This summary report describes the 2019 greenhouse gas (GHG) emissions inventory for San Diego International Airport, including Scopes 1, 2, and 3 types of emissions.
Summary

The San Diego County Regional Airport Authority (Airport Authority or Authority) was created on January 1, 2003 as an independent agency to manage the day-to-day operations of San Diego International Airport (SAN) and address the region's long-term air transportation needs.

SAN’s total operation occupies 661 acres just two miles northwest of San Diego’s thriving downtown. Its location on Harbor Drive is roughly bounded by Pacific Highway to the east, Liberty Station to the west, Marine Corps Recruit Depot to the north, and San Diego Bay to the south. The airport has a single primary runway, which is 9,401 feet long. The airport's catchment area includes a large swath of Southern California and extends into northern Mexico.

In 2019, on average 69,088 passengers a day passed through the airport, which accommodated more than 624 daily arrivals and departures, the vast majority of which were for passenger service. Eighteen passenger carriers and three cargo carriers served the airport, which had 51 gates for jet aircraft in Terminals 1 and 2. During 2019, the airport also offered nonstop service to more than 70 destinations, and accommodated 25,216,947 passengers.

The total gross emissions represented in the SAN 2019 greenhouse gas inventory (including Scopes 1, 2, and 3) was 417,848 metric tons of carbon dioxide equivalent. Total Scope 1 and 2 emissions, as well as those emissions associated solely with the Authority’s past Green Build project, decreased by 34% from 2018 levels.

Organizational Boundary

The Airport Authority owns and operates the San Diego International Airport and uses an operational control approach to define its organizational boundary. The Authority is accounting for 100% of the greenhouse gas (GHG) emissions over which it has operational control (Scopes 1 & 2). In addition, the Authority includes in its inventory direct emissions at the airport from airlines, passengers, and others, for which it does not control and can only influence (Scope 3).

Emissions sources that the Authority maintains control over, and which are included in this emissions calculation, include: 1) Authority-owned vehicles, equipment and shuttles, and stationary sources (Scope 1), and; 2) Authority-purchased electricity (Scope 2).

In addition to Scope 1 and Scope 2 emissions, the 2019 greenhouse gas emissions inventory included all Scope 3 emissions sources including: non-Authority owned motor vehicles, tenant-purchased electricity, aircraft movement, auxiliary power units (APUs), ground support equipment (GSE), waste management (no incineration occurs on site), and staff business travel.

Authority-purchased electricity: All electricity used at SAN is purchased from the local utility, San Diego Gas & Electric (SDG&E). The Authority manages energy onsite mainly through an on-campus medium voltage (12kV) energy distribution loop with three primary electricity meters that reduce Authority cost and electrical interruptions by having the ability to power in either direction around the loop. The
electricity that the Authority purchases from SDG&E is then distributed to the majority of buildings and structures onsite, with the exception of a few Authority-owned support buildings that have separate meters, and tenant spaces that are located on ground leases that purchase their own electricity from the utility (i.e., are not connected to the Authority’s energy loop and are not included in the emissions calculations). The amount of electricity purchased by the Authority was provided directly from SDG&E in the form of utility bills. Although a majority of the energy used onsite is under the control of tenants, the emissions associated with Authority-purchased electricity usage are considered a Scope 2 emissions source due to the fact that it was purchased by the Authority and is not resold to tenants. The emissions linked to Authority-purchased electricity were calculated using the local market-based Emissions Factor (EF) of 241 gCO2/kWh. SAN has 5.5 MW of on-site photovoltaic (PV) solar and consumes all electricity generated from the solar systems on-site, which translates to less grid delivered electricity from SDG&E.

