2024 Climate Change Resilience Report

About This Report

This document supplements our 2024 Sustainability Report: ESG Performance and is informed by the recommendations laid out by the Task Force on Climate-related Financial Disclosures ("TCFD"), more recently governed by the International Financial Reporting Standards. This report reflects the climate change risk management information of Vancouver Airport Authority (the "Airport Authority") and our operation at the Vancouver International Airport | L'Aéroport international de Vancouver ("YVR"), and contemplates disclosure related to the four core elements of the TCFD framework: Governance, Strategy, Risk Management, and Metrics and Targets.

This report is intended to provide stakeholders with the necessary insights into how we manage the various vulnerabilities we face in terms of the physical impacts of climate change and the challenges and opportunities in successfully transitioning to a low carbon economy. As we move into our second year of reporting, we have further developed our analyses of climate scenarios and financial impacts. This will deepen our understanding of how climate impacts our business and how we can leverage the business opportunities to strengthen the overall resilience of our business model.

Core Elements of Recommended Climate-Related Financial Disclosures

Governance

The organization's governance around climate-related risks and opportunities

Strategy

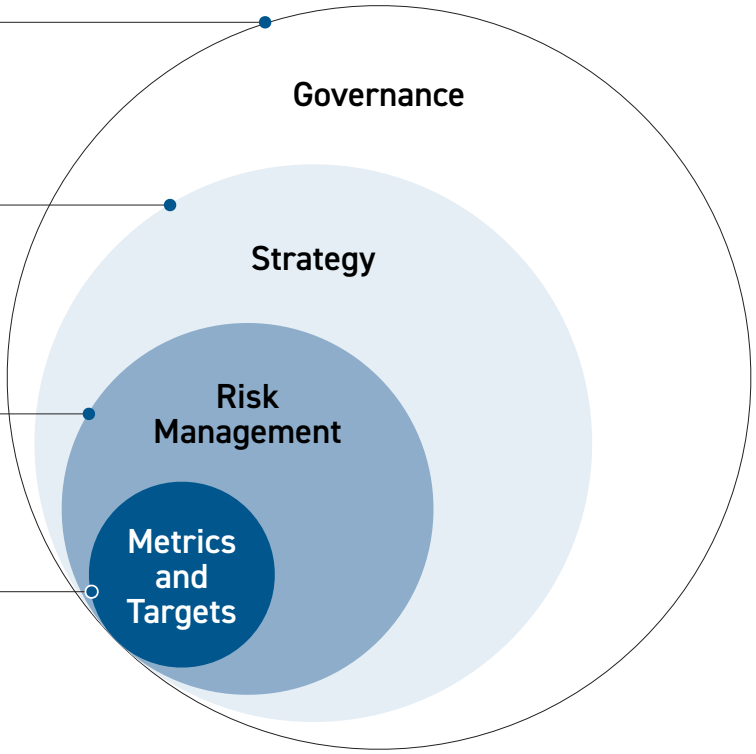
The actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning

Risk Management

The processes used by the organization to identify, assess, and manage climate-related risks

Metrics and Targets

The metrics and targets used to assess and manage relevant climate-related risks and opportunities



YVR is Canada's second-busiest airport and a diverse global hub that provides critical and strategic links between Vancouver and global markets. We became a carbon neutral airport in 2020, and in 2021 we announced our Roadmap to Net Zero by 2030 ("RTNZ"), which, in conjunction with our 2020–2024 Environmental Management Plan, outlines our commitment to achieve net zero carbon from direct emissions from airport operations by 2030.

With climate change as a pressing global risk, we recognize our role in supporting the wider airport community in reaching industry-wide climate objectives. In 2024, we took steps towards enabling the overall aviation sector to achieve net zero carbon by 2050 by appointing an Energy Advisory Council that will provide strategic advice to the Airport Authority and recommend a long-term Energy Strategy. The Council's six experts will provide the Airport Authority with advice and guidance on actions needed to build a future low carbon, safe, secure, and resilient energy network to power aviation and land development on Sea Island. We also took steps to broaden our understanding of the key enablers of our future energy network by establishing a Sustainable Aviation Fuel ("SAF") Strategy and a partnership with Airbus and ZeroAvia to study the feasibility of hydrogen infrastructure at airports in Canada.

Governance

The Airport Authority is a private, non-share capital corporation formed in 1990 and operationalized in 1992 under Part II of the *Canada Corporations Act* and continued in 2013 under the *Canada Not-for-profit Corporations Act*. The Airport Authority operates YVR pursuant to a lease with the Government of Canada that covers most of Sea Island, located in Richmond, B.C. The Airport Authority is governed by a Board of Directors, the majority of whom are appointed by nominating entities consisting of professional and other bodies within the community. The Board of Directors oversees the business conduct and activities of the Executive Management Team. The goal of the Board is to ensure we fulfill our strategic objectives on an ongoing basis and operate in a safe, efficient, and reliable manner.

Our Board consists of four committees:

- The Finance and Audit Committee ("FAC")
- The Governance Committee
- The Human Resources Committee
- The Development Committee

The Board is responsible for providing oversight over our climate initiatives across various areas of focus, which include our strategic objectives outlined in our 2022–2024 Strategy; SAF Strategy; RTNZ; 2020–2024 Environmental Management Plan; Enterprise Risk Register; Investment Plan; and YVR Energy Strategy that is currently under development. Details around the Board's responsibility for the Airport Authority's strategic direction and alignment to its values are outlined in the Board and Board committee Terms of Reference (Board of Directors – Terms of Reference [Sept. 2024, V3]).

The Board is responsible for monitoring the Airport Authority's Enterprise Risk Management ("ERM") program. On a quarterly basis, Management provides the Enterprise Risk Report to the individual Board committees and the full Board, with climate risks assigned to the full Board for oversight.

At a Board committee level, the Governance Committee provides specific oversight to compliance with applicable environmental law and regulation, Environmental, Social and Governance ("ESG") objectives, and TCFD reporting. The FAC provides oversight over both our ESG reporting (including TCFD) and the sustainability of our financial model. The Development Committee assists the Board with overseeing the long-term investment plan and ensuring its alignment with our strategy. The Development Committee also recommends large project investments for approval by the Board so that adequate maintenance and asset management processes and programs, necessary to ensure safety, resilience, sustainability, value preservation, and risk mitigation, are in place.

Our Climate and Environment team is responsible for our climate mitigation actions as part of our RTNZ and 2020–2024 Environmental Management Plan with the Director of Climate and Environment reporting directly to the CEO.

