



WORLD
RISK &
GOVERNANCE

IMPACT OF WINTER STORMS: BUSINESS, TRANSPORTATION, AND INFRASTRUCTURE DISRUPTIONS IN THE U.S. AND CANADA

Analyzed by
Jai Sharma
Risk Analyst

EXECUTIVE SUMMARY

- **Winter Storm Impact (2023-2024):** Severe snowstorms disrupted business operations across the U.S. and Canada, especially affecting retail, transportation, and energy sectors.
- **Forecast for 2025:** The upcoming snowstorm season is expected to mirror past disruptions, with intense storms affecting the Northeast U.S., Upper Midwest, and parts of Canada.
- **Historical Data:** The report examines past storm data, including economic losses, power outages, and logistical challenges.
- **Recommendations:** Provides strategies for businesses to prepare for and minimize disruptions during the 2025 snowstorm season.

INTRODUCTION

- **Winter Storm Challenges:** The winter storm seasons of 2023-2024 underscored the vulnerability of businesses and infrastructure in North America to extreme weather.
- **Expected Risks in 2024-2025:** The 2024-2025 snowstorm season is predicted to bring similar disruptions, posing ongoing risks to operations, logistics, and customer engagement.
- **Scope of Report:** This report analyzes historical storm impacts, forecasts the upcoming season, and offers actionable insights for businesses to reduce risks and maintain continuity during winter disruptions.



PAST STORM DISRUPTIONS (2023-2024)

Snowstorms in Canada and the U.S. are becoming more intense due to climate variability.

Major storms over the past two winters caused widespread damage, including:

- Travel disruptions during holiday periods.
- Power outages from heavy snow and wind.
- Economic impacts on retail and service industries.

Key Regions Affected (2023-2024):

- U.S.: Northeast, Midwest, and Great Plains.
- Canada: Ontario, Quebec, British Columbia, and Alberta.

Historical Challenges:

- Major highways like Interstates 70, 80, and 93 in the U.S. faced closures.
- Highways such as the Trans-Canada Highway were significantly impacted in Canada.
- Local businesses saw reduced revenues due to storm-related disruptions.
- Certain airports and railways in the U.S. and Canada have faced disruptions for the past two years, with risks of continued impact into 2024 and 2025.

Historical Data Analysis: Patterns and Its Effects

Patterns Observed

- Timing: Storms frequently occur during peak travel seasons (Thanksgiving, Christmas, and post-New Year periods).
- Duration: Most storms last 3-4 days, causing prolonged disruptions.

Impact Areas:

- Heavy snowfall: Up to 21 inches (U.S.) and 30 cm (Canada).
- Hazardous roads and accidents.
- Widespread power outages due to downed lines.

Economic Impact

- Retail & Hospitality: Decreased foot traffic and cancellations during holiday shopping seasons.
- Transportation: Airlines and public transit systems face delays, with cascading effects on logistics.

Sector Vulnerabilities

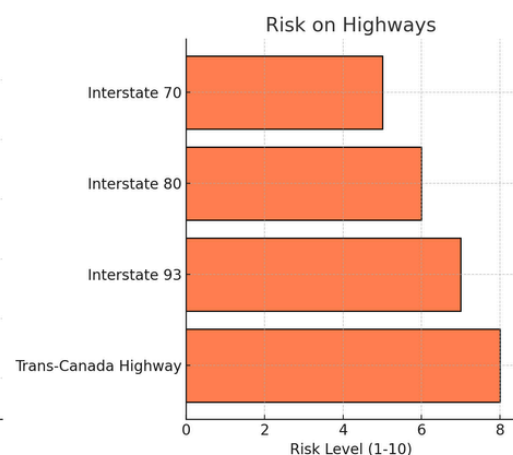
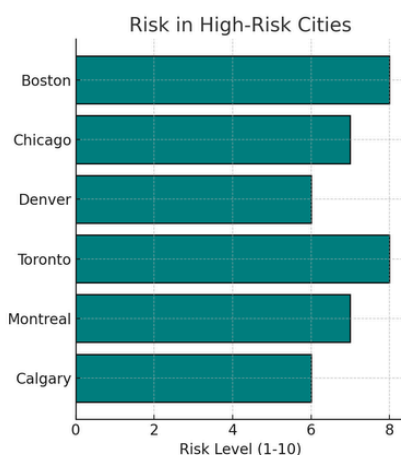
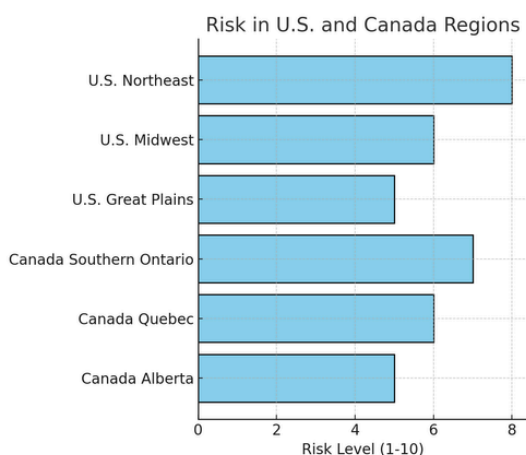
- Energy: Prolonged power outages due to grid stress.
- Supply Chains: Disrupted freight movement impacts goods availability.

