Measuring Operational and Environmental Performance

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NAV CANADA

Facts and Figures

Keeping Canada's skies safe while shaping the future of air navigation services

ACC Traffic

2.9 million flights

Total IFR Flight Hours: 3.2 million

FY22

Tower, FSS and RAAS Traffic

5.6 million movements

FY22

18 M

square kilometres of airspace managed by NAV CANADA

100+

staffed sites

4,500+

employees across the country

50,000+

customer accounts

Corporate Performance and Sustainability Group

As the Centre of Expertise for corporate data and analytics, Corporate Performance is NAV CANADA's trusted source for data standards and organizational performance analytics.

High Level Organizational Performance and Sustainability

Organizational Analysis and Insights

Environmental Analysis and Insights

Safety Analysis and Insights

Revenue and Traffic Forecasting

Key Partner in Data and Analytics Strategy

We equip leaders with the appropriate data and insight to enable evidence-based decision making, drive transformation, ensure sustainability and measure organizational performance.

Measuring Operational and Environmental Performance

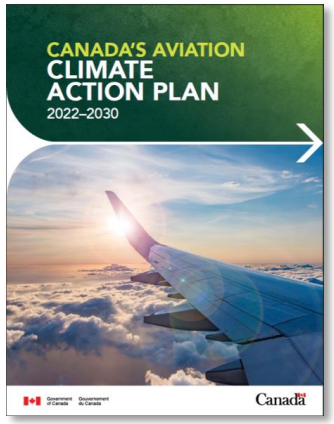
Focus on Sustainability

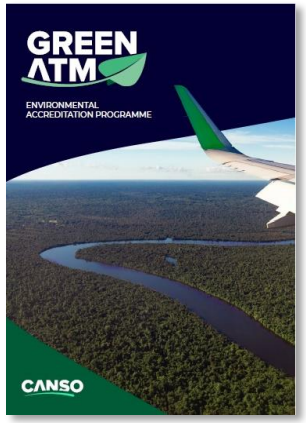
- Aviation industry drive towards Net Zero
- UN Global Compact and Sustainable Development Goals
- Environmental, Social and Economic Key Performance Areas, Indicators and Targets

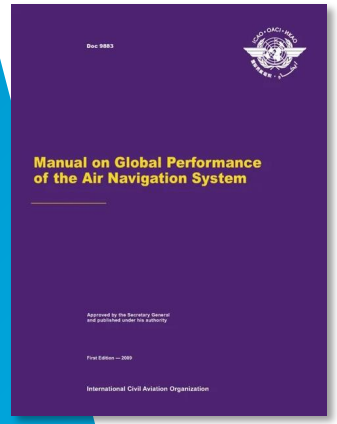
Strategic Integration

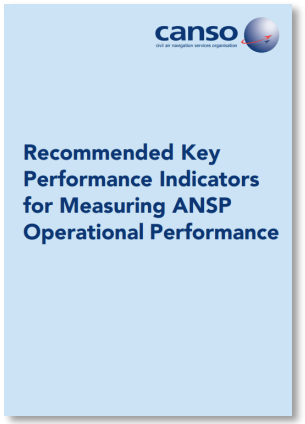
- Organizational Key Performance Areas, Indicators and Targets
- Benefits Realization Management
- Customer Value Proposition

SUSTAINABLE DEVELOPMENT GOALS









Enabled by a Post Pandemic Data, Analytics and AI Strategy

Improving our ability to respond to a rapidly changing and complex environment, through better data-driven analytics, decision support and data management.