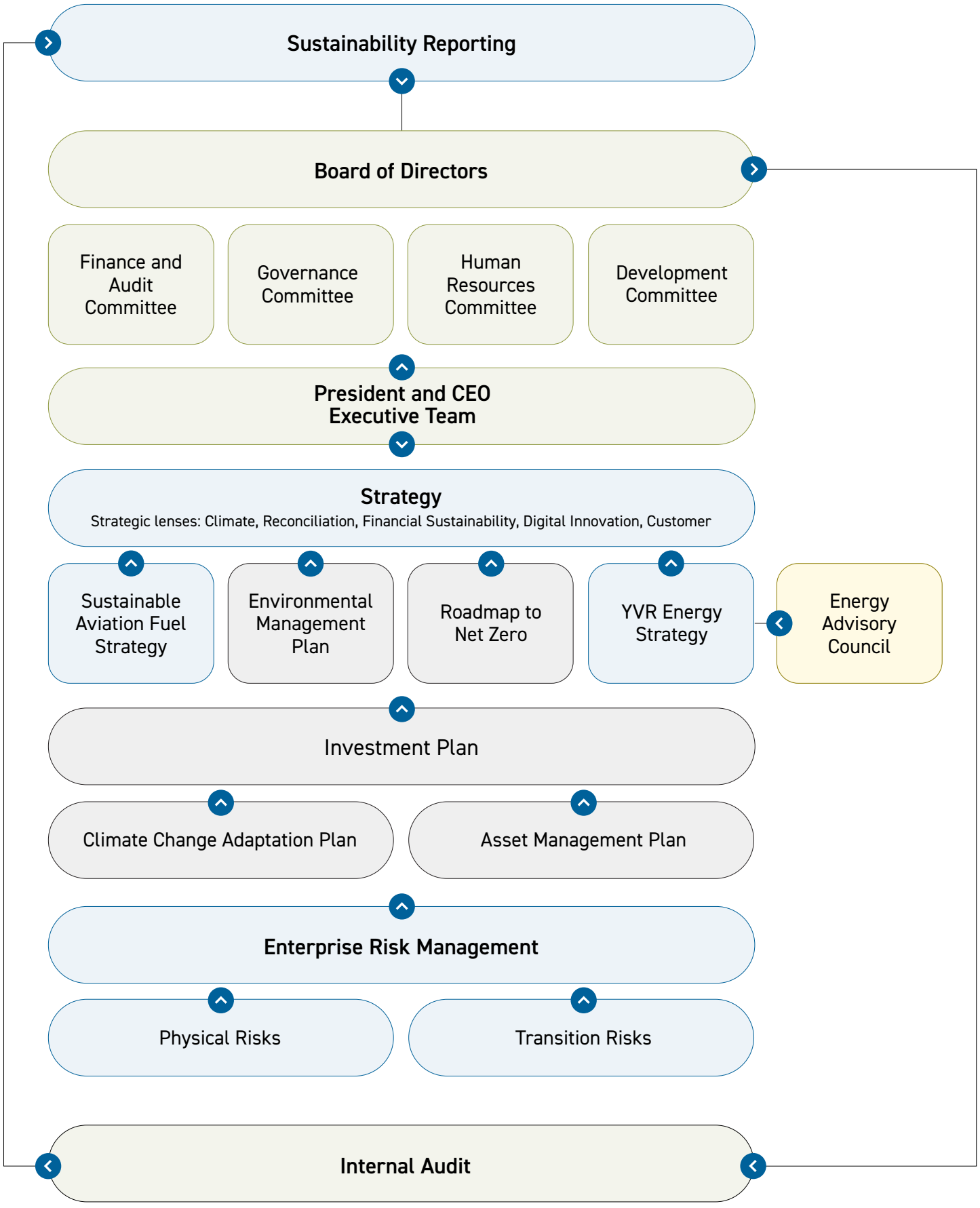
Our YVR Energy Strategy is led by the Director of Planning with support from a cross-functional working group. The strategy is being developed in partnership with the Energy Advisory Council – a group of six experts who will provide the Airport Authority with advice and guidance on actions needed to build future low carbon sustainable energy solutions for YVR, and who will report directly to the CEO.

Our SAF Strategy was developed by a cross-departmental working group under the direct responsibility of the VP, Finance and CFO. Delivery of the strategy is led by the Director of Climate and Environment, who reports to the CEO, with support from Finance and Operations.

The Climate Adaptation Working Group is drawn from across the organization and meets on a bi-annual basis to assess and monitor our climate resilience and adaptation risks and mitigations as part of the Climate Change Adaptation Plan. The work of this group informs the climate risks in our Enterprise Risk Register, Investment Plan, and Asset Management Plan. The Asset Management Plan is under the direct responsibility of the VP, Airport Development and the overall Investment Plan is under the direct responsibility of the VP, Finance and CFO. The Chief Prioritization, Planning and Performance-Optimization Officer supports this work. The Climate Adaptation Working Group is led by the Director of Planning reporting directly to the VP, Airport Development and Asset Optimization.

The ERM and Sustainability team is responsible for annual ESG and TCFD reporting, and the ERM program and reporting, which include climate risks on the Enterprise Risk Register. The team plays a key role as a support function to the multiple climate-related strategic initiatives and working groups outlined above. The Director of ERM and Sustainability reports directly to the VP, Finance and CFO.

Table 1: Climate Governance



2024 HIGHLIGHTS WITH THE BOARD

In 2024, we took deliberate action to mature our risk management practices by diving deeper in our strategic risk discussions with our Board Members. As part of this, we held a comprehensive risk spotlight discussion featuring our risk management practices around climate change adaptation. Our Board Members were provided with a full view of the risk profile, including drivers and vectors of risk, opportunities, and current and future mitigations (see Appendix A). These discussions have allowed us to develop a deeper understanding of our key strategic risks and emerging risk drivers to better define our risk appetite, explore our risk tolerance alignment, and support decision making moving forward.

The FAC and Internal Audit

The role of the FAC of the Board of Directors is to assist the Board in fulfilling its oversight responsibilities with respect to the Company's financial reporting, ERM, internal controls, and internal and external auditors. With climate change adaptation as a key strategic risk, the FAC provides oversight to the identification and management of the strategic risk. In 2024, the FAC approved Internal Audit's plan that includes a review of the mitigations of physical climate-related risks.

EXECUTIVE COMPENSATION

Embedding Climate Metrics Into Executive Compensation

Annually, the Board of Directors establishes minimum targets and maximum performance measures for each metric, against which the executive's performance is evaluated. The corporate performance metrics include our corporate greenhouse gas ("GHG") emission targets that comprise 17.5 per cent of the 70 per cent corporate performance payout total.

Information related to climate performance and executive compensation can be found in our 2024 Executive Compensation disclosure. This annual report discloses executive compensation, which aligns with our core values in supporting transparency and our commitment to accountability.

Strategy

YVR'S STRATEGIC APPROACH TO CLIMATE

Climate is integrated across all our strategic streams, not only as a strategic priority, but also as a lens to consider in all the decisions we make. A comprehensive view of how we manage both climate change prevention and adaptation as well as our efforts to support the transition to a low carbon economy can be seen across multiple strategic plans.

Table 2: Our Climate Strategy

2022–2024 Strategy	As an industry still largely dependent on fossil fuels, we recognize the role we play in climate change and our responsibility to decarbonize. As part of this commitment, we have integrated climate as one of our five strategic lenses (climate, reconciliation, financial sustainability, digital innovation, and customer), and consider climate in all the decisions we make. In 2021, we announced our commitment to achieve net zero carbon emissions by 2030 under our RTNZ plan. This represents a significant first step in our climate action leadership role. We also recognize that the bulk of Sea Island emissions (more than 95 per cent) are related to aircraft movements, traffic and non-Airport Authority buildings, and although they are beyond the immediate scope of our net zero commitment, we have and continue to take action to influence and enable the reduction of emissions across Sea Island.
YVR Energy Strategy	As aviation and other industries move towards electrification, YVR is planning for future energy needs in a financially sustainable way that also benefits the community and economy that supports it. The YVR Energy Strategy will chart a pathway towards meeting YVR's electrical supply needs in a manner that is low carbon, safe, secure, sufficient, and resilient.
SAF Strategy	SAF has the potential to reduce an aircraft's emissions by up to 80 per cent and provide additional benefits to our regional airshed. Under Canada's Aviation Climate Action Plan 2022–2030, the industry has set a target to reach net zero by 2050. This includes a target to see SAF make up 10 per cent of projected Canadian jet fuel use by 2030. In alignment with national and industry goals, we have devised a SAF Strategy that guides our efforts in the advancement and deployment of SAF – both at YVR and within the broader region.

2022–2024 Strategy

In 2021, we announced our commitment to achieve net zero carbon for our Scope 1 and Scope 2 emissions in our RTNZ, 20 years ahead of the Airport Council International ("ACI") World's global aviation goal of net zero carbon by 2050. We estimate that a green premium of $135 million from 2021 to 2030 will be required to meet our net zero commitment.

In addition to our climate mitigation efforts outlined in our RTNZ, we must also ensure that we are prepared for the impacts of climate change, and are able to adapt, now and in the future. As part of our Climate Change Adaptation Plan, Investment Plan, and Asset Management Plan, we continue to invest in measures to increase our climate resilience. This includes updating our dike and drainage systems, enabling us to adapt to more frequent and intense rainfall events; improving our heating, ventilation, and air conditioning systems ("HVAC") to help ensure we are ready for more extreme temperatures; and making investments to support the low visibility capability of our airside, ensuring we remain resilient and operational in the event of fog and increased forest fires. Investments to maintain, manage, and safeguard our infrastructure are key components of our strategic objective: Strengthening the Core. In addition to this, we continue to closely monitor the current impacts of climate change events including extreme snow and cold events, increased precipitation, and warmer-than-average temperatures and wildfires, to better inform us and prepare for such events in the future.

Roadmap to Net Zero ("RTNZ")

Air emissions are a key indicator of our impact on the atmosphere and managing GHGs is an important priority for the aviation industry. Since 2020, we have been carbon neutral for emissions under our operational control (Scope 1 and Scope 2 emissions) as well as business travel (Scope 3 emissions). We have also set the ambitious target to achieve net zero carbon emissions for our Scope 1 and Scope 2 emissions by 2030, 20 years ahead of the industry goal.