**Authority-owned vehicles:** The Authority-owned fleet (including service vehicles, equipment, and shuttles for transporting [e.g., SAN Parking Shuttles, employee shuttles, inter-terminal shuttles and ARFF vehicles]) is under the operational control of the Authority and is therefore included in the emissions measurement. Information regarding vehicle counts and type were provided by the Authority’s Facilities Management and Ground Transportation departments. The fuel provider for the Authority’s vehicle fleet provided fuel invoices, and emissions were calculated based on fuel usage. A natural gas fueling tank is onsite and only accessible to Authority sweepers for fueling purposes. The Authority also utilizes an off-site renewable natural gas (RNG) fueling station for the 30 Rental Car Center (RCC) buses, and monthly invoices for the shuttle buses came from the off-site provider, Clean Energy. The on-site natural gas fuel usage amount for vehicles was provided by SDG&E. The propane-powered shuttles owned by the Authority are fueled using a propane storage facility onsite only accessible to these buses; another on-site propane facility fuels the Authority’s forklifts. The propane usage for both uses was determined through vendor fueling invoices.

**Stationary Sources:** Emissions from stationary sources including boilers, generators, and other sources (e.g., cooking, air handling units) are incorporated into the airport’s footprint. The Authority purchases natural gas via a wholesale contract from Direct Energy (natural gas data was obtained via Direct Energy invoices), and it is then distributed throughout the airport campus. While tenants utilize a portion of natural gas for cooking, space heating, and other activities, due to lack of sub-metering the emissions resulting from natural gas is attributed entirely to the purchasing party (the Authority) and considered to be Scope 1 emissions. Emergency generators at the airport are under the ownership of the Authority and included in the emissions calculations using fuel delivery invoices and hours run for each generator.

**Refrigerants:** Emissions from the use of refrigerants are not included in the emissions measurement since refrigerants are not a significant source at SAN at less than 1% of total emissions.
Specific Facilities Included in the Boundary

In 2019, Authority-owned and operated mobile combustion sources that are a source of Scope 1 emissions included a fleet of vehicles, equipment, and shuttles that utilize gasoline, diesel, natural gas, propane, and renewable natural gas (RNG).

The following list summarizes the Authority-owned facilities and infrastructure that are a source of Scope 2 emissions in 2019 from the generation of Authority-purchased electricity. Authority-owned facilities and infrastructure include:

- Terminal 1 Building
- Terminal 2 East and West Buildings
- SDCRAA Administrative Offices
- Three Small Non-permanent (modular) Office Buildings for Airport Design & Construction
- Facilities Management Department Main Office Building and Maintenance Shops
- Procurement Department Building
- Aircraft Rescue & Firefighting Station
- Central Utility Plant
- Airport Fuel Farm Operations Building
- USO Building and Parking Management Office
- Aircraft Cargo Buildings
- Aircraft Fueling Operations Building (occupied by ASIG/Menzies)
- American Airlines Hangar
- Airfield
- Roadways, parking lots and associated traffic and safety lighting
- Airport Noise/Quieter Home Program administration (located offsite at Truxtun Road)
- Additional Authority-owned facilities at SAN include the airfield, parking lots, and roadways on the airport campus along with associated lighting for traffic and street safety

Scope 3 inclusions to the 2019 emissions inventory include:

- Consolidated Rental Car Center
- Receiving and Distribution Center
- FedEx Sorting Facility
- Wind Tunnel Building
- Fixed Base Operator (FBO)
- Air Traffic Control Tower
- The Landing and Take Off (LTO) cycle to a height of 3,000 feet
- Engine testing and auxiliary power unit operation (APU)
- Third party ground support equipment (GSE) operations
- Electricity re-sold to or directly purchased by partners/tenants
- Surface access by passengers
- Airport company staff and airport company staff business travel
Operational Boundary

Table 1 below lists the sources of Authority emissions, including Control, Guide and Influence. The associated emissions of each source listed below are included in the overall emissions summary (found in Table 2), and in the breakdown of Scope 1 and Scope 2 emissions (Figure 1).