Winter Storm Case Study Highlights

Storm Period	Regions Affected	Key Impact
Dec 6-8, 2023	Northeast (U.S.), Ontario (CA)	18+ inches of snow, 53+ car accidents, 110,000+ power outages in Quebec.
Jan 8-10, 2024	Great Plains (U.S.), Toronto (CA)	Up to 21 inches of snow, major logistics delays on I-70 and Highway 401.
Jan 13-16, 2024	Northeast & Midwest (U.S.)	Widespread power outages affecting 600,000+ customers, retail downturn.

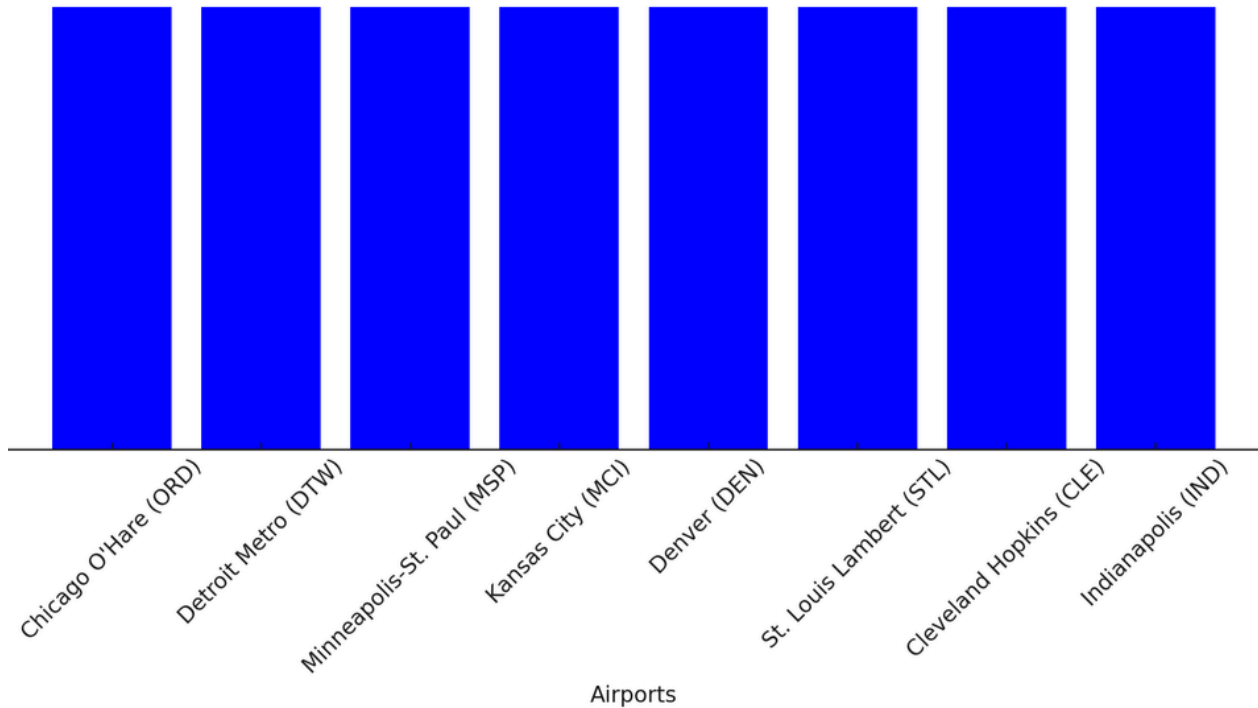
Projections/Disruptions Likely To Occur Due To Incoming Snowstorm Season