To transition from carbon neutral to net zero, we have committed to reducing operational energy use to the greatest extent possible based on available technology, displacing any remaining fossil fuel use with renewable fuels, and balancing any remaining emissions with an equivalent amount of carbon removals. A carbon removal, unlike an offset, must remove existing carbon from the atmosphere, rather than preventing future emissions.

To achieve this ambitious goal, we are following four decarbonization pathways:

1. Building energy conservation and electrification – Meeting operational requirements more efficiently and using less energy for heating/cooling, cooking, lighting, and other electrical loads. Switching from natural gas to electricity using high-efficiency heating/cooling technology such as heat pumps and geoexchange.
2. Green fleets – Right-sizing vehicles to match operational requirements and investing in zero-emissions equipment options such as battery-electric and hydrogen fuel cell vehicles.
3. Replacing fossil fuels with renewable alternatives – Using renewable natural gas for heating/cooking and purchasing renewable diesel for generators and fleet vehicles.
4. Closing the gap – By purchasing green electricity certificates and carbon removals.

The RTNZ includes a comprehensive multi-year investment – establishing key project timelines and estimating cost and energy/carbon savings per project. We have established an organization-wide Energy Optimization team and formalized a Roadmap to Net Zero steering committee, chaired by the VP of Airport Development and Asset Optimization with representation from key departments including Climate and Environment, Engineering, and Maintenance. A dedicated program manager supports project managers in delivering the suite of net zero projects. Bi-annual progress updates on the investment plan, including project status, are provided to the Executive Team.

YVR Energy Strategy

Clean, reliable, and affordable energy is essential to power YVR and for the airport's continued leadership in sustainable aviation. As aviation and other industries move towards low carbon energy solutions, we need to plan for future energy demand in a financially sustainable way that also benefits the community and economy that supports it. While we have set a target to be net zero by 2030 for our direct emissions (i.e., Scope 1 and Scope 2), the next step in our decarbonization journey is to tackle the carbon emissions produced by the wider airport community on Sea Island (i.e., Scope 3 emissions). To support this work, we will develop a low carbon, safe, secure, and resilient energy network to match the needs of aviation and infrastructure development at our airport. Further work to support the development of our strategy will be undertaken in 2025.

Hydrogen Infrastructure Study

Along with SAF and electrified aircraft, hydrogen is a key enabler of the aviation sector's decarbonization goal. Hydrogen-powered aircraft are expected to penetrate the market as early as 2035, with both short- and long-haul potential. Hydrogen's use in aircraft propulsion will require new aircraft design as well as specific operational and infrastructure-related designated networks to operate.

As part of the YVR Energy Strategy and in partnership with Airbus, ZeroAvia, and Hydrogen Airport, the Airport Authority signed a Memorandum of Understanding ("MOU") to study the feasibility of hydrogen infrastructure at airports in Canada. The feasibility study will advance thinking and action on how we can best support our partners in achieving net zero by 2050. Work has already advanced on future forecast hydrogen demand, potential hydrogen supply sources, and on-airport infrastructure required to support hydrogen flight in the future. Further work in 2025 will include aircraft fuelling concept of operations, capital and operating costs, and regulations and standards. The study is expected to be completed in fall 2025.

SAF Strategy

With SAF expected to contribute 65 per cent of the reductions needed to reach industry climate goals, in 2023, we developed our SAF Strategy to guide our efforts in the advancement and deployment of SAF – both at YVR and within the broader region. The strategy focuses on three areas: advocating for the market, supporting SAF uptake, and enabling SAF production. In 2024, we worked closely and in partnership with government and our key industry stakeholders by engaging in a series of working groups to advocate for the production and uptake of SAF. In support of the uptake of SAF, in November 2024, YVR launched a BC Low Carbon Jet Fuel Incentive Program. The program is intended to stimulate the early market for SAF in B.C. and will run from 2024 to 2026. In order to help support B.C. production of SAF, YVR and the provincial government's Ministry of Energy and Climate Solutions are working together on a technoeconomic SAF Opportunity Study to enable SAF production in B.C.

Scope 3 Emissions

We recognize that the bulk of emissions associated with the operation of the airport are related to aircraft movements and airside activity, passenger and commercial traffic on the island, and non-Airport Authority buildings. These are considered Scope 3 emissions and although they are beyond the immediate scope of our net zero commitment and outside our direct control, we are working with our partners to enable the reduction of all emissions.

Initiatives planned or underway to support carbon reductions across the airport community are included as part of the YVR SAF Strategy and will be included as part of the YVR Energy Strategy (described above). In addition, in 2024 we provided power units to enable crews to shut down aircraft engines and plug into B.C.'s clean electricity while aircraft are at the gate and invested in airside charging stations to support electric ground support equipment and vehicles.

SCENARIO ANALYSIS

Scenario Analysis is a tool used to understand the resilience of an organization's strategy and business model to climate-related impacts, taking into consideration climate-related risks and opportunities outlined within specific parameters. YVR selected specific climate-related impacts that we viewed as key inputs to informing our strategic and financial planning decisions as we strive to build greater resilience.

For our analysis, we modelled specific impacts using climate projections for the Metro Vancouver Area based on a business-as-usual Representative Concentration Pathway ("RCP") 8.5[1]. RCPs are a standard set of scenarios outlined in the Intergovernmental Panel on Climate Change ("IPCC") Fifth Assessment Report[2]. RCPs depict different pathways of GHG emissions and atmospheric concentrations, air pollutant emissions, and land use. Pathways are dependent on global political initiatives and socio-economic changes made by global society. Because few changes in climate projections are anticipated between now and 2050, we have taken a conservative approach to run our scenarios based on a business-as-usual RCP 8.5 that assumes the rate of emissions remains similar to today's rate.

Table 3: RCPs

High Global Emissions Scenario		Moderate Global Emissions Scenario		Low Global Emissions Scenario	
RCP 8.5	3.2 to 5.4°C by 2090	**RCP 4.5**	1.7 to 3.2°C by 2090	**RCP 2.6**	0.9 to 2.3°C by 2090
Representative of a scenario without additional efforts to constrain emissions. High GHG emissions scenario. Closest to a business-as-usual scenario.		Representative of a scenario that requires a moderate level of mitigation of GHG concentrations in the 21st century.		Representative of a scenario that requires strong mitigation of GHG concentrations in the 21st century. Most aligned with the IPCC recommendation to remain below 1.5°C.	

1 Climate Projections for Metro Vancouver
2 Climate Change 2014 Synthesis Report

Table 4: Scenario Analysis – Flood Analysis

Extreme Weather
More frequent and intense precipitation events and storm events

		High Global Emissions Scenario RCP 8.5 3.2 to 5.4°C by 2090
Metro Vancouver Climate Change Model Outputs[1]	Annual precipitation increases (fall +11%; spring +8%; winter +5%; summer -19%):	• Historic (from 2016 report): 1,869mm • 2050: 1,953mm
	Single day max precipitation (+17%):	• Historic (from 2016 report): 69mm • 2050: 81mm
	1 in 20 wettest day precipitation:	• Historic (from 2016 report): 89mm • 2050: 117mm
	95th percentile wettest days precipitation:	• Historic (from 2016 report): 398mm • 2050: 525mm
	99th percentile wettest days precipitation:	• Historic (from 2016 report): 122mm • 2050: 196mm
	Sea level rise[2]:	• 2050: 0.5m • 2100: 1.0m
Modelling	In 2023, we concluded a multi-year effort to develop a comprehensive computer model of the Sea Island stormwater and drainage system, funded under Transport Canada's Transportation Assets Risk Assessment Program. The model is intended to assist us with understanding how the drainage system performs under existing conditions and under anticipated future conditions. The outputs of the model are being used to inform decisions relating to the ongoing management of the stormwater drainage system operations, maintenance, and upgrades. The computer model analyzes a future design storm condition with sea level rise to year 2100, including projected boundary conditions and climate-adjusted Intensity-Duration-Frequency, based on guidance available to the Metro Vancouver region (as listed in the Metro Vancouver Climate Change Model Outputs above). The model outputs for future conditions were subject to a risk analysis using a framework similar to the Public Infrastructure Engineering Vulnerability Committee Protocol, and adjusted based on projected objectives and available information, considering the guiding principles of the ACI, International Civil Aviation Organization, Airport Cooperative Research Program ("ACRP"), and International Organization for Standardization 31000 documents. Underpinned by the Metro Vancouver climate projections, the risk assessment identified flood hazards for various storm events under both current and future conditions. This risk assessment evaluated the impact of flooding on YVR's infrastructure and operations. While the modelling exercise did not evaluate the financial impact under various storm events, an estimate of the anticipated spending to manage the flood risk is provided below.	
Results and Outcomes	The analysis indicated that a large number of flood risks are associated with more frequent storm events, such as those with a five-year return period. Overall, the system assessment revealed that several parts of the existing stormwater system could be backwatered, with some pipes exceeding their capacity during design storm events along with increased ponding on the apron and increased drainage issues. With that said, it was determined that in all scenarios, our existing drainage system adequately removes runoff from runways ensuring minimal disruption to flight operations. Importantly, none of the projected scenarios resulted in having a material impact to airport operations. The progressive raising of dikes, continuous improvements to pump stations and the drainage system along with flood hardening upgrades are amongst the ongoing multi-year investments that we are undertaking to strengthen our overall stormwater management system.	

