



Denver International Airport 2021 Annual Environmental Performance Report



Introduction

It's no secret that 2021 was a challenging year for the aviation industry and society as a whole. Many organizations were forced to reconsider their sustainability ambitions due to COVID-related financial realities. At Denver International Airport (DEN), we worked to prioritize our activities so that sustainability could be a driver toward economic recovery, which has provided great momentum as we look to accelerate our programs in 2022.

That momentum comes from Vision 100, DEN's framework to prepare our facility for continued growth to 100 million annual passengers over the next 10 years. DEN is one of the fastest-recovering airports in the United States and was the 3rd busiest airport in the world with 58.8 million passengers in 2021. Through our Vision 100 guiding principle of "Sustainability and Resiliency," we are committing to decoupling our growth from environmental impacts as we strive to become one of the most sustainable airports in the world.



Environmental Policy

New Chief Executive Officer Phillip A. Washington affirmed DEN's Environmental Policy in April of 2022. This policy is fundamental to our environmental performance and states:

Denver International Airport (DEN) is dedicated to working with our partners to promote strong environmental performance.

Our organization and employees are committed to business practices, policies, actions, and programs that enhance our performance by:

Protecting the environment

Conserving energy and natural resources

Preventing pollution

Meeting or exceeding all compliance obligations and voluntary commitments

Continually improving the Environmental Management System

Environmental Leadership

DEN's environmental performance is validated through external certification to the ISO Standard for Environmental Management Systems and the State of Colorado's performance requirements for participation in the Colorado Green Business Network (formerly named the Environmental Leadership Program). DEN has sustained EMS certification and recognition by the State of Colorado at the Gold level for the past 17 years.

Awards



Best Large Airport

2020 J.D. Power North America Airport Satisfaction Study



No. 4 Mega Airport

2020 Skytrax World Airport Awards



No. 5 World's Best Airport

60 – 70 million passengers

DEN was the only airport in North America to place in the top five



Ranked 37 out of 100 Top Airports in the World

2020 Green Fleet Award – 100 Best Fleets



DEN was ranked No. 2, and was the only airport nationwide to make the list





Environmental Performance/ Key Accomplishments

EMISSIONS REDUCTIONS

DEN was awarded

\$8.7M in FAA Voluntary Airport Low Emissions (VALE) grant funding



for the purchase of 81 ground-power units (GPUs), and 75 pre-conditioned air systems (PCAs).



PCA and GPU utilization is a key strategy to reduce air emissions by allowing aircraft to turn off their Auxiliary Power Units (APUs) and not use jet fuel when parked at the gate.



This upgrade means all operating gates will employ emissions-reducing equipment and will result in an

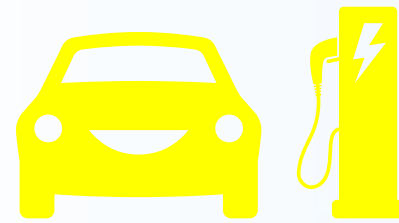
estimated emissions savings of **2,700 tons of CO₂**

over the useful equipment life.

ALTERNATIVELY FUELED VEHICLES

DEN provides

58 electric vehicle charging stations



across the parking garages, lots, and the DEN parking lot at 61st and Peña Station.

In 2021, DEN kicked off an Electric Vehicle (EV) Master Plan, designed to evaluate current EV infrastructure, anticipate future demand, and formulate a plan to transition from gasoline to electric vehicles across the campus. DEN is eager to adopt electric vehicle technology and this plan will help the airport lead this transition in a pragmatic way.

To model this transition, DEN recently incorporated two electric vans into the fleet mix. DEN's Fleet team is developing more detailed plans around EV vehicles, charger placements, and long term EV fleet ambitions.

