

2023 Climate Change Resilience Report



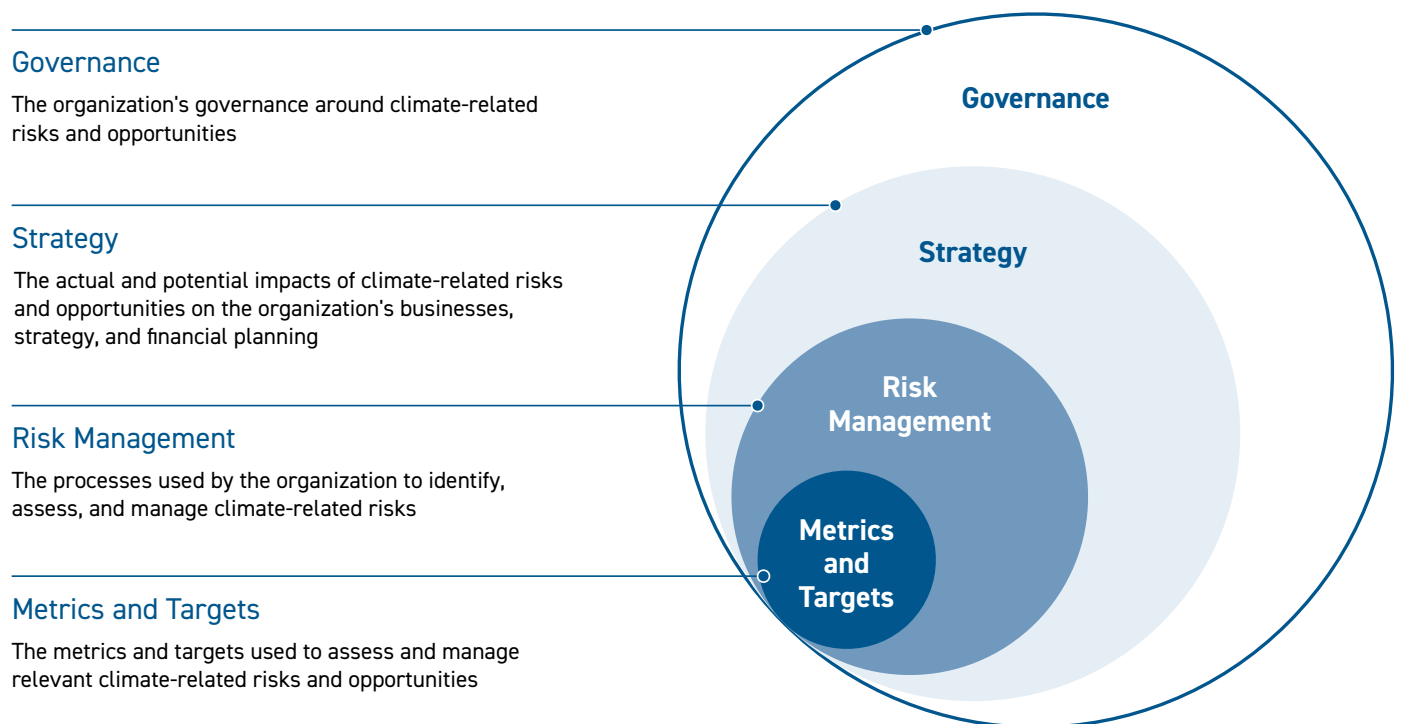
About This Report

The following document supplements our [2023 Sustainability Report: ESG Performance](#) and is informed by the recommendations laid out by the [Task Force on Climate-related Financial Disclosures \(TCFD\)](#). This report reflects the climate change risk management information of the Vancouver Airport Authority (the "Airport Authority") and our operation of Vancouver International Airport (YVR) and contemplates disclosure related to the four core elements of the TCFD framework: Governance, Strategy, Risk Management and Metrics and Targets.

This report represents the first year of reporting on our climate-related risk disclosures and 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. While we are in the beginning phases of our journey, the analyses of climate scenarios and financial assessment are evolving and iterative. We are taking the necessary steps to mature our approach and integrate them as part of our strategic planning and enterprise risk management practices to better understand how climate may impact our business and how we can leverage the business opportunities to strengthen the overall resilience of our business model.