Projected Risks for U.S. and Canada Due to 2023-2024 Snowstorms



Airports Most Impacted By Snowstorms

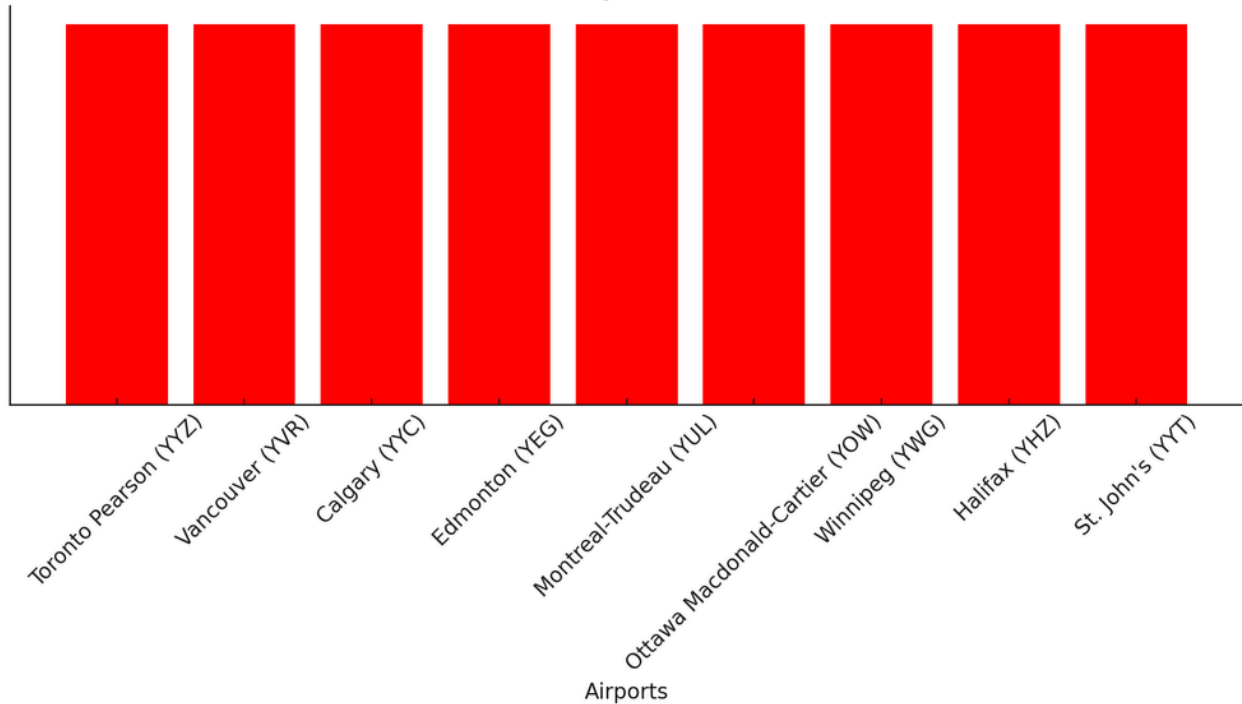
USA: Aviation Disruptions Due to Snowstorms



Note:

In the 2023 winter season, snowstorms caused over 60,000 flight delays and 3,000 cancellations in the U.S., costing airlines an estimated \$1.5 billion in lost revenue and extra operational costs.

Canada: Aviation Disruptions Due to Snowstorms

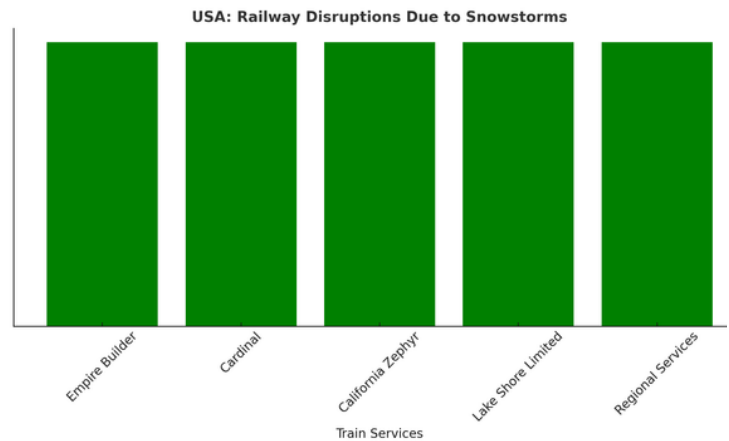


Note:

In 2023, winter storms in Canada caused 20,000+ flight delays and 1,500 cancellations, particularly in Toronto, Montreal, and Vancouver. The impact on airlines was estimated at \$500 million due to lost revenue, rebookings, and extra operational cost.