1 Climate Projections for Metro Vancouver
2 https://vancouver.ca/green-vancouver/sea-level-rise.aspx

Table 4: Scenario Analysis – Flood Analysis (Continued)

Extreme Weather
More frequent and intense precipitation events and storm events

	High Global Emissions Scenario RCP 8.5 3.2 to 5.4°C by 2090
Physical and Operational Risks and Mitigation	See Physical Risk Matrix
Transition Risks	See Transition Risk Matrix
Financial Analysis	We will continue to monitor and analyze the potential costs associated with more frequent and intense precipitation and storm events under various scenarios as the information becomes available. We anticipate spending over $50 million in dike and pump stations upgrades around Sea Island.
Implications on our 2022–2024 Strategy	The analysis has helped us understand our exposure to the projected levels of precipitation and plan for greater resilience with our existing infrastructure to ensure that we continue to operate a safe, efficient, and resilient airport while protecting our existing assets to strengthen our core.

Table 5: Scenario Analysis – Impacts from Severe Snow Events

Extreme Weather
Unpredictable and unusual occurrence of extreme snow and extreme cold events

		High Global Emissions Scenario RCP 8.5 3.2 to 5.4°C by 2090
Metro Vancouver Climate Change Model Outputs[1]	Frost days (minimum temperature < 0°C)	• Historic (from 2016 report): 39 • 2050s: 11
	Ice days (maximum temperature < 0°C)	• Historic (from 2016 report): 4 • 2050s: 2
	Coldest winter night	• Historic (from 2016 report): -13°C • 2050s: -8°C
	Average winter nighttime low	• Historic (from 2016 report): -1°C • 2050s: 1.9°C
Modelling	While the Metro Vancouver modelling forecasts less extreme cold and less precipitation falling as snow, in recent years we have experienced unpredictable extreme weather events signalling additional planning to be better prepared. As such, for the unusual occurrence of extreme snow and extreme cold events, we based our analysis on the incremental cost of a significant snowstorm above a set of historical data points. While we have invested a significant number of resources into being better prepared for future extreme snow events, the severe winter storm in December 2022 provides the financial impact that we incurred from the operational disruptions as well as the costs associated with mitigating the impact.	
Results and Outcomes	A deep dive to identify lessons learned post-event is a fundamental step in supporting airport resilience and strengthened service for the passenger. As such, a formal After-Action Review was initiated after the December 2022 snowstorm. An action plan for how to be prepared for future events was created as a result. Costs associated with implementing the action plan from the After-Action Review to better manage future extreme snow events are provided below. Further information regarding our After-Action Review can be found at YVR Report & Action Plan: December 2022 Travel Disruption.	
Physical and Operational Risks and Mitigation	See Physical Risk Matrix	
Transition Risks	See Transition Risk Matrix	
Financial Analysis	The December 2022 snowstorm did not result in any material losses in aeronautical and concession revenue. In the last five years, winter operations expenditure to manage snow and ice days averaged $6 million per year. In 2022, this peaked at approximately $10.1 million due to the December snowstorm.	
Implications on our 2022–2024 Strategy	Lessons learned from events allow us to understand the potential impacts and help us build resilience for similar impacts of climatic changes in the future. This particular snowstorm allowed us to put preventative measures in place to build operational readiness to run a safe, efficient, and resilient airport that continues to serve our community and economy in the face of severe winter weather.	

1 Climate Projections for Metro Vancouver

Table 6: Scenario Analysis – Energy Usage from Extreme Cold Events

Extreme Weather
Unpredictable and unusual occurrence of extreme snow and extreme cold events

		High Global Emissions Scenario RCP 8.5 3.2 to 5.4°C by 2090
Metro Vancouver Climate Change Model Outputs[1]	Frost days (minimum temperature < 0°C)	• Historic (from 2016 report): 39 • 2050s: 11
	Ice days (maximum temperature < 0°C)	• Historic (from 2016 report): 4 • 2050s: 2
	Coldest winter night	• Historic (from 2016 report): -13°C • 2050s: -8°C
	Average winter nighttime low	• Historic (from 2016 report): -1°C • 2050s: 1.9°C
Modelling	Heating degree days ("HDD") are a measure of how cold the weather gets below an average temperature and for how many days, requiring heating of the building. The Airport Authority sets the average temperature for which indoor heating is likely required to compensate for outdoor temperatures below 17.5°C. This average value is based on empirical data for heating and cooling of the main terminal building. The further below this threshold the temperature drops, the more heating (total energy usage) is required. The calculation of these costs includes the rate of energy and natural gas usage. We based our assumption on the projected 25 per cent decrease in HDD provided by Metro Vancouver Climate data in 2050 and worked backwards to correlate an average 25°C increase in average temperatures for 2050 to forecast the total energy usage and energy cost in 2050.	
Results and Outcomes	HDD are projected to decrease by 25 per cent by the 2050s and by 40 per cent by the 2080s[1], offering energy and cost savings due to reduced demand for heating relative to today.	
Physical and Operational Risks and Mitigation	See Physical Risk Matrix	
Transition Risks	See Transition Risk Matrix	
Financial Analysis	With the projected decrease in HDD, if all other factors stay constant, in 2050 the annual natural gas usage is estimated to decrease by 23,000 GJ and result in cost savings of $660,000 compared to 2023 costs assuming a three per cent annual increase in natural gas rates. This assumes we continue to rely on natural gas and does not factor in the implications of the net zero by 2030 initiative, which includes switching from natural gas to a thermal energy heating and cooling energy solution. YVR is building one of Canada's largest geoexchange systems to harness the earth's own heating and cooling properties to replace natural gas usage for heating and cooling.	
Implications on our 2022–2024 Strategy	HDD are useful indicators of energy demands for mechanical heating. This information is important when planning HVAC systems, building design, energy systems, and related infrastructure. It also informs our roadmap to achieve net zero by 2030 and beyond.	

1 Climate Projections for Metro Vancouver

Table 7: Scenario Analysis – Energy Usage from Warmer-than-Average Temperatures

Extreme Weather Warmer-than-average temperature		
	High Global Emissions Scenario RCP 8.5 3.2 to 5.4°C by 2090	
Metro Vancouver Climate Change Model Outputs[1]	Temperatures > 25°C	• Historic (from 2016 report): 22 times/year • 2050s: 55 times/year
	Temperatures > 30°C	• Historic (from 2016 report): twice/year • 2050s: 14 times/year
	1 in 20 hottest days	• Historic (from 2016 report): 34°C • 2050s: 39°C
Modelling	Cooling degree days ("CDD") are a measure of how hot it gets above an average temperature and for how many days, requiring cooling for the building. The Airport Authority sets the average temperature for which indoor cooling is likely required to compensate for outdoor temperatures above 12.5°C. This average value is based on empirical data for heating and cooling of the main terminal building. The further above this threshold the temperature rises, the more cooling (total energy usage) is required. The calculation of these costs includes the rate of energy and electricity usage. We based our assumption on the same average temperature increase in 2050 as we used to calculate HDD to forecast the total energy usage and energy cost in 2050.	
Results and Outcomes	CDD are projected to increase by 116 per cent, increasing average energy usage and associated costs.	
Physical and Operational Risks and Mitigation	See Physical Risk Matrix	
Transition Risks	See Transition Risk Matrix	
Financial Analysis	With the projected increase in CDD, if all other factors stay constant, in 2050 the annual electricity usage is estimated to increase by 2,360 MWh and result in incremental electricity costs of $170,000 compared to 2023 costs assuming a three per cent annual increase in electricity rates. This assumes we continue to rely on our current cooling system and does not factor in the implications of the net zero by 2030 initiative, which includes a thermal energy heating and cooling energy solution. YVR is building one of Canada's largest geoexchange systems to harness the earth's own heating and cooling properties to replace natural gas usage for heating and cooling.	
Implications on our 2022–2024 Strategy	CDD are useful indicators of energy demands for mechanical cooling. This information is important when planning HVAC systems, building design, energy systems, and related infrastructure. It also informs our roadmap to achieve net zero by 2030 and beyond.	