YVR is Canada's second largest airport and a diverse global hub that provides critical and strategic links between Vancouver and markets around the world. We are focused on reducing emissions from our operations. We became a carbon neutral airport in 2020, and in 2021 we announced our [Roadmap to Net Zero \(RTNZ\) by 2030](#) which, in conjunction with our [2020-2024 Environmental Management Plan \(EMP\)](#), outlines our commitment to achieve net zero carbon from direct emissions from airport operations by 2030. Our pathway to decarbonization is committed to reducing carbon emissions and improving energy efficiency.

Core Elements of Recommended Climate-Related Financial Disclosures



Governance

The Airport Authority is a private non-share capital corporation formed in 1990 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 who are appointed via a series of nominations from professional and other bodies reflecting the skills and expertise needed to govern the Airport Authority. The Board of Directors oversee the business conduct and activities of the 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
- The Governance Committee
- The Human Resources Committee
- The Development Committee

The Board provides oversight of our climate initiatives across various areas of focus which include our strategic objectives outlined in our [2022–2024 Strategic Plan](#); Roadmap to Net Zero by 2030; Environmental Management Plan; Enterprise Risk Register and Asset Management Program. 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 \(Jan. 2023, V2\)](#)).

The Board is responsible for monitoring the Airport Authority's Enterprise Risk Management Program ("ERM"). 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.

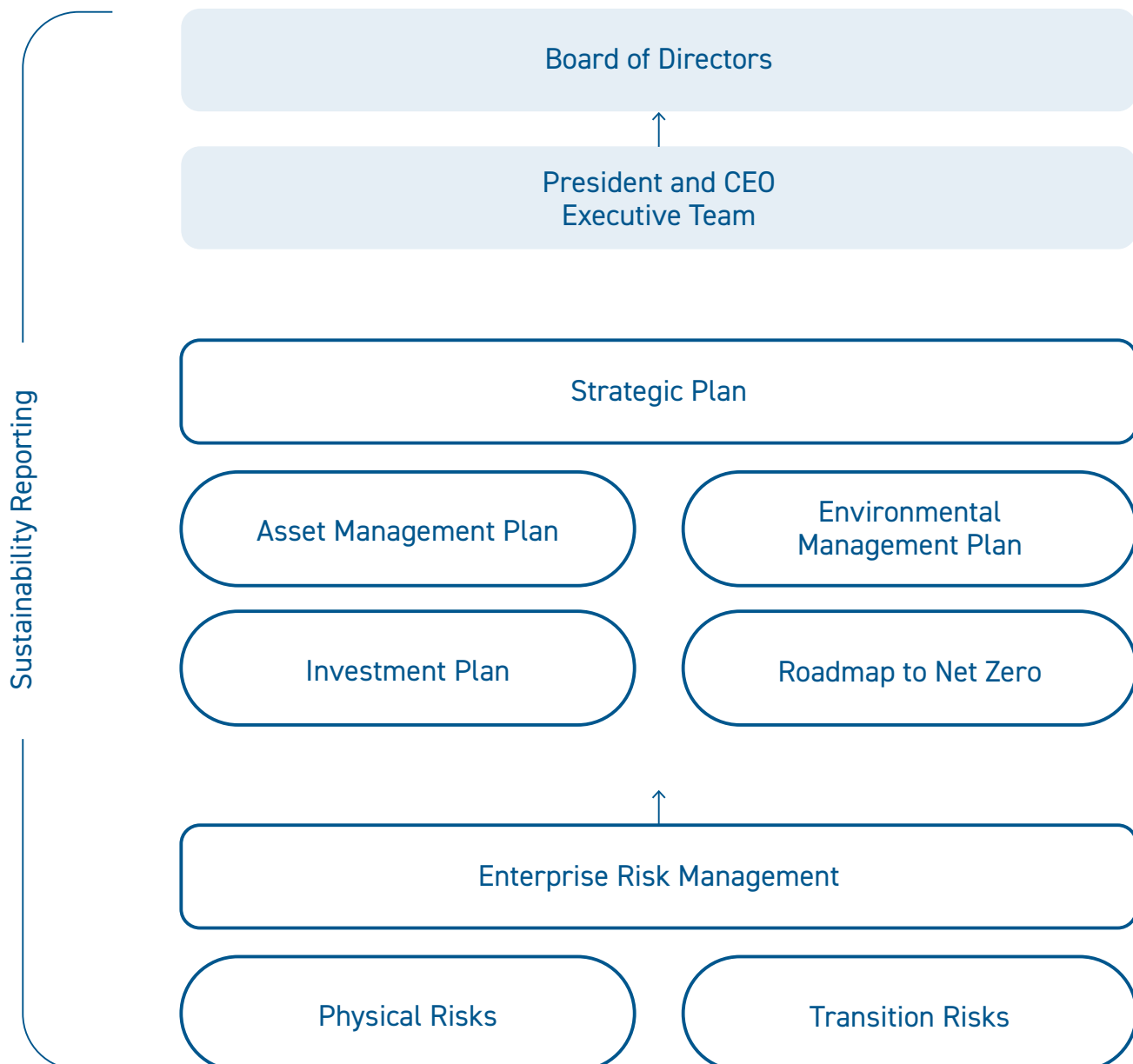
At a Board committee level, the Governance Committee provides specific oversight to compliance with applicable environmental laws and regulations, Environmental, Social and Governance (ESG) objectives and TCFD reporting. The Finance and Audit Committee provides oversight over both our ESG reporting (including 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 Strategy. The Development Committee also recommends large project investments for approval by the Board and ensures that adequate maintenance and asset management processes and programs, necessary to ensure safety, resilience, value preservation and risk mitigation, are in place.