Table 1: Description of Emissions Sources, by Scope

<table>
<thead>
<tr>
<th>Description of Emissions Sources</th>
<th>Scope 1, 2 or 3</th>
<th>Internal department or third party with responsibility for emissions source</th>
</tr>
</thead>
</table>

"Control" Emissions Sources

<table>
<thead>
<tr>
<th>Description of Emissions Sources</th>
<th>Scope 1, 2 or 3</th>
<th>Internal department or third party with responsibility for emissions source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airport Owned Vehicles, Equipment &amp; Shuttles</td>
<td>1</td>
<td>Facilities Management Department, Ground Transportation Department</td>
</tr>
<tr>
<td>Stationary Sources - 18 emergency power generators powered by diesel fuel</td>
<td>1</td>
<td>Facilities Management Department, Planning &amp; Environmental Affairs Department</td>
</tr>
<tr>
<td>Refrigerants</td>
<td>1</td>
<td>Facilities Management Department</td>
</tr>
<tr>
<td>Authority Purchased Electricity</td>
<td>2</td>
<td>Facilities Management Department</td>
</tr>
<tr>
<td>Authority Staff Business Travel</td>
<td>3</td>
<td>Accounting Department</td>
</tr>
</tbody>
</table>

"Guide" Emissions Sources

<table>
<thead>
<tr>
<th>Description of Emissions Sources</th>
<th>Scope 1, 2 or 3</th>
<th>Internal department or third party with responsibility for emissions source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground Support Equipment &amp; Other Tenant Vehicles</td>
<td>3</td>
<td>Ground Transportation Department, Planning &amp; Environmental Affairs Department</td>
</tr>
<tr>
<td>Aircraft Ground Movements, Engine Run Ups, Taxiing, Auxiliary Power Units/PCA</td>
<td>3</td>
<td>Airside &amp; Terminal Operations Department</td>
</tr>
<tr>
<td>Description of Emissions Sources</td>
<td>Scope 1, 2 or 3</td>
<td>Internal department or third party with responsibility for emissions source</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Landside Taxi &amp; Shuttle Services</td>
<td>3</td>
<td>Ground Transportation Department</td>
</tr>
<tr>
<td>Natural Gas Combustion Use by Tenants</td>
<td>3</td>
<td>Facilities Management Department</td>
</tr>
<tr>
<td>Staff/Employee Commuting</td>
<td>3</td>
<td>Ground Transportation Department</td>
</tr>
<tr>
<td>Offsite Management of Airport Waste</td>
<td>3</td>
<td>Airside &amp; Terminal Operations Department</td>
</tr>
</tbody>
</table>

"Influence" Emissions Sources

<table>
<thead>
<tr>
<th>Description of Emissions Sources</th>
<th>Scope 1, 2 or 3</th>
<th>Internal department or third party with responsibility for emissions source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft take off, landing, approach, climb, cruise, etc.</td>
<td>3</td>
<td>Airside &amp; Terminal Operations Department</td>
</tr>
<tr>
<td>Non-Authority Owned Vehicle Travel Off-Airport</td>
<td>3</td>
<td>Ground Transportation Department</td>
</tr>
<tr>
<td>Tenant-Purchased Electricity</td>
<td>3</td>
<td>Facilities Management Department, Planning &amp; Environmental Affairs Department</td>
</tr>
<tr>
<td>Waste Management by Ground Leases</td>
<td>3</td>
<td>Airside &amp; Terminal Operations Department</td>
</tr>
</tbody>
</table>
San Diego International Airport (SAN) Emissions Summaries

Table 2 is a summary of the SAN 2019 greenhouse gas emissions inventory, including the total metric tons of carbon dioxide equivalent and the percent of the total each scope represents.

Table 2: SAN 2019 Emissions Inventory (Scopes 1, 2, and 3)

<table>
<thead>
<tr>
<th>2019 Scope Break Down (metric tons CO2e)</th>
<th>Percent of Total Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope 1</td>
<td>4,417</td>
</tr>
<tr>
<td>Scope 2</td>
<td>1,273</td>
</tr>
<tr>
<td>Scope 3</td>
<td>412,158</td>
</tr>
<tr>
<td><strong>Total Gross Emissions</strong></td>
<td><strong>417,848</strong></td>
</tr>
</tbody>
</table>

Table 3 is a summary of the greenhouse emissions inventories since 2014. The Green Build (completed in 2013) represents 20% of the airport’s total GHG emissions.