Over 800 assets In DEN's Fleet

CNG vehicles

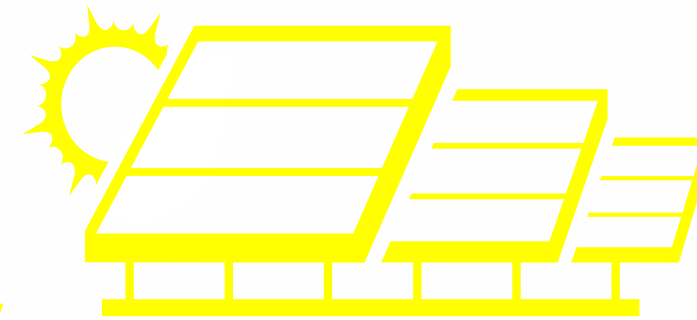
electric vehicles

propane autogas

SOLAR ARRAYS

DEN features one of the largest and most diversified solar energy programs of any airport in the world.

5 on-site, ground-mounted, behind-the-meter solar photovoltaic (PV) arrays totaling over **22 megawatts (MW)** with an additional **6-megawatt array** are under construction.



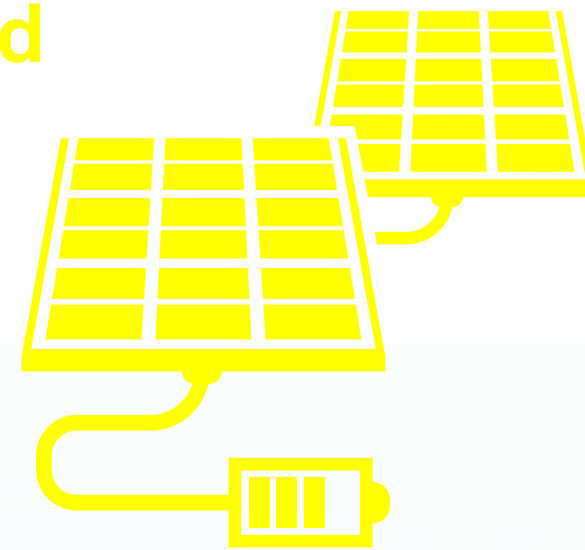
DEN is also building our first rooftop PV systems as part of all four concourse expansion projects.

SOLAR ARRAYS

2 on-site Community Solar Gardens (CSGs),
with 2 more CSGs being contracted

Solar subscriptions to

4 off-site CSGs
and a utility-owned solar PV array



1.6 MW
DEN's parking lot solar canopy
powers a Transit-Oriented Development microgrid

ENERGY PERFORMANCE CONTRACT (EPC)

DEN has partnered with McKinstry, an energy services company, to conduct an Investment Grade Audit of 8 million square feet of DEN facilities. This audit has identified energy conservation measures, such as replacing all remaining non-LED lights, improving system controls, and retrofitting bathroom fixtures. The airport is now kicking off an Energy Performance Contract with McKinstry so that these energy-saving opportunities will be implemented starting in 2022. This investment is estimated to reduce the airport's CO2 emissions by 30,278 metric tons each year.



DEN is projected to
reduce energy usage by 20%
and water by 28%.

PEÑA BOULEVARD LIGHTING UPGRADES

DEN has continued to upgrade the streetlights along Pena Boulevard.

100 streetlights were upgraded to LEDs.



GATE EXPANSION

Increase gate capacity by **30%** 

The gate expansion project will increase DEN's gate capacity by 30 percent and all new gates will be operational in 2022. The upgrades and additions will support DEN's continuing passenger growth.

DEN is adding gate capacity to its concourses to allow airlines an opportunity to grow to accommodate new airlines, including international carriers.



B West became our

5th LEED certified site,
attaining **LEED Gold** status.

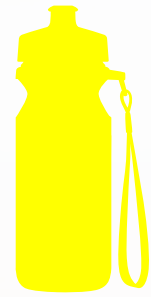
The Great Hall renovations are tracking to become LEED credentialed as well.

All concourse additions are projected to use about

30% less energy than a typical building 

due to design elements that capitalize on natural daylight, high efficiency heating and cooling equipment, and photovoltaic energy generation.