1 Climate Projections for Metro Vancouver

TRANSITION RISK RATING

Using the climate projections and modelling from the IPCC Fifth Assessment Report, scenarios and climate models from the Government of Canada[1], and climate projections for Metro Vancouver[2], the Airport Authority has performed an initial risk evaluation on our ability to transition to a low carbon economy based on three scenarios: RCP 8.5, RCP 4.5, and RCP 2.6. The scope of the scenario analysis was limited to a high-level rating assessment of risks related to the transition to a lower carbon economy and risks related to the physical impacts of climate change (see both transition and physical risk assessment in tables 9–12).

Table 8: Transition Risk Rating Scenario Analysis

High Global Emissions Scenario		Moderate Global Emissions Scenario		Low Global Emissions Scenario	
RCP 8.5	3.2 to 5.4°C by 2090	**RCP 4.5**	1.7 to 3.2°C by 2090	**RCP 2.6**	0.9 to 2.3°C by 2090
Representative of a scenario without additional efforts to constrain emissions. High GHG emissions scenario. Closest to a business-as-usual scenario.		Representative of a scenario that requires a moderate level of mitigation of GHG concentrations in the 21st century.		Representative of a scenario that requires strong mitigation of GHG concentrations in the 21st century. Most aligned with the IPCC recommendation to remain below 1.5°C.	
Transition Risk: Moderate	**Physical Risk:** High	**Transition Risk:** Moderate	**Physical Risk:** Moderate–High	**Transition Risk:** High	**Physical Risk:** Low

1 Scenarios and climate models
2 Climate Projections for Metro Vancouver

Risk Management

Climate risk is considered an enterprise risk based on the strategic impact and rating of the risk, with mitigations informing both our Investment and Asset Management Program. Our ERM is based on a widely accepted risk management standard published by the Committee of Sponsoring Organizations of the Treadway Commission. Our climate change risk and resilience initiatives are consistent with guidance developed by ACI's World Environment Standing Committee, recommending that airports identify and prioritize climate-related risks, threats, and vulnerabilities.

We performed a risk assessment of our transition risks under all three scenarios: RCP 2.6 Low Global Emissions Scenario, RCP 4.5 Moderate Global Emissions Scenario, and RCP 8.5 High Global Emissions Scenario (see tables 9 and 10). While the RCP 8.5 High Global Emissions Scenario assumes no action would be taken to reduce emissions, we continued with our assessment under the assumption that regardless of a stalled transition, we would continue our journey to support the decarbonization of our sector.

Conversely, the modelled climate change range used for our physical climate change risk assessment is based on a business-as-usual RCP 8.5 and assumes the rate of emissions remains similar to today. Given that global mitigation actions have not caught up with emission reduction commitments, it is considered prudent to continue to employ this conservative approach for our physical climate change risks for our adaptation planning purposes[1]. Further, given that the differences between the scenarios are relatively small in climate change projections between now and the 2050s, it was appropriate to focus on the business-as-usual emissions scenario for these risks, which also corresponds to the approach adopted by Metro Vancouver (see table 12).

TRANSITION RISK ASSESSMENT

Our transition risk assessment focused on the risks and opportunities that we could potentially encounter as we transition to a lower carbon economy as well as the current and future mitigations in place to mitigate these impacts. We assessed risks and opportunities related to transitioning to a low carbon economy based on the recommendations set out by TCFD as noted below.

The TCFD recommendations outline the following four categories of transition risk:

- Policy and Legal Risks
- Technology Risks
- Market Risks
- Reputation Risks

The TCFD recommendations outline the following five categories of climate-related opportunities:

- Resource Efficiency
- Energy Source
- Products and Services
- Markets
- Resilience

1 Climate Projections for Metro Vancouver

PHYSICAL RISK ASSESSMENT

Our physical climate risk assessment is focused on the assets under the ownership and control of the Airport Authority, and includes an assessment of climate-related risks to our direct and indirect operations, set out in the Physical Risk Matrix (see table 12). The methodology adopted for our physical climate change risk matrix is guided by the ACRP Report 147 and is on the advice provided by peer airports. The methodology is focused on the use of available climate change data and includes the inputs of a cross-departmental Working Group, whose role was to inform and steer the climate risk identification and adaptation planning process via participation in a series of workshops at key stages during plan development. Their expert judgment has been employed in the identification of climate risks; their potential effects, likelihood, and consequences to infrastructure and operations; the robustness of our existing control measures that address these risks; and the adaptation response required to enhance our resilience to change impacts.

Transition Risk Matrix

Table 9: Transition Risks – RCP 2.6 Low Global Emissions Scenario and RCP 4.5 Moderate Global Emissions Scenario

Risks	Current and Potential Future Mitigations
Policy and Legal Risks	
More stringent regulatory environment for the decarbonization of the aviation sector impacting future growth	• Proactive decarbonization of Scope 3 emissions including: – YVR Energy Strategy (under development) will assess forecast demand and identify energy supply options to support the decarbonization of Sea Island building (Scope 1, Scope 2, and Scope 3) emissions • Implementation of the SAF Strategy for the decarbonization of aircraft: – For SAF, we have implemented a SAF incentive for airlines uplifting SAF in B.C. to support the uptake of SAF at YVR. Undertaking technoeconomic study of SAF production market in B.C. and beyond in partnership with the Ministry of Energy and Carbon Solutions ("MECS"), to understand the need for policy intervention and advocacy for the creation of SAF in B.C. – For hydrogen, we are undertaking a hydrogen infrastructure study for the potential uptake of hydrogen to support hydrogen-fuelled aircraft and ground transportation as part of an MOU with ZeroAvia and Airbus – For our groundside emissions, switch to electrified equipment and the use of low carbon and hydrogen fuels – Optimization gate scheduling and apron management for greater aircraft fuel efficiency • Development of an intermodal strategy for other alternative modes of transportation • Government relations collaboration and advocacy to support investment in low carbon technologies • Engagement and partnership with key industry stakeholders and Musqueam, including piloting of renewable technologies on Sea Island • Diversification of non-aeronautical revenues to mitigate dampened demand • Participation in Transport Canada's Sustainable Aviation Task Force to inform implementation of Canada's Aviation Climate Action Plan
More stringent net zero building standards leading to rising electricity demand and capital costs	• YVR Energy Strategy (under development) will assess forecast demand and identify energy supply options to support the decarbonization of Sea Island building emissions (Scope 1, Scope 2, and Scope 3) • Work in partnership with BC Hydro and Metro Vancouver to develop a Sea-Island Area Feasibility Study and Integrated Area Plan (10-year outlook) to secure sufficient redundant electrical supply to Sea Island for YVR and VAA tenants • Development and implementation of a governance framework that will drive the efficient prioritization of capital • Evaluation and adoption of energy-efficiency and net zero carbon principles while designing developments on Sea Island based on National Energy Code and other industry-established green building standards
Increase in travel advisories because of climate-related weather events leading to flight delays and cancellations	• Diversification of non-aeronautical revenues and route networks • Implementation of the Irregular Operations Plan to deal with operational delays • Utilization of data and technologies, including Artificial Intelligence and machine learning, to model the impacts of climate change to improve predictability