Culture

- ✓ Adopt One Company philosophy
- ✓ Enable Data, Analytics, and AI supported planning and decision making
- ✓ Support performance measurement, continuous learning and maturity improvements
- ✓ Foster collaborative partnerships
- ✓ Promote innovation

People

- ✓ Build on our data, analytical, and AI skills and capacity
- ✓ Establish roles, responsibilities, and decision rights
- ✓ Empower with accessible data, useable tools, and responsive processes
- ✓ Regularly seek feedback from stakeholders on achieving the goals of the strategy
- ✓ Improve data literacy

Technology

- ✓ Improve the scope and quality of data available via trusted sources
- ✓ Deploy architecture that is modern, flexible, standards-based and designed for data
- ✓ Enable inter and intra organizational data sharing and collaborative analytics
- ✓ Deploy standard self-service tools
- ✓ Deploy AI and ML solutions that augment decision support

Governance

- ✓ Manage data, analytics, and AI solutions as shared strategic assets
- ✓ Enable data and tool accessibility and shareability
- ✓ Ensure appropriate use, privacy, security, and quality assurance
- ✓ Provide standards, processes, strategic oversight and prioritization
- ✓ Apply risk based adaptive governance

Measuring Operational and Environmental Performance

An Iterative Approach with Global Alignment – First Phase at Canada's Major Airports

CANSO Key Performance Areas

Building our data analytics capabilities to benchmark ANSP service delivery against globally recognized industry frameworks and optimize:

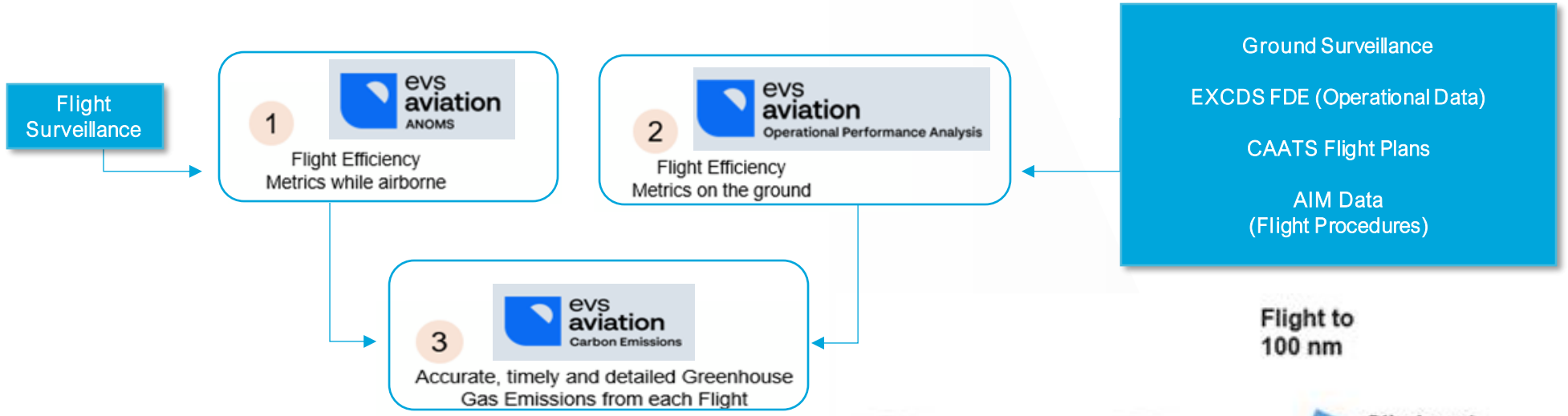
- Capacity
- Efficiency
- Predictability