Waste Reduction



75 water bottle filling stations

have been located throughout the facility to reduce plastic waste.



Liquid dumping stations are located at each security checkpoint, so that passengers may reuse bottles and/or recycle their bottles without the liquid contents.

In 2021, DEN diverted almost

2,000 tons of landfill waste

through recycling and repurposing.

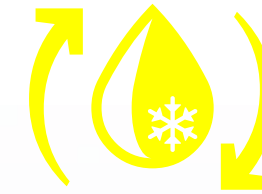
This was achieved through comingled recycling, compostable material collection, food donation, and the recycling of plastic film and wood pallets.



Water Quality and Use

Year after year, DEN collects more than

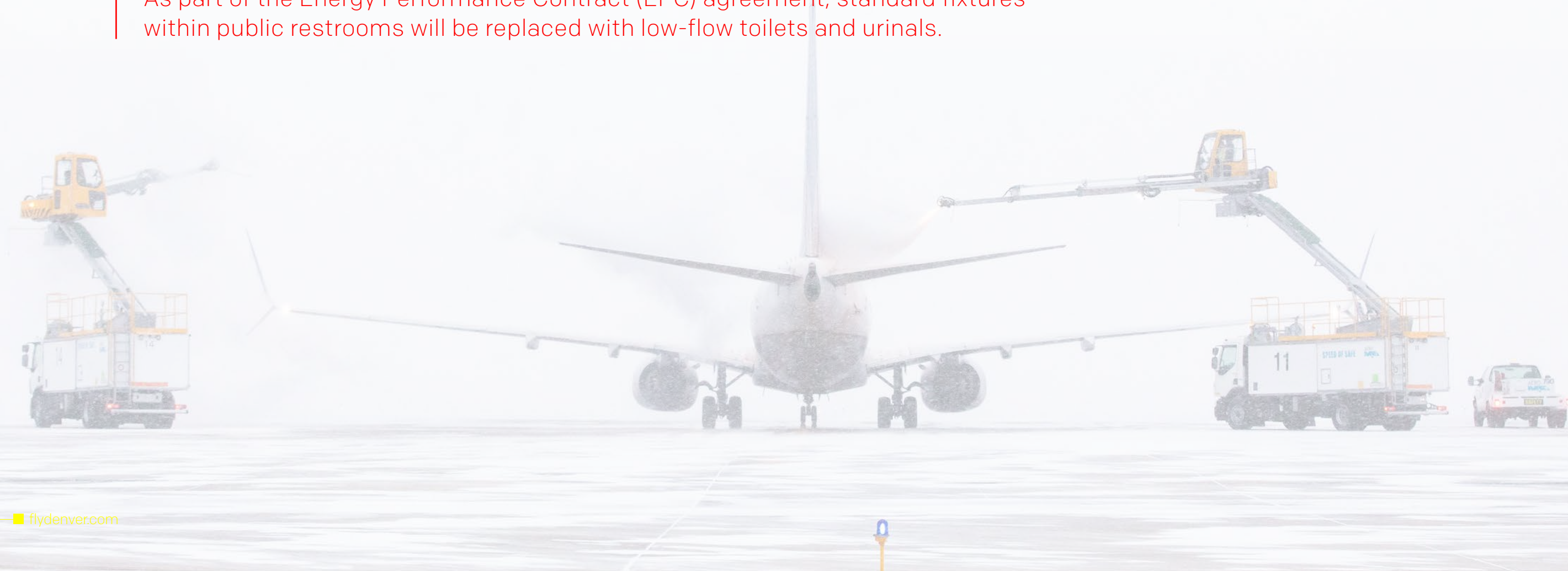
70% of the deicing fluid applied on aircraft each winter season.



This prevented 1.5 million gallons of aircraft deicing fluid from being released into the environment.

DEN is in the process of building a new glycol recycling facility that will allow recycled deicing fluid to be reused onsite.