Our Climate and Environment team is responsible for our climate mitigation actions outlined in our Roadmap to Net Zero 2030 Plan and Environmental Management Plan (EMP), with the Director of Climate and Environment reporting directly to the CEO.

The Climate Adaptation Working Group is a cross-departmental group with representation from Planning, Finance, Climate and Environment, Engineering, Operations and Maintenance. The working group meets on a bi-annual basis to assess and monitor our climate resilience and adaptation risks. The work of this group informs the climate risks in our Enterprise Risk Register, Project Investment Plan and Asset Management Plan. The Asset Management Plan is under the direct responsibility of the VP, Airport Development and the overall Capital Investment Plan is under the direct responsibility of the VP, Finance and CFO. 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 as well as the ERM Program and Reporting, which includes climate risks on the Enterprise Risk Register, with the Director of ERM and Sustainability reporting directly to the VP, Finance and CFO.

Table 1: Climate Governance



Strategy

SCENARIO ANALYSIS

Representation Concentration Pathways (RCPs) are a standard set of scenarios outlined in the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report.¹ RCPs depict different pathways of greenhouse gas (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.

Using the climate projections and modelling from the IPCC Fifth Assessment Report, Scenarios and Climate Models from the Government of Canada² and Climate Projections for Metro Vancouver,³ the Airport Authority has performed an initial risk evaluation based on three scenarios — RCP 8.5, RCP 4.5 and RCP 2.6. The scope of the scenario analysis was limited to a very 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. The Recommendations of the Task Force on Climate-related Financial Disclosures recognizes the complexities of scenario analysis and potential resources needed to conduct the analysis.⁴ We are in the beginning phases of our journey in applying scenario analysis and are taking the steps necessary to gain more rigour and sophistication in this space.