Railway Most Impacted By Snowstorms

- Train Routes Affected:
 - Empire Builder (This route, which travels between Chicago and the Pacific Northwest)
 - Cardinal (The Cardinal route, running between New York City and Chicago)
 - California Zephyr
 - Lake Shore Limited
 - Regional commuter services in Illinois, Wisconsin, Minnesota, and Michigan

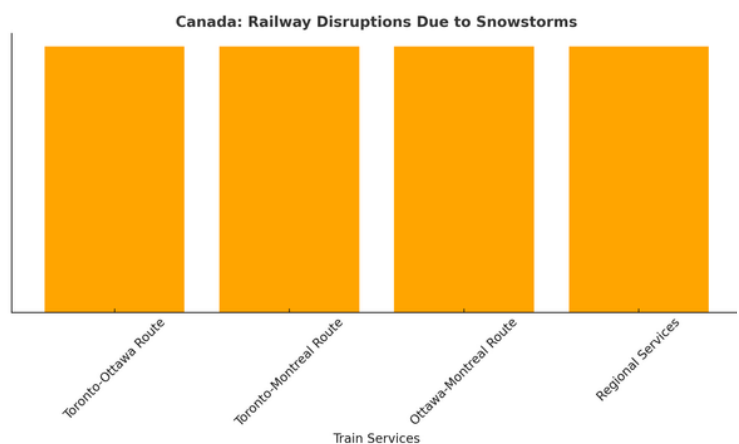


- Train Stations Affected:
 - Chicago Union Station
 - Milwaukee Intermodal Station
 - Minneapolis Station
 - Detroit Amtrak Station
 - Cleveland Amtrak Station

Note:

In 2023, winter storms caused thousands of rail delays in the U.S., with an estimated \$200 million in losses due to freight disruptions, route closures, and maintenance costs. Major railroads like Union Pacific and BNSF were most affected, along with passenger services like Amtrak.

- Train Routes Affected:
 - Toronto-Ottawa Route
 - Toronto-Montreal Route
 - Ottawa-Montreal Route
 - Regional commuter services in Ontario and Quebec



- Train Stations Affected:
 - Union Station (Toronto)
 - Ottawa Train Station
 - Montreal Central Station

Note:

In 2023 and 2024, winter storms caused \$150 million in losses for Canadian railways, including Canadian National Railway (CNR) and Canadian Pacific Railway (CPR), due to delays, track closures, and weather-related damage. Passenger services like VIA Rail Canada were also affected.

Long-Haul Trucking Losses During 2023–2024 Snowstorms

Heavy snowstorms in 2023–2024 (U.S. and Canada) caused delays, route closures, and accidents, leading to significant financial losses for long-haul truck drivers due to halted shipments, increased fuel costs, and damage to trucks.

USA

1. Route Closures and Delays: 40% of shipments were delayed, with December 2023 freight disruptions causing losses of \$1.5 billion.
2. Increased Costs: Fuel consumption rose 25–30%, and maintenance costs increased by 20%, with daily downtime losses reaching \$500–\$1,000 per truck.
3. Supply Chain Disruptions: Over 30% of freight movement was affected, resulting in \$2 billion in retail and wholesale losses, particularly for perishables.
4. Safety and Accidents: Snowstorm-related accidents increased by 15%, with each incident causing \$5,700 in damages and fatal accidents averaging \$1.7 million in losses.
5. Capacity Strain: Spot market demand surged 30%, raising rates by 20% year-over-year during peak storms.

Canada

1. Delays and Route Closures: Snowstorms frequently shut down major highways like the Trans-Canada Highway, leading to hours or even days of delays. During one severe storm, over 50% of scheduled deliveries were delayed, straining supply chains.
2. Higher Operating Costs: Fuel consumption increased as trucks idled for warmth in traffic or at closed roads. Vehicle maintenance costs spiked due to damage from icy and salted roads, with repair bills rising by up to 30% during severe weather events.
3. Missed Delivery Deadlines: Penalties for late deliveries and lost contracts due to unreliable schedules impacted revenue. For time-sensitive goods like food, snowstorms caused losses exceeding \$1 billion annually across Canada's transportation sector.
4. Driver Safety Risks: Many drivers were forced to pause operations entirely. Reports indicated a 20% rise in accidents involving commercial vehicles during winter storms, adding to costs and risks.
5. Supply Chain Disruptions: A KPMG survey found that 50% of Canadian businesses cited snowstorms as a major factor in supply chain breakdowns, which directly impacted trucking operations.