As part of the Energy Performance Contract (EPC) agreement, standard fixtures within public restrooms will be replaced with low-flow toilets and urinals.



Corporate Social Responsibility

A baggage system upgrade and Phase I of the Great Hall project used thousands of pieces of luggage for testing purposes. Many of these bags were in excellent shape, so our teams worked diligently to put them to use. Denver Police, Denver Rescue Mission, and local nonprofits Clothes for Kids and Bagging for Homelessness were all recipients.

2,000+ bags
were diverted from the landfill.



Currently there are over
40 businesses
in the Certifiably Green Program
which is awarded to businesses who implement sustainable practices.

In 2021, DEN collected and donated:

23 tons of food to *We Don't Waste* 

42 abandoned car seats, boosters, strollers and other baby gear to *Weecycle* 

 **384,000 facemasks**

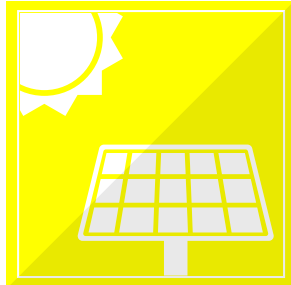
400 lb of unused **toilet paper** 

and **186 pieces** of **luggage** 

for the *Denver Rescue Mission*

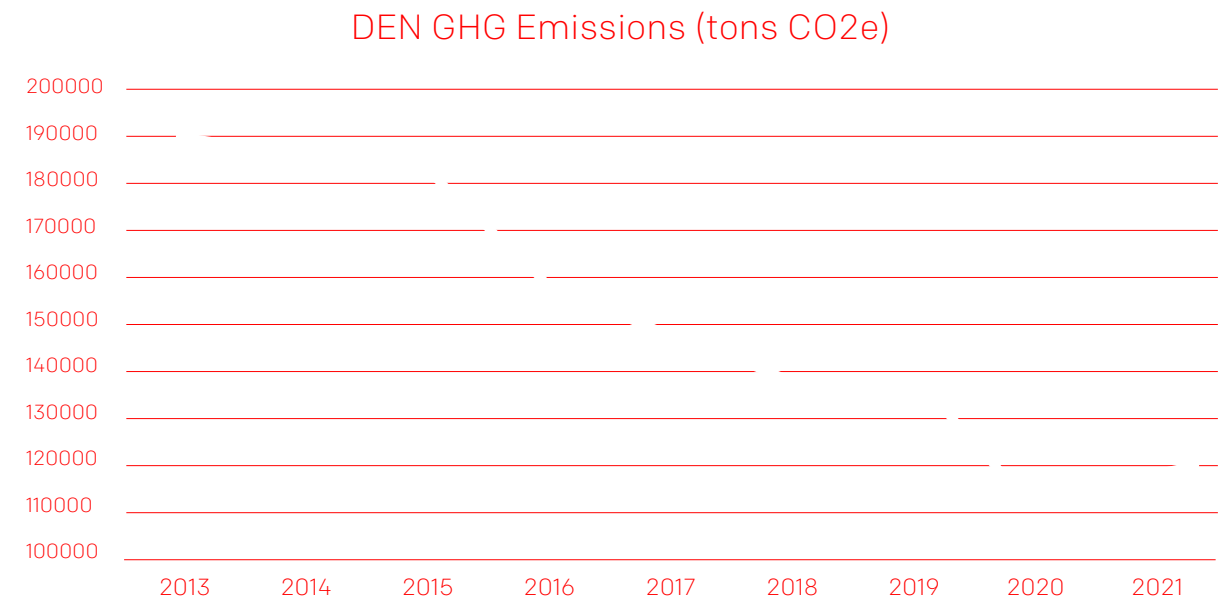
2021 Environmental Objectives

THE FOLLOWING OBJECTIVES WERE KEY AREAS OF FOCUS IN 2021:



AIR QUALITY AND CLIMATE: In 2021, progress was made through the completion of Scope 1 and 2 GHG inventory; initiating a stationary source emissions evaluation; obtaining FAA Voluntary Airport Low Emissions (VALE) grant funding for GPU and PCA units for all DEN gates; kicking off an EV Charging Master Plan to understand infrastructure needs for adopting electric vehicles across the campus; and starting a swap of Boiler 1 in the Central Utility Plant and replacing it with an ultra-low NOX unit.