Table 2: Representation Concentration Pathways (RCPs)

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

1 [Climate Change 2014 Synthesis Report](#)

2 [Scenarios and Climate Models](#)

3 [Climate Projections for Metro Vancouver](#)

4 [Recommendations of the Task Force on Climate-related Financial Disclosures](#)

YVR's STRATEGIC APPROACH TO CLIMATE

As part of our commitment to sustainability, we have taken a proactive approach to managing risks under a Higher Global Emission Scenario while taking action to lead industry towards the Low Global Emission Scenario. We have integrated Climate into our strategy in the following key areas:

2022–2024 STRATEGIC PLAN

Aviation remains one of the most difficult industries to decarbonize. 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, along with the remaining lenses, in all the decisions we make. Our commitments to climate are highlighted as a specific strategic workstream. In 2021, we announced our commitment to achieve net zero carbon for our Scope 1 and 2 emissions in our Roadmap to Net Zero by 2030, 20 years ahead of the Airport Council International (ACI) World's global aviation goal of net zero carbon by 2050. We estimate that an investment of \$135 million over the next 10 years will be required to meet our net zero commitment as set out in our Roadmap to Net Zero by 2030.

CLIMATE CHANGE ADAPTATION

In addition to our climate mitigation efforts outlined in our Roadmap to Net Zero by 2030, 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 capital and asset management program, 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 cooling 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 BY 2030 (RTNZ)

Air emissions are a key indicator of our impact on the atmosphere and managing greenhouse gases is an important priority for the aviation industry. We have been carbon neutral for emissions under our operational control (Scope 1 and 2 emissions) as well as business travel (Scope 3 emissions) since 2020. In October 2021, we announced an important next step in our climate action journey with our commitment to achieve net zero carbon emissions for our Scope 1 and 2 emissions by 2030.

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 geo-exchange.
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. Replacement of fossil fuels with renewable alternatives – 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 Plan — 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 are provided to the Executive Team on the investment plan including project statuses.

SEA ISLAND ENERGY STRATEGY

We recognize the greater role we can play in our airport ecosystem. 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, our Scope 3 emissions. These emissions come from aircraft operations (takeoff and landing, use of aircraft Auxiliary Power Units), ground support equipment, leased property and buildings, and ground transportation on the Island. Over half of these emissions are from aircraft operations. Our Sea Island Energy Strategy is intended to advance our global leadership in decarbonizing aviation and align with industry goals to reach net zero by 2050. As part of this strategy, we are exploring Sea Island's future energy demand, taking into consideration the different roles our airport community will play in supporting a low-carbon economy. Areas to replace fossil-based jet fuel such as with SAF, electricity and hydrogen; optimizing energy usage for land and building development; and decarbonizing ground transportation will be explored as part of the development of our Sea Island Energy Strategy.

SUSTAINABLE AVIATION FUELS (SAF) STRATEGY

In 2023, our Scope 3 emissions are estimated to be 294,167 tonnes CO₂e. SAF has the potential to reduce an aircraft's emissions by up to 80% 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% of projected Canadian jet fuel use by 2030. In alignment with national and industry goals and as part of our Sea Island Energy Strategy, we are currently exploring our role in the advancement and deployment of SAF — both at YVR and within the broader region.

Risk Management

Climate risk is considered an enterprise risk based on the strategic impact and rating of the risk with mitigations informing both our Capital and Asset Management Program. Our Enterprise Risk Management Program is based on a widely accepted risk management standard published by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

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. Our 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 below in the Climate Change Risk Matrix.

The modelled climate change range used for our climate change risk matrix is based on a "Business as Usual" Representative Concentration Pathway 8.5 (RCP 8.5) and assumes that the rate of emissions remains similar to today. Given global mitigation actions have not caught up with emission reduction commitments, it is considered prudent to continue to employ this conservative approach for climate change adaptation planning purposes.¹ Further, given that the differences between the scenarios are relatively small in climate change projections to the 2050s, it was considered appropriate to focus on the "Business as Usual" emissions scenario which corresponds to the approach adopted by Metro Vancouver.

The methodology adopted for our climate change risk matrix is guided by Airport Cooperative Research Program (ACRP) Report 147 and 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 which address these risks; and the adaptation response required to enhance our resilience to change impacts.