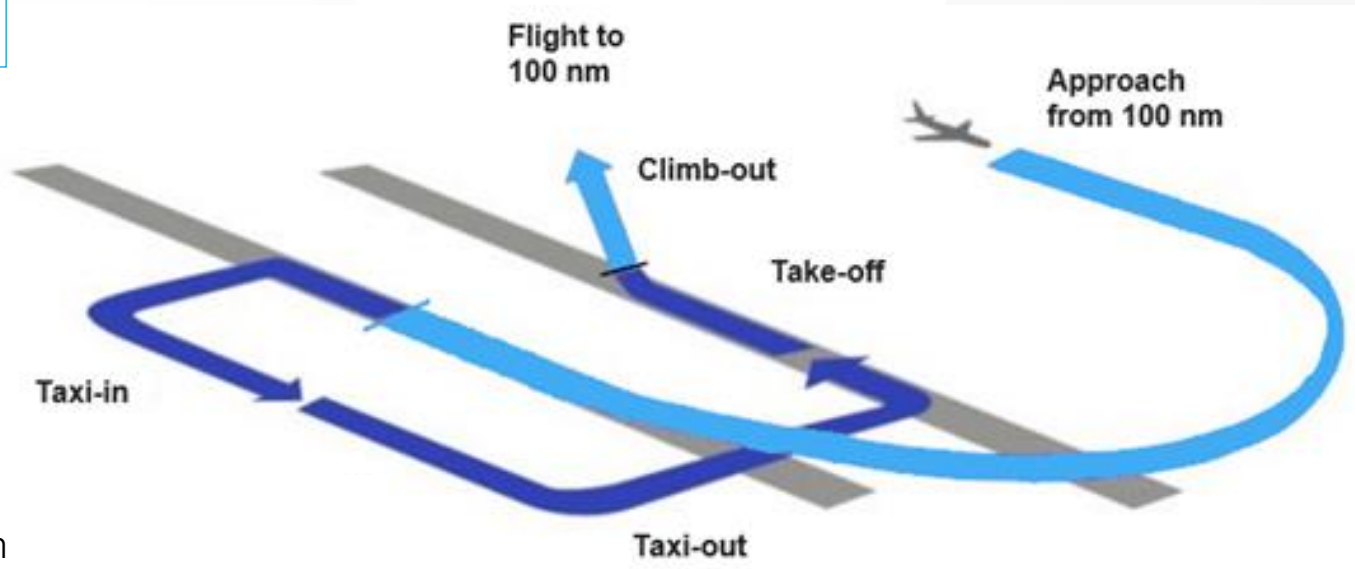
Environmental Impact

Assessing environmental impact per flight phase by comparing planned versus actual approach flown. Revamping our measurement methodologies to comply with audit and global reporting standards that support our Climate Action Strategy.

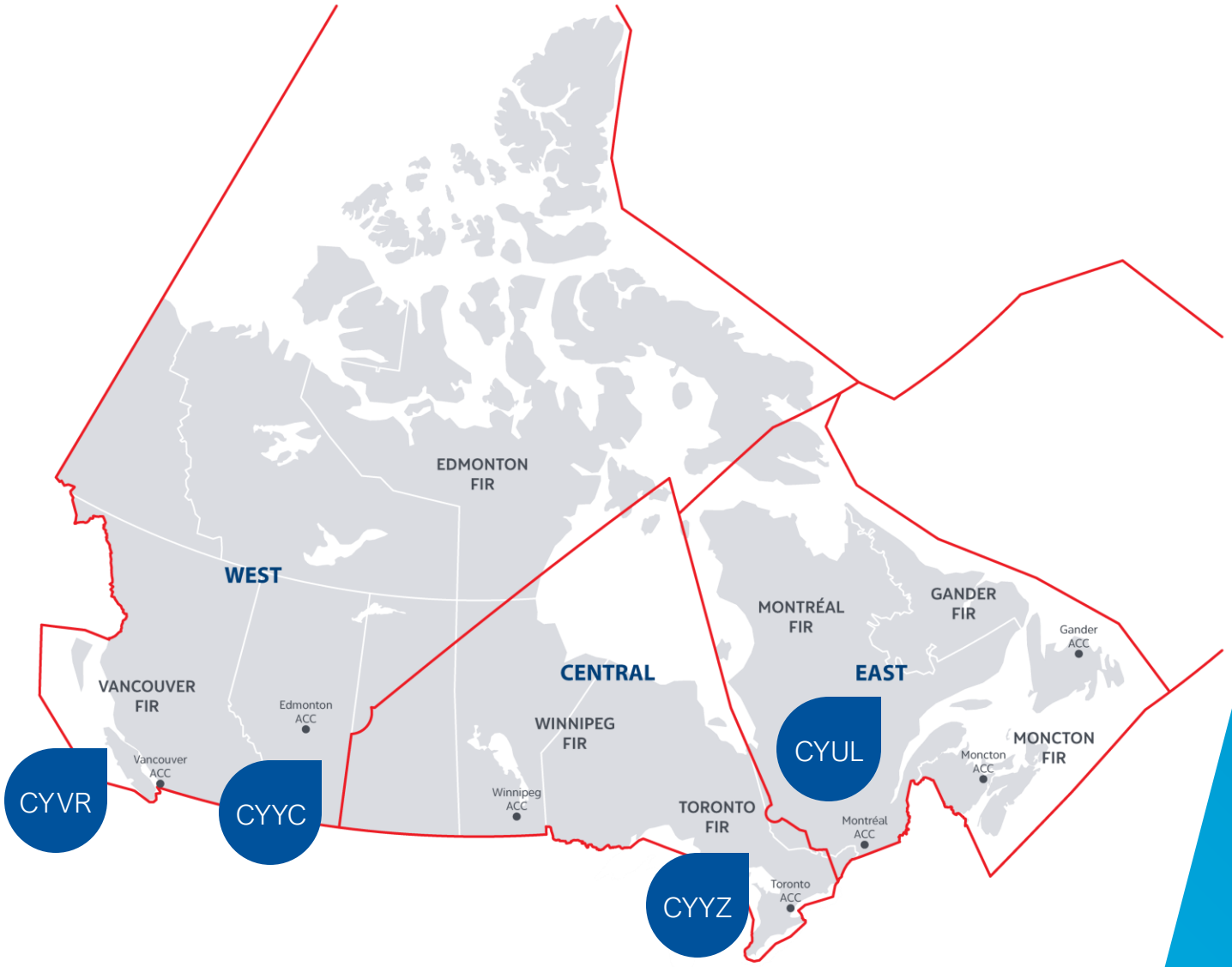
Measuring Operational and Environmental Performance