Risks	Current and Potential Future Mitigations
Technology Risks	
Uncertainty with the adoption of new aircraft technology results in reduced return on capital invested from stranded assets (e.g., SAF, hydrogen, electric aircraft, propulsion technologies)	• Phased approach to uptake of any future technologies including pilot programs providing a test bed for new technologies, partnering with external stakeholders and Musqueam, and supporting research and development including: – For SAF, we have implemented a SAF incentive for airlines uplifting SAF in B.C. to support the uptake of SAF at YVR. Undertaking a technoeconomic study of SAF production market in B.C. and beyond in partnership with MECS to understand the need for policy intervention and advocacy for the creation of SAF in B.C. – For hydrogen, we are undertaking a hydrogen infrastructure study for the potential uptake of hydrogen to support hydrogen-fuelled aircraft and ground transportation, with outcomes to include potential pilot studies – To support electric aircraft technology, the electrical demand study will assess future electrical demand and capacity as part of the YVR Energy Strategy
Insufficient investment in technologies needed to keep up with transition (at the airport level, province level, country level, and/or globally)	• Public policy advocacy to support investment in low carbon technologies • Engagement and partnership with industry stakeholders and Musqueam • Development and implementation of a governance framework that will drive the efficient prioritization of capital
Insufficient low or zero carbon energy needed to meet demand	• YVR Energy Strategy (under development in conjunction with the YVR Energy Council) will assess forecast demand and identify energy supply options to support the decarbonization of Sea Island building emissions (Scope 1, Scope 2, and Scope 3) • Implementation of energy-efficient technologies and practices • Prioritization of energy for critical uses, and phasing of when new demand is brought online • Engagement and partnering with industry stakeholders and Musqueam • Development and implementation of a governance framework that will drive the efficient prioritization of capital
Market Risks	
Increase in carbon pricing leading to higher ticket prices and potential dampened demand	• YVR SAF Strategy • Proactive decarbonization of Scope 3 emissions (see above for detailed actions) to reduce carbon intensity • Development of an Intermodal Hub Strategy, which includes options for zero and low carbon transportation alternatives • Diversification of non-aeronautical revenues to mitigate dampened demand
Increased prices associated with renewable energy and renewable fuels (e.g., SAF, hydrogen, LCJF) result in increased costs, dampened demand, and reduced capacity	• Continue to work with government and key industry stakeholders to partner, collaborate, and advocate for access to funding – For SAF, we have implemented a SAF incentive to support the uptake of SAF at YVR and a technoeconomic study of SAF market in B.C. and beyond in partnership with MECS, to understand the need for policy intervention and advocacy • Implementation of energy efficiencies • Potential renewable energy production investment as part of the YVR Energy Strategy development and implementation • Diversification of non-aeronautical revenues to mitigate dampened demand
Low Carbon Alternative Transport Options (e.g., rail, e-ferries) result in increased competition and dampened demand	• Development and implementation of an Intermodal Hub Strategy for Sea Island • Engagement and partnering with industry stakeholders and Indigenous communities • Diversification of non-aeronautical revenues to mitigate dampened demand

Risks	Current and Potential Future Mitigations
Impacts to global supply chain networks (e.g., goods and services, cargo) result in increased capital costs and reduced return on invested capital	• Implementation of project governance, which captures additional costs and additional sourcing time • Implementation of the Supply Chain Management Strategy, which includes diversifying our suppliers, sourcing alternatives to products, building up appropriate stores, and potential near-shoring
Passenger profiles favouring decarbonization impact aviation market demand	• Development and implementation of our RTNZ for Scope 1 and Scope 2 emissions • Proactive decarbonization of Scope 3 emissions by working with airlines and airport partners • Development of an Internal Hub Strategy for Sea Island • Optimization of airspace and apron management for greater aircraft fuel efficiency • Diversification of non-aeronautical revenues to mitigate dampened demand • Development of a YVR Energy Strategy
Reputation Risks	
Shift in consumer and public expectations results in customer dissatisfaction and reputational risk	• Proactive decarbonization of our Scope 1, Scope 2, and Scope 3 emissions • Communication and education in support of decarbonization of the sector • Development of an Intermodal Hub Strategy for Sea Island

Table 10: Transition Risks – Business-as-Usual RCP 8.5 High Global Emissions Scenario

Risks	Current and Potential Future Mitigations
Policy and Legal Risks	
Slowing, reversed regulatory environment for the decarbonization of the aviation sector impacting speed of transition	• Public policy advocacy to support investments in low carbon technologies • Engagement and partnering with industry stakeholders and Musqueam to advance the transition • Proactive decarbonization of our Scope 1, Scope 2, and Scope 3 emissions, regardless of reduced pace of transition • Communication and education in support of decarbonization of the sector
Increase in travel advisories because of climate-related weather events leading to flight delays and cancellations	• Diversification of non-aeronautical revenues and route networks • Implementation of the Irregular Operations Plan to deal with operational delays • Utilization of data such as Artificial Intelligence and machine learning to model the impacts of climate change to improve predictability • Increase in intermodal options for movement of goods and people at YVR
Technology Risks	
Premature investments and adoption of low carbon aircraft technology (at the airport level) result in reduced return on capital invested from stranded assets (e.g., SAF, hydrogen, electric aircraft, propulsion technologies)	• Phased and multifaceted approach and partnering for development and uptake in any future technologies such as pilot programs – acting as a test bed for new technologies, partnering with external stakeholders and Musqueam, supporting research and development to reduce the risk • Public policy advocacy to support investments in low carbon technologies • Development and implementation of a governance framework that will drive the efficient prioritization of capital • Diversification of non-aeronautical revenues to mitigate potential losses from stranded assets

Risks	Current and Potential Future Mitigations
Insufficient investment in technologies needed to transition (at the provincial level, country level, and/or globally) results in high pricing for available technology and limited access to new technology and low carbon fuels	• Public policy advocacy to support investments in low carbon technologies • Engagement and partnering with industry stakeholders and Musqueam to advance research and development for low carbon technology • Diversification of non-aeronautical revenues to increase capital for adoption of available low carbon technology
Market Risks	
Increasing energy and renewable fuel pricing (SAF, hydrogen, LCJF) from challenges in meeting economies of scale results in increased costs for adoption and uptake	• Continuation of work with government and key industry stakeholders to partner, collaborate, and advocate for investments and support for the development and uptake of low carbon fuels • Implementation of energy efficiencies • Diversification of non-aeronautical revenues to increase capital for uptake of available low carbon fuels
Reputation Risks	
Consumer and public expectations result in customer dissatisfaction and reputational risk	• Proactive decarbonization of our Scope 1, Scope 2, and Scope 3 emissions, regardless of slowed transition • Communication and education in support of decarbonization of the sector

CLIMATE-RELATED OPPORTUNITIES

Table 11: Climate-Related Opportunities

Opportunity Category	Opportunities
Energy Source Markets	• Development of new renewable fuel markets (e.g., SAF, hydrogen, power to liquid, low emission jet fuel) • Potential revenue opportunity with renewable energy production on and off Sea Island • Sea Island as a test bed/incubator for new technologies and energy generation
Tourism Markets	• Sea Island as an intermodal hub for passengers and cargo (including high-speed rail, fast ferries, river cargo, enhanced regional transit connections)
Alternative Markets Products and Services	• Development of new multi-modal alternatives (e.g., high-speed rail, e-ferries)
Cargo Markets Products and Services	• A potential increase in air cargo due to supply chain disruptions from more vigorous climate stressors
Energy Efficiency	• Cost savings from the implementation of energy-efficient technologies and practices and on-site renewable generation • YVR as a low carbon route/air gateway between Asia and the Americas
Ecosystem Health	• Ecosystem health benefits from a reduction in emissions

Physical Risk Matrix

Table 12: Physical Risk Matrix – Business-as-Usual RCP 8.5 High Global Emissions Scenario