DEN has put forth a new strategic plan, which includes the goal of establishing a science-based target for greenhouse gas emissions.



2021 Environmental Objectives



ENERGY: DEN’s growth should be powered by energy that is low-carbon, cost-effective, reliable and resilient. The ultimate goal is to reduce DEN’s energy use 20% by 2025 compared to 2017 baseline.

As mentioned, the Energy Performance Contract (EPC) has outlined energy conservation measures that could reduce energy consumption by 20% and water consumption by 28%, several years ahead of our reduction target.

The Solar VII array was energized in December 2021, measuring as the largest solar array in Denver and generating approximately 12% of DEN’s annual energy use.



LAND PROTECTION: DEN’s objective in this area was to understand, manage, and minimize risks related to the application and storage of fire-fighting foams. In 2021, DEN converted structural fire trucks to fluorine-free foam. DEN remains committed to existing diversion methods and exploring new opportunities in support of the City and County of Denver’s ambitious waste diversion goals.

2021 Environmental Objectives



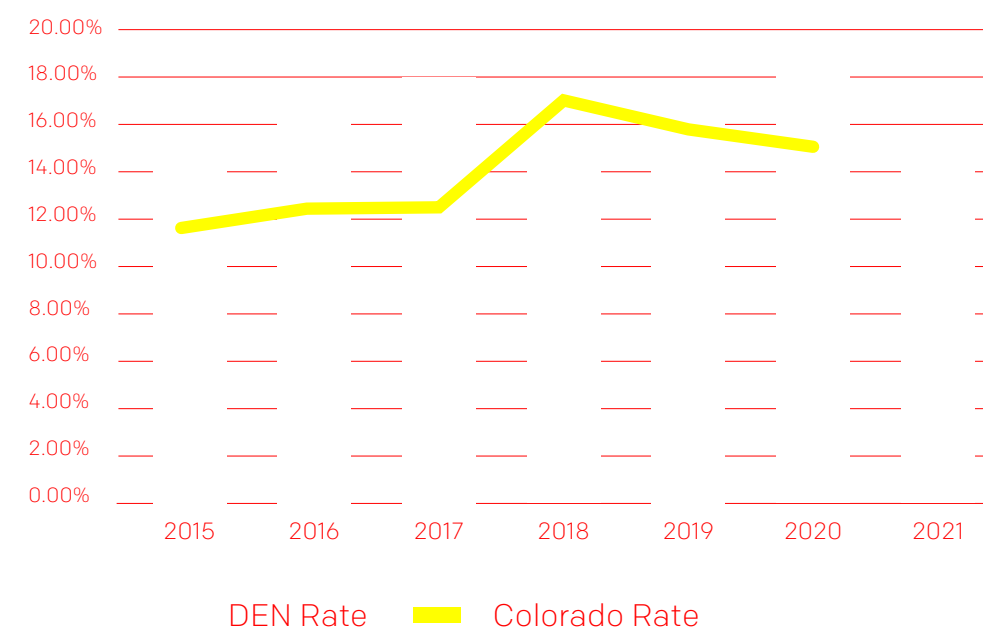
SUSTAINABLE DEVELOPMENT: The objective in this area is for DEN to develop in sustainable ways that improve our economic competitiveness, create value for our community, and enhance long-term resource availability and affordability. In connection with this objective, DEN staff have been working on the environmental review for the 7th runway and exploring ways to pursue Envision and LEED certifications on DEN projects.