1 [Climate Projections for Metro Vancouver](#)

Table 3: Climate Change Risk Matrix

Climate Stressor	Airport Impact	Existing Mitigations	Future Mitigations
More frequent and intense precipitation events, including storm events	Airside disruptions and delay due to flooding and standing water	<ul style="list-style-type: none"> Irregular operations guidance/procedures Regular inspections and maintenance of infrastructure 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Wildlife Management Plan 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 	<ul style="list-style-type: none"> Mitigation/eradication of standing water Additional 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		<ul style="list-style-type: none"> 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 Drainage and flood modelling updated (see storm drainage section below) Regular inspections and maintenance of stormwater infrastructure 	<ul style="list-style-type: none"> Ongoing inspections, maintenance and upgrades of dikes, pumpstations 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	<ul style="list-style-type: none"> 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
Disruption to road access and parking availability due to flooding		<ul style="list-style-type: none"> Operational procedures including warning signs on roadway to notify drivers of hazardous conditions Rerouting public to other ground access alternatives 	<ul style="list-style-type: none"> Continuous development of the Stormwater and Drainage Plan Installation of additional sump pumps in parkade
Airside disruptions due to electrical storms		<ul style="list-style-type: none"> Lightning detection system (THOR) Procedures in place around operations and refuelling 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Emergency power/backup generators available 	<ul style="list-style-type: none"> Flood-hardening upgrades to our electrical substation (medium-long term) Review of improvements to emergency power and backup generators
	Disruption to the electrical distribution system on Sea Island due to flooding	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Regular bridge inspections 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Mobile fans 	<ul style="list-style-type: none"> Further upgrades to our bag system and/or the climate controls in bag halls
	Overheating of critically important operational buildings/systems (e.g., server rooms)	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Feeder replacements to improve the redundancy of power supply for the main feed to both the Domestic and International Terminal Buildings (medium-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	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Lighting upgrades to further support low/reduced visibility operations

Climate Stressor	Airport Impact	Existing Mitigations	Future Mitigations
	Increased energy demand for cooling of buildings	<ul style="list-style-type: none"> • HVAC Asset Plan and System upgrades • Energy Management as part of the Net Zero by 2030 commitment • Design standards for new buildings to address the impacts to building envelopes 	<ul style="list-style-type: none"> • Implementation of Energy Management Information System • Ongoing development of the Electrical Master Plan • Completion of the geo-exchange facility to support terminal heating and cooling
	Increased energy demand for cooling of aircraft on stands	<ul style="list-style-type: none"> • Installation of Ground Power Units (GPU); and • Preconditioned Air Units (PCA) to allow operators to plug into electric power at aircraft stands 	<ul style="list-style-type: none"> • Ongoing investment in Ground Power Units (GPU) and Preconditioned Air Units (PCA)
	Health and safety impacts to employees	<ul style="list-style-type: none"> • Health and safety procedures • On-site medical/First Aid facilities are available 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Water consumption reduction targets and water reduction initiatives set out in our Environmental Management Plan 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Hazardous Materials Management Program to describe proper use, handling and storage practices in 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 associated with changes to the occurrence of fog below) 	<ul style="list-style-type: none"> • Ongoing emergency and fire planning
Unpredictable/unusual 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	<ul style="list-style-type: none"> • Additional de-icing chemical storage to support additional on-site de-icing chemical supply 	<ul style="list-style-type: none"> • Ongoing snow fleet renewal • Ongoing implementation of mitigations including: enhancing winter and irregular operations, enhancing cross-team collaboration, accelerated investments in technology and data, enhancing in-terminal passenger support and improving communications to passengers and public

Climate Stressor	Airport Impact	Existing Mitigations	Future Mitigations
	Interruptions to transit service	<ul style="list-style-type: none"> • Bus bridges available in event of system closures • Other ground access alternatives available 	<ul style="list-style-type: none"> • Ongoing liaison with stakeholders for effective risk management
	Impacts to the baggage system due to extreme cold events	<ul style="list-style-type: none"> • Mobile heaters 	<ul style="list-style-type: none"> • Upgrades to our bag system and/or the climate controls in bag halls
Changes to the occurrence of fog	Airside disruptions due to low visibility conditions from fog	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Lighting upgrades to further support low/reduced visibility operations • Further monitoring to understand the impacts of climate change on the occurrence of fog