Near real-time surveillance-based metrics leveraging multiple data sources





- Objective: Automating ad-hoc analytical processes to empower analysts to focus on delivering key insights around flight efficiency
- Iterative implementation focused on efficiency and environmental impacts
- Pilot project delivered in August 2023 focusing on within 100NM of Toronto. Rollout to Vancouver, Calgary and Montreal to follow



Measuring Operational and Environmental Performance

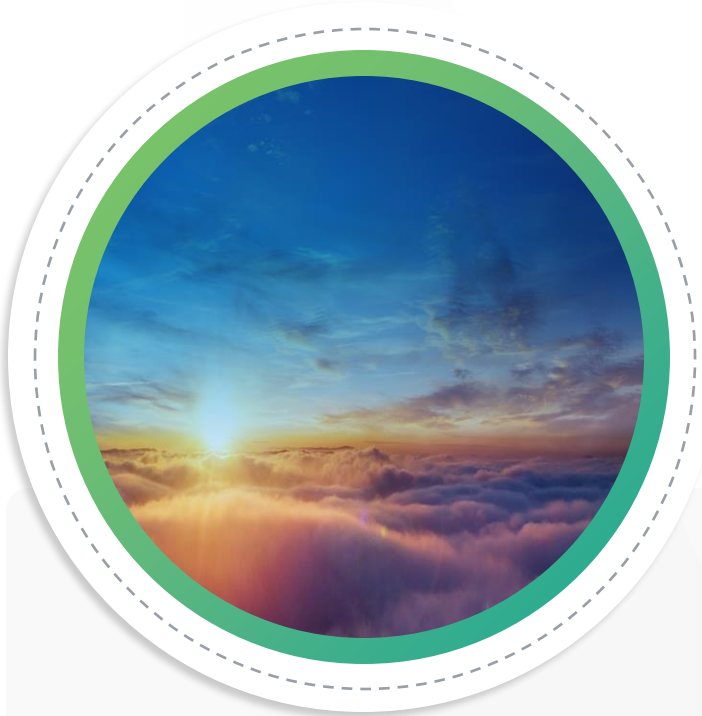
Iterative implementation to enable system analysis

- Phase 1 Airports
- Phase 2 Domestic Enroute
- Phase 3 Oceanic?

Looking to the Future

Three interconnected initiatives will guide us into the future, transform how we deliver service over the long term and provide value for our customers.