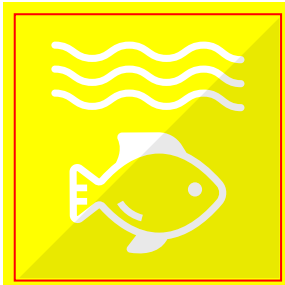
WASTE REDUCTION: DEN has consistently maintained the objective to reduce waste through reducing, reusing, and recycling. DEN remains committed to existing diversion methods and exploring new opportunities with the long-term goal being a 40% diversion rate by 2030.

Many high diversion contributors like our glass valet program, food donation, and compost collection are down significantly due to impacts of COVID-19. However, total landfill waste dropped through much of 2020 so DEN was still able to achieve an 18% diversion rate.

STATEWIDE DIVERSION RATE COMPARED TO DEN

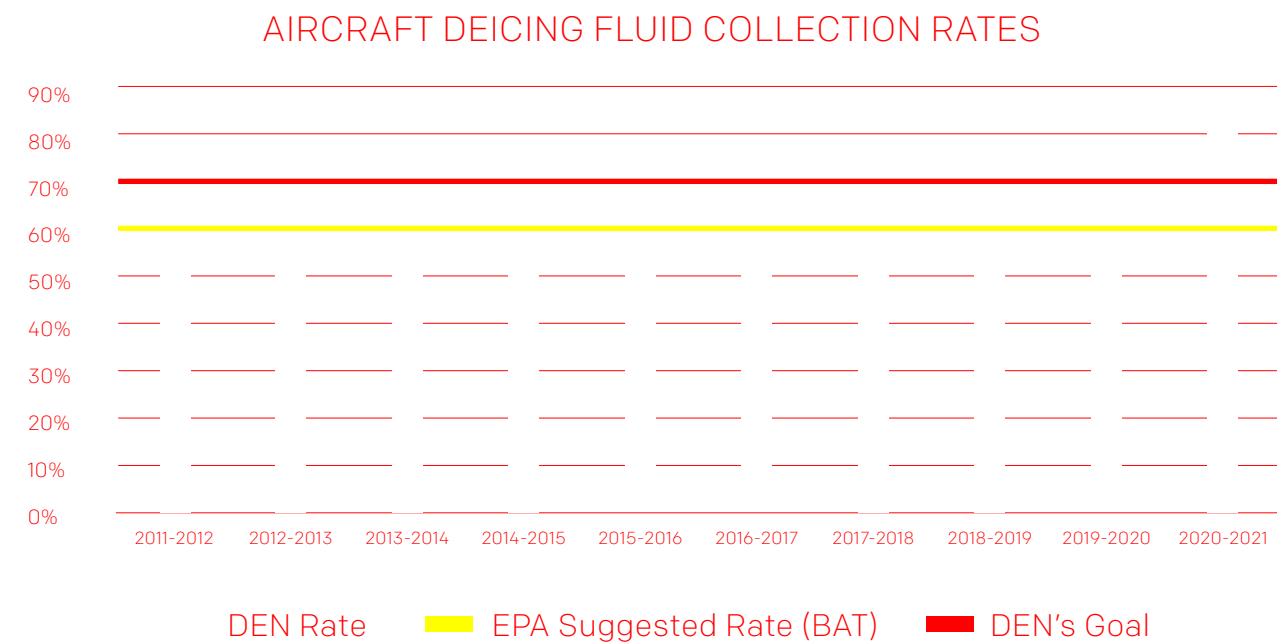


2021 Environmental Objectives



WATER QUALITY: In 2021, DEN worked to secure funding and a contract to modernize the aircraft deicing system which would enable the airport to process deicing waste back into deicing fluid, closing the loop.

DEN aims to ensure that receiving waters meet their highest attainable use by continuing the capture and treatment of aircraft deicing waste.



WATER USE: DEN aims to reduce water use 35% by 2035 compared to 2019 baseline. Annual water consumption data was collected and progress was made through the Energy Performance Contract audit.