Climate Stressor	Airport Impact	Existing Mitigations	Future Mitigations
More frequent and intense precipitation events, including storm events	Airside disruptions and delays due to flooding and standing water	• Irregular operations guidance/ procedures • Regular inspections and maintenance of infrastructure	• Continuous development of the Stormwater and Drainage Plan and Airside Drainage Maintenance Plan • Drainage infrastructure improvements
	Risk of bird strikes due to increased migratory bird activity	• Wildlife Management Program to ensure the safety of aircraft operations and wildlife. This includes habitat and vegetation management. • Avian radar to track and understand patterns of bird behaviour	• Mitigation/eradication of standing water • Expanded avian radar • Cooperation with neighbouring municipalities to reduce standing water and land uses that attract migratory birds
	Dike and drainage systems overwhelmed due to sea level rise, storm surge, flooding, and wind and wave build-up	• Implementation of Dike Plan – progressive raising of all reaches to 4.7m (see SICA West Dike Upgrade below) • Stormwater Management Plan to minimize future development impacts, protect existing infrastructure, and improve flood mitigation • Updated drainage and flood modelling (see storm drainage section below) • Regular inspections and maintenance of stormwater infrastructure	• Continue to perform inspections, maintenance, and upgrades of dikes, pump stations, and stormwater drainage • Continuous development of the Stormwater and Drainage Plan • Investigate implementation of grooved runway pavement to improve traction and drainage during heavy precipitation
	Operational impacts on and damage to critical buildings due to flooding	• Relocation of the data centre to a location above sea level and shifting common use systems to software as a service • Digital Plan and IT Disaster Recovery Plan to address resilience of the IT systems • Design standards for both buildings and pavement	• Ongoing IT infrastructure upgrades to raise critical infrastructure above sea level • Continuous maintenance of International Terminal Building roof • Monitoring and investigation of impacts of climate change on groundwater levels
	Disruption to road access and parking availability due to flooding	• Operational procedures including warning signs on roadway to notify drivers of hazardous conditions • Rerouting public to other ground access alternatives	• Continuous development of the Stormwater and Drainage Plan • Installation of additional sump pumps in parkade
	Airside disruptions due to electrical storms	• Lightning detection system ("THOR") • Procedures in place around operations and refuelling	• Further assessment to determine impacts of climate change on occurrence of electrical storms

Climate Stressor	Airport Impact	Existing Mitigations	Future Mitigations
	Disruptions to power supply due to flooding	• Emergency power/backup generators available	• Flood-hardening upgrades to our electrical substation (medium to long term) • Review of improvements to emergency power and backup generators
	Disruption to the electrical distribution system on Sea Island due to flooding	• Emergency power/backup generators available in event of loss of power supply • Stormwater Management Plan to minimize future development impacts, protect existing infrastructure, and improve flood mitigation	• Ongoing development of the Electrical Plan to address work supporting state of good repair for key electrical assets and future growth
	Damage to Sea Island bridges due to flooding	• Regular bridge inspections	• Evaluate need for scour mitigation measures to protect the integrity of bridge structures, where necessary • Ongoing coordination with external working groups for the Lower Mainland Flood Management Strategy
Warmer-than-average temperatures	Impacts to the baggage system due to warmer-than-average temperatures	• Mobile fans	• Further upgrades to our baggage system and/or the climate controls in bag halls
	Overheating of critically important operational buildings/systems (e.g., server rooms)	• Existing International Terminal Building and Domestic Terminal Building cooling systems are interconnected to meet existing peak cooling loads • Emergency power/backup generators in the event of loss of power supply • Technical standards developed for electrical and communications equipment room cooling	• Feeder replacements to improve the redundancy of power supply for the main feed to both the Domestic and International Terminal Buildings (medium to long term) • Increase resilience of the HVAC cooling system to ensure peak cooling capacity is met
	Airside disruptions due to low visibility conditions from wildfire smoke	• Low Visibility Operations Plan and CAT II/III runway capability to support operations during fog/low visibility events • Increased redundancy for backup power support for Low Visibility Operations	• Lighting upgrades to further support low/reduced visibility operations
	Increased energy demand for cooling of buildings	• HVAC Asset Plan and system upgrades • Energy Management as part of the RTNZ commitment • Design standards for new buildings to address the impacts to building envelopes	• Implementation of Energy Management Information System • Ongoing development of the Electrical Master Plan • Completion of the geoexchange facility to support terminal heating and cooling

Climate Stressor	Airport Impact	Existing Mitigations	Future Mitigations
	Increased energy demand for cooling of aircraft on stands	• Installation of Ground Power Units ("GPU") and Preconditioned Air Units ("PCA") to allow operators to plug into electric power at aircraft stands	• Ongoing investment in GPU and PCA
	Health and safety impacts to employees	• Health and safety procedures • On-site medical/First Aid facilities are available	• Provision of cooling stations and water bottle filling stations • Assessment of procedures in other locations where > 30°C temperatures are the norm
Increased duration of dry spells	Reduced availability of water	• Water consumption reduction targets and water reduction initiatives set out in our 2020–2024 Environmental Management Plan	• Water monitoring, auditing, and leak detection programs • Water shortage contingency plan • Rainwater collection for non-potable uses
	Fire: vegetation fire, aviation fuel fire, and increased forest fires	• Hazardous Materials Management Program to describe proper use, handling, and storage practices when working with hazardous materials • Hazardous Materials Spill Response Plan to manage fuel fires • Vegetation Management Plan to reduce the potential spread of fire ignitions and spread • Low Visibility procedures for forest fires (see mitigations for changes to the occurrence of fog below)	• Ongoing emergency and fire planning
Unpredictable occurrence of extreme snow and extreme cold events	Inability to effectively respond to prolonged/ extreme snow/ice and cold temperatures – including de-icing and snow clearing	• Additional de-icing chemical storage to support additional on-site de-icing chemical supply	• Ongoing snow fleet renewal • Ongoing implementation of mitigations including enhancing winter and irregular operations, enhancing cross-team collaboration, accelerating investments in technology and data, enhancing in-terminal passenger support, and improving communications to passengers and public
	Interruptions to transit service	• Bus bridges available in event of system closures • Other ground access alternatives available	• Ongoing liaison with stakeholders for effective risk management
	Impacts to the baggage system due to extreme cold events	• Mobile heaters	• Upgrades to our baggage system and/or the climate controls in baggage halls
Changes to the occurrence of fog	Airside disruptions due to low visibility conditions from fog	• Low Visibility Operations Plan and CAT II/III runway capability to support operations during fog/low visibility events • Increased redundancy for backup power support for Low Visibility Operations	• Lighting upgrades to further support low/reduced visibility operations • Further monitoring to understand the impacts of climate change on the occurrence of fog

2024 Results

ROADMAP TO NET ZERO ("RTNZ")

In 2024, guided by the RTNZ Multi-Year Investment Plan, the Airport Authority made progress on our carbon reduction projects and initiatives. These included:

Building Energy Conservation and Electrification

- We completed two major lighting projects, replacing 21,000 lights across the terminal with energy-efficient LED equivalents, saving enough energy to power over 200 B.C. homes every year. We also installed energy-storing flywheels, so that YVR's airfield lighting systems are powered with electricity rather than diesel. These projects are saving more than 86 tonnes of carbon per year. The four major heating, cooling, and ventilation projects we've completed so far will enable us to optimize energy-efficient heating and cooling through better control of temperature set points and scheduling. These projects will result in saving 375 tonnes of carbon reductions annually. We are also converting heating loops to accommodate lower temperature inputs in preparation for future connection to the geoexchange system.
- We've installed high efficiency condensing boilers for hot water and connected some of our terminal tenants onto the hot water loop as opposed to an independent heater, resulting in 72 tonnes of carbon savings per year.
- We installed an electrical flywheel system to reduce diesel fuel use by backup generators for airfield lighting.

Green Fleets

- We reduced emissions from our light duty fleet by retiring gasoline-powered vehicles and purchasing nine battery-electric, two hydrogen fuel cell and three plug-in hybrid models since 2021. Our fleet is now 21 per cent electric. All our airside buses are fully electric. We completed planning for electric vehicle charging stations to be installed by 2025 to support partner and fleet vehicle electrification.

Renewable Fuels

- YVR is purchasing carbon-neutral biofuels like renewable natural gas ("RNG") for some of our energy needs. RNG is made from organic material such as landfill waste, cow manure, or other inputs. In 2024, we bought over 36,000 GJ of RNG – enough to reduce our emissions by 1,803 tonnes while providing 36 per cent of YVR's main terminal's heating needs. We also switched to 100 per cent renewable diesel fuel for the majority (62 per cent) of our airside diesel fleet needs – purchasing over 110,800 litres and saving an additional 297 tonnes.

Closing the Gap

- We continued market research in anticipation of some carbon removal purchase to occur in 2026.