Trajectory-Based Operations



Airspace Modernization

Digital Facilities

Trajectory-based Operations

- Preferred routes for airlines
- Reduced fuel use and greenhouse gas emissions
- Minimized enroute delays
- Increase predictability
- Integration of new entrants through RPAS traffic management (RTM)

Airspace Modernization

- Continued prioritization of safety
- Preferred routes for airlines
- More seamless interaction with air traffic services
- Opportunity to leverage the full capabilities of fleet
- Effective integration of new entrants
- Enablement of trajectory-based operations

Digital Facilities

- Augmentation to human visual capabilities enabling possible service enhancements such as runway occupancy checks, confirmation of weather conditions short-term conflict detection
- Enhanced vision in low visibility conditions
- Elimination of blind spots due to physical structures
- Greater resilience through improved disaster recovery and operational agility
- More efficient operations and access to locations that are remote and where staffed facilities could be costly to maintain

The path ahead

Operationalizing Corporate Performance and Sustainability analysts

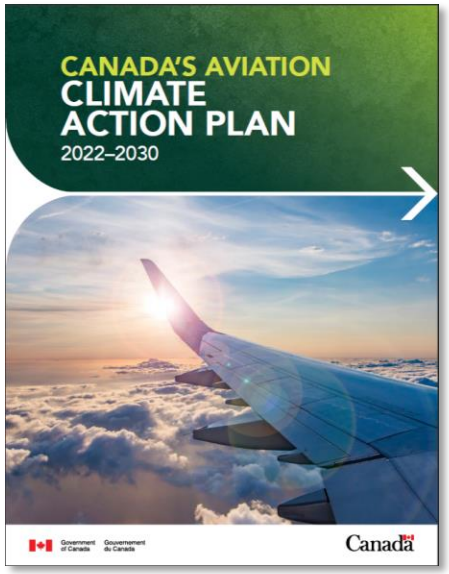
- Integrating ATM Performance Analysts within NAV CANADA's National Operations Center (NOC) to break down silos and build additional context around operational performance initiatives
- Streamline existing data management processes and reporting workflows

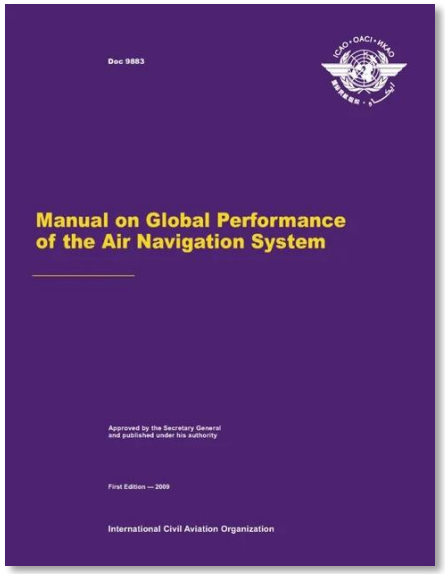
Emphasis on alignment, collaboration and partnerships

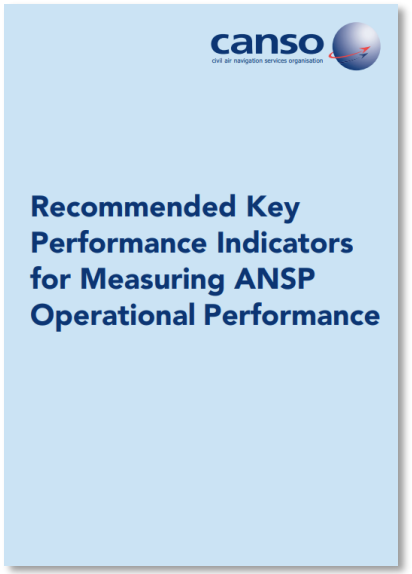
Data sharing via collaborative data analytics agreements

Advocating via various industry groups:

- Canada's Sustainable Aviation Task Force
- ICAO GANP-PEG Working Group and Doc 9883 Update/Supplement
- CANSO GBWG and Recommended KPIs for Measuring ANSP Operational Performance
- CANSO Environmental Working Group and Green ATM trial participant







Questions?