2023 Results

ROADMAP TO NET ZERO

Guided by the RTNZ Multi-Year Investment Plan, in 2023 the Airport Authority made progress on our carbon reduction projects and initiatives. These included:

Building Energy Conservation and Electrification

- Completion of Lighting Phase 2 which includes Link office upgrades and is expected to save 188,000 kWh per year.
- Continued major HVAC mechanical upgrades including additional air handling unit replacements.
- Design completed and construction started on a high-efficiency, electrically driven hot water system for the Domestic Terminal Building (DTB).
- Design work for the International Terminal Building (ITB) fire-tube boiler replacement with high-efficiency condensing boilers and conversion to low temperature heating.
- Electrical flywheel system installed to reduce diesel fuel use by backup generators for airfield lighting.

Green Fleets

- Two hydrogen fuel cell vehicles, three battery-electric vehicles, and one hybrid vehicle were delivered in 2023 — bringing YVR's zero-emission fleet to 16%.
- Planning completed for the 70+ EV charging stations to be installed by 2025, supported by \$1.57M in federal funding through the [Zero Emissions Vehicles Infrastructure Program](#).

Renewable Fuels

- 6,141 GJ of RNG purchased for YVR's Main Terminal boilers in 2023, contributing to a carbon reduction of 304 tCO₂e.
- 30,338 litres renewable diesel purchased for AOB fleet in 2023, contributing to fossil fuel emissions avoidance of 81 tonnes tCO₂e.
- 10 kg green hydrogen purchased for hydrogen fuel cell vehicles.

Closing the Gap

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

Other steps taken in 2023 included working with external funding partners including the provincial and federal governments, BC Hydro, and FortisBC to identify and sign incentive agreements for more than \$5 million in funding to support these building projects as well as future projects out to 2030. Furthermore, the Airport Authority is drafting 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 2023 Sustainability Report: ESG Performance, available for download from [this web page](#). Information related to Climate performance and Executive compensation can be found in our 2023 Statement of Executive Compensation Report, available for download from [this web page](#).

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 2023 to support carbon reductions in these areas included:

- Initiating work on a Sea Island 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 with support from the [Integrated Marketplace Initiative](#);
- Continued implementation and compliance monitoring 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;
- Supporting tenant energy conservation through our EnergyWise@YVR program which provides tenants with a complimentary energy audit and connects them to BC Hydro and FortisBC rebates; and
- Provision of 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

Vancouver International Airport 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 pumpstations which are integral to the dike system. The combination of perimeter dikes and the drainage system act 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, under Transport Canada's Transportation Assets Risk Assessment Program, to assist us with understanding how the drainage system performs under existing conditions, as well as under anticipated future conditions, and therefore assist with decisions related to the ongoing management of the stormwater drainage system operations, maintenance and upgrades. The computer model provided for evaluation of future design storm condition with sea level rise to year 2100, including projected boundary conditions and climate-adjusted Intensity-Duration-Frequency (IDF) based on guidance available to the Metro Vancouver region.

The output of the computer drainage model under future conditions was subject to a risk analysis using a framework similar to the Public Infrastructure Engineering Vulnerability Committee (PIEVC) protocol, and adjusted based on projected objectives and available information, considering the guiding principles of the Airport Council International (ACI), International Civil Aviation Organization (ICAO), Airport Cooperative Research Program (ACRP) and International Organization for Standardization (ISO) 31000 documents.

Four pumpstations serving the storm drainage system on Sea Island have been or are in the process of being replaced. The replacement of the pumpstations was designed to accommodate additional needs for drainage due to climate change.

We will utilize the computer drainage model and risk analysis results to guide future decisions related to operation, maintenance, rehabilitation and enhancement of the drainage system serving the Vancouver International Airport.

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, pumpstations 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. The dike construction commenced in August 2023 with 60% completion as of December 2023. The site work is set to be completed by summer 2024.

Metrics and Targets

We publicly disclose our climate change metrics and progress towards our key performance indicators annually in our 2023 Sustainability Report: ESG Performance and our 2023 Statement of Executive Compensation, both available for download from [this web page](#).