Other steps taken in 2024 included working with external funding partners such as the provincial and federal governments, BC Hydro, and FortisBC to maximize incentive funding for studies, energy-efficiency initiatives, and decarbonization projects aligned with our net zero by 2030 goals. Furthermore, the Airport Authority has a 2024–2026 Strategic Energy Management Plan to guide energy-efficiency objectives at YVR. This includes significant investment into building a comprehensive energy metering and continuous optimization program over the next three years. More information around our environmental performance can be found in our 2024 Sustainability Report: ESG Performance.

WORKING WITH BUSINESS PARTNERS FOR A BIGGER IMPACT

Beyond our own emissions (Scope 1 and Scope 2), there is the potential for greater carbon reductions by addressing fuel use from aircraft departing and arriving at YVR, our Sea Island business partner emissions, and supply chain emissions (Scope 3). Some of the initiatives that took place in 2024 to support carbon reductions in these areas included:

- Initiating work on a YVR Energy Strategy to consider future energy needs and how they can be met with low carbon supply;
- Supporting the development of an ongoing supply of sustainable aviation fuel at YVR;
- Expanding our airside electric charging station network to support the ongoing uptake of electric ground support equipment by Air Canada and ground handling companies;
- Continuing implementation of YVR's APU Shutdown Procedure, coupled with providing reliable, fixed ground power to encourage crews to shut down aircraft engines and plug into B.C.'s clean electricity grid;
- Providing incentives to Airport Authority employees who walk, bike, take transit, or rideshare to work through YVR's certification as a Transit Friendly Employer and through our Green Commuter Program.

STORM DRAINAGE

YVR is located on Sea Island, most of which is at an elevation below the 200-year return period (design) for coastal and Fraser River flood levels. Sea Island is subject to flooding and erosion hazards from the Fraser River and the coastal processes of the Strait of Georgia in the Salish Sea. Consequently, the island is protected by a 15-kilometre-long system of dikes and bank protection works. To limit the potential of lowland flooding inside the dike resulting from rainfall events, an extensive drainage system has been developed. This system conveys drainage from roads and airside areas to a series of drainage ditches and eventually to floodboxes and drainage pump stations integral to the dike system. The combination of perimeter dikes and the drainage system acts to protect Sea Island from a variety of flood hazards.

In 2023, we concluded a multi-year effort to develop a comprehensive computer model of the drainage system to understand how our drainage system performs under current and projected future conditions, and to inform decisions relating to the ongoing management of the stormwater drainage system. The outputs of the model are being used to inform decisions relating to the ongoing management of the stormwater drainage system operations, maintenance, and upgrades. (A more detailed description of the modelling inputs and outputs can be found in table 4).

We are also in the process of replacing four pump stations serving the storm drainage system on Sea Island. The replacement of the pump stations was designed to accommodate additional needs for drainage due to climate change.

We will continue to use the computer drainage model and risk analysis results to guide future decisions related to operation, maintenance, rehabilitation, and enhancement of the drainage system serving YVR.

The Sea Island Conservation Area ("SICA") West Dike Upgrade

Sea Island is protected by a 15-kilometre-long system of dikes, incidental bank protection works, pump stations, and floodboxes. The SICA West Dike is a 2.5 kilometre dike that borders the north side of Sea Island and the North Arm of the Fraser River. The upgrade project involves raising the existing dike by approximately one metre and realigning portions of the ditch for improved drainage. In 2023, we completed the design phase of the project with a setback from river design to avoid impact to marshes and riparian vegetation. In 2024, we completed the dike construction with final landscaping to be completed in the first quarter of 2025.

Metrics and Targets

We publicly disclose our climate change metrics and progress towards our key performance indicators annually in our 2024 Sustainability Report: ESG Performance and our 2024 Executive Compensation disclosure, both available for download from this web page.

Appendix A

CLIMATE CHANGE ADAPTATION

Warmer than average temperatures and more extreme hot temperatures, increased likelihood of drought.

More frequent and intense precipitation events and storms events.

Less precipitation falling as snow overall; unpredictable snow and extreme cold.

Changes to the occurrence of fog.

Risk: Extreme heat, overheating of buildings and systems (i.e. baggage system)

Mitigation: Emergency power/ backup generators, development of technical standards, increased HVAC resilience, mobile fans

Risk: Changes to migratory bird patterns, increased risk of bird strikes

Mitigation: Wildlife management plan, avian radar, reduction of standing water

Risk: Increased occurrence of low visibility conditions due to fog and wildfires

Mitigation: CAT III Runway capability, Low Visibility operations planning, increased redundancy of back-up power, lighting upgrades

Risk: Disruption of power supply and electrical distribution

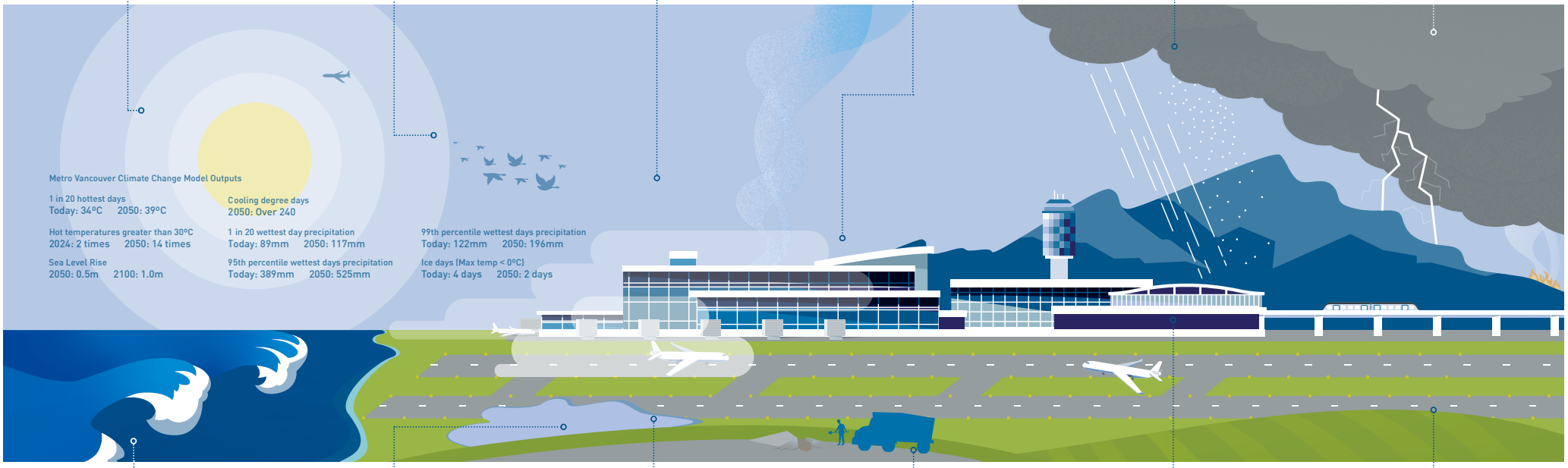
Mitigation: Emergency power/ backup generators, flood-hardening upgrades to our electrical substations, development of Electrical Plan

Risk: Extreme snow/ cold, de-icing / snow clearing needs

Mitigation: Added de-icing chemical storage, irregular operations procedures, fleet renewal, technology/ data investment, communication

Risk: Electrical storms, airside disruptions

Mitigation: Lightning detection system, operational procedures



Risk: Storm surge and flooding, overwhelming dikes and drainage systems

Mitigation: Implementation of Dike Plan, flood model updates, development of Stormwater and Drainage Management Plan, regular monitoring and maintenance of ditches and pumpstations

Risk: Flooding – airside pavement, disruptions and delay

Mitigation: Irregular operations procedures, maintenance, and asset management, updated design standards and infrastructure improvements, Stormwater and Drainage Plan

Risk: Flooding, impacts to critical infrastructure and bridges

Mitigation: Updated design standards Relocation of critical IT and electrical infrastructure, regular monitoring and maintenance. Bridge inspections, scour mitigation measures, Lower Mainland Flood Management Strategy

Risk: Extreme heat, health and safety impacts to employees

Mitigation: Health and safety procedures, provision of cooling stations

Risk: Extreme heat, increased energy demand for cooling of buildings and aircraft stands

Mitigation: HVAC Asset Plan, energy management, design standards, Electrical Management Plan, geo-exchange facility, GPUs, PCAs

Risk: Extreme heat, impacts to the integrity of airside pavement

Mitigation: Regular inspections, rapid maintenance response, updated design standards