 million tonnes of carbon dioxide equivalent globally per year.
- In 2021 the impact of COVID reduced the credits available for Part 3 Agreements, so there were no new agreements signed. The capacity for new agreements in 2022 has yet to be determined.
- The Parkland Refinery in Burnaby and the Tidewater Midstream Refinery in Prince George are both making the transition to co-processing, beginning with used cooking oil, tallow and canola blended with fossil crude oil as inputs to their refineries. Both refineries have been receiving support through Part 3 Agreements.
- 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.
- Most processes that create renewable diesel fuel can be modified to produce jet fuel. Inclusion of jet fuel in the LCFS could provide significant support for this emerging opportunity.
- The Ministry continues to engage with companies who are considering the production of low carbon fuel in B.C., including: Business Information; Business Information; Advice/Recommendations; Government Financial

Cross Reference: #3 Low Carbon Fuel Standard

Contact:

Les MacLaren ADM Electricity and Alternative Energy Government
Division Division Financial

2022/23 Estimates Note Advice to the Minister

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

Title: Clean Transportation Action Plan

Drafted/Revised: March 16, 2022

Issue: Clean Transportation Action Plan

Response:

- CleanBC's Roadmap to 2030 (Roadmap) committed to developing a Clean Transportation Action Plan (CTAP) to be released in 2023.
- The CTAP is part of a comprehensive approach, as outlined in the Roadmap, to meet British Columbia's (B.C.) transportation sector GHG reduction target of 27-32% below 2007 levels by 2030.
- The Province has already taken significant actions to reduce transportation GHG emissions, including through programs, policies and regulation that support zero-emission vehicle (ZEV) adoption. Examples include: the Ministry of Energy, Mines and Low Carbon Innovation's (Ministry's) suite of Go Electric programs and the *Zero Emission Vehicle Act* which sets sales targets for new light-duty zero-emission vehicles.
- Building off this and other Provincial transportation work, the purpose of the CTAP is to identify the next set of concrete actions across five foundational areas - vehicle kilometres travelled (VKT) reductions; mode shift to efficient modes; vehicle efficiency; ZEVs; and fuel efficiency - to ensure B.C. meets its legislated and Roadmap transportation targets.
- CTAP will be a public, technical document that acts as a unifying, single point of reference for clean transportation actions.
- The CTAP will take a long-term view in order to realize the GHG benefits of all potential actions, such as compact, complete communities that take longer to yield results but provide significant benefits.
- The CTAP is being co-led by the Ministry and the Ministry of Transportation, with participation from multiple ministries on policy and action development, and engagement with key stakeholders, Indigenous communities as well as broader stakeholders.
- Decarbonizing B.C.'s transportation sector and making it more energy efficient helps achieve government priorities such as supporting clean jobs and ensuring affordability, all while stimulating province-wide economic activity.

2022/23 Estimates Note Advice to the Minister

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

Background/Status:

- The Ministry plays a leading role in developing policies, programs and standards that improve the energy efficiency and reduce greenhouse gas (GHG) emissions in the transportation sector.
- The transport sector accounts for approximately 39% of B.C.'s 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).
- In 2019, transport 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.
- In addition to the sector targets identified above, the *Climate Change Accountability Act* requires B.C. to reduce its GHG emissions 40% below 2007 levels by 2030, 60% by 2040, and 80% by 2050.
- 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.
- CTAP project work is underway ^{Advice/Recommendations}

Cross Reference:

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

Contact:

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2022/23 Estimates Note Advice to the Minister

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

Title: Clean Buildings Strategy

Drafted/Revised: March 18, 2022

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

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

Background/Status:

- Buildings accounts 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 2018, energy use per m² of floorspace was reduced by 28% in residential buildings and 14% in commercial buildings. GHG emissions¹ per m² of floorspace reduced 29% in residential buildings and 21% 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 2019, 2020, and 2021. BC leads in both the 'Enabling Policies' and 'Buildings' categories and was praised in particular for its Energy Step code, heating electrification programs and long-term policy approach, outlined below.
- 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:

Research, Development and Demonstration

- The Building Innovation Fund provides support for research, commercialization and demonstration of advanced building designs and construction methods,

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

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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. A fourth intake is being planned for 2022/23, and will distribute a further \$5 million in funding.

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.
- Advice/Recommendations

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.
- Last year, BC Hydro, FortisBC Gas and FortisBC Electric spent a combined \$116 million on energy efficiency programs², enabled through a supportive regulatory framework. The Province is working on amendments that will carry

² Based on BC Hydro results for 2020/21 and FortisBC results for 2020