Snowstorm Impact On Business

Canada

1. **Economic Impact:**

- Over 50% of businesses reported a loss in profits due to extreme weather, including snowstorms.
- The disruptions directly affected operations, worker productivity, and supply chains.

2. **Insurance Challenges:**

- Approximately 30% of businesses faced either the cancellation of their insurance coverage or significant increases in premiums.
- Severe weather events caused insured damages of over \$3.1 billion in a year.

3. **Preparation and Concerns:**

- Around 92% of surveyed business leaders expressed concerns about the impacts of climate change and extreme weather on their operations.
- Many companies (56%) have already experienced negative impacts, such as flooding and operational halts.

4. **Adaptation Efforts:**

- Most businesses are beginning to assess and adapt to climate risks, treating them as critical enterprise risks.
- However, 80% of companies indicated they lack sufficient resources to prioritize emission reductions or other climate-related investments.

USA

1. **Total Estimated Losses:**

- In 2023, winter storms in the U.S. resulted in over \$5 billion in damages, including disruptions from snow, ice, and extreme cold

2. **Insurance Challenges:**

- Businesses, especially retail stores, faced reduced foot traffic during major snowstorms. Holiday sales were particularly affected, with losses of up to 20% during peak retail seasons

3. **Adaptation Efforts:**

- Sector Impact: Storm-related power outages were widespread, with significant restoration costs exceeding \$500 million annually across the U.S. due to downed power lines and damaged infrastructure.

4. **Local Business Challenges:**

- Many small businesses were forced to close temporarily or experienced lower patronage during snowstorms, leading to losses, especially in industries reliant on customer traffic, such as restaurants and service.

Business Resilience Strategies for Canada and the U.S.

1. Economic Stability and Continuity

- Diversify revenue streams and establish contingency plans to mitigate the impact of weather-related disruptions, such as highway and hotel closures during major storms.
- Build financial buffers to absorb losses from reduced foot traffic or productivity, ensuring continuous operations during extreme weather events.

2. Supply Chain Risk Mitigation

- Develop relationships with multiple suppliers and maintain inventory buffers to handle disruptions caused by snowstorms and delays in shipping.
- Implement predictive analytics to anticipate and mitigate disruptions from road blockages and supply chain delays, particularly on key highways like the Trans-Canada Highway and Interstates 70 and 80.

3. Insurance Coverage and Risk Management

- Secure comprehensive insurance that covers weather-related damages and business interruptions while upgrading facilities to reduce insurance premiums.
- Prepare for fluctuations in insurance coverage by evaluating risks from frequent snowstorms and implementing risk mitigation strategies.

4. Infrastructure Resilience and Power Management

- Upgrade infrastructure to withstand harsh winter conditions, investing in backup power systems to ensure continuity during outages.
- Collaborate with utility providers to ensure prioritized restoration during major disruptions, particularly affecting critical services like retail stores and hotels.

5. Long-Term Sustainability and Adaptation

- Invest in sustainable technologies and energy-efficient systems to reduce vulnerability to extreme weather and build long-term resilience.
- Utilize government incentives to support climate adaptation efforts and implement climate-proofing measures to ensure adaptability to changing weather patterns.

Prepared by

Jai Sharma

RISK INTELLIGENCE TEAM



worisgo.com



risk.services@worisgo.com



1800-572-
8600

Prepared at the Risk Assessment and Analysis Centre Bangalore

@COPYRIGHT – WoRisGo

Terms of use: The business continuity, compliance and security risk advisory contained above is based on analysis of information in public domain and our expertise in the domains. For certain verifications, we have also depended on due diligence with officials wherever necessary or feasible. The analysis and information are provided on an as-is basis with no liability. Various organizations may arrive at different outcomes, business continuity plans and other decisions based off on these inputs. Our analysis is just one of the several data points towards enabling such decisions. This analysis should be consumed in the context of your organization's risk appetite, business practices, governance policies and bearing other situational and relevant factors in mind.