Table 3: SAN Emissions Inventories 2014 – 2019

<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entire Airport</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metric tons of CO2e</td>
<td>4,076</td>
<td>815</td>
<td>4,276</td>
<td>855</td>
<td>4,571</td>
<td>914</td>
</tr>
<tr>
<td>Metric tons of CO2e</td>
<td>14,255</td>
<td>2,851</td>
<td>13,966</td>
<td>2,793</td>
<td>13,880</td>
<td>2,776</td>
</tr>
<tr>
<td><strong>Total Scopes 1 and 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metric tons of CO2e</td>
<td>18,331</td>
<td>3,666</td>
<td>18,242</td>
<td>3,648</td>
<td>18,451</td>
<td>3,690</td>
</tr>
<tr>
<td><strong>Scope 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metric tons of CO2e</td>
<td>278,160</td>
<td>283,359</td>
<td>324,039</td>
<td>348,543</td>
<td>397,359</td>
<td>412,158</td>
</tr>
</tbody>
</table>

**Footnote 1:** The Green Build project (10 additional gates) represents 20% of the entire airport’s total 51 gates. Completed in 2013, 2014 is the first full year of the Green Build’s operations.

**Footnote 2:** 2017 is the first full year of the consolidated Rental Car Center (RCC) shuttle bus operations (Scope 1) and building operations (Scope 3).

**Footnote 3:** 2017 Scope 1 emissions were re-baselined per the guidance of the Authority’s greenhouse gas emissions verifier because the RCC shuttle renewable diesel and renewable natural gas fuel was assigned an incorrect emissions factor. For this emissions year inventory, the correct emissions factor was used to recalculate the emissions in Scope 1, leading to a decrease in Scope 1 emissions.

**Footnote 4:** 2017 and 2018 Scope 2 emissions were re-baselined per the guidance of the Authority’s greenhouse gas emissions verifier: RCC electricity use was inadvertently double-counted in the Authority’s Scope 2 emissions; re-baselining in 2019 led to a decrease in 2017 and 2018 Scope 2 emissions.
As demonstrated in Table 3, in 2019 the Authority’s Scope 1 and 2 emissions dramatically decreased. The Authority continued to reduce fleet fuel usage by transitioning to electric vehicles and enacting right-typing and right-sizing for new vehicle purchase. This led to a 23% reduction in Authority fuel use in 2019 compared to the previous year.

Also, since 2018, the Authority has subscribed to the SDG&E “Green Tariff Shared Renewables” program called EcoChoice, receiving 70% of its grid-delivered electricity via 100% renewable (solar-generated) electricity\(^1\). The percentage amount is based on SDG&E’s two (2) Megawatt cap per EcoChoice business subscriber. Six Authority-driven energy efficiency lighting projects also contributed to the significant Scope 2 decrease. The airfield and in-terminal lighting replacements were completed in 2019, with significant financial and energy savings. These efforts led to a 68% reduction in 2019 Scope 2 emissions compared to 2018.

Figure 1 below illustrates activities represented within 2019 Scope 1 and Scope 2 emissions, by percentage. The total percentages shown in the figure represent the description of emissions sources by scope found in Table 1.

**Figure 1: 2019 Scopes 1 and 2, by Activity**

Figure 2 illustrates the fact that the overwhelming majority of 2019 emissions were generated by Scope 3 activities (of which SAN can “influence” but not “control”). As a result, the Authority actively prioritizes engagement with the Scope 3 greenhouse gas stakeholders that are contributing to SAN’s greenhouse

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**Footnote 5:** 2016, 2017 and 2018 Scope 3 emissions were revised due to an emerging issue found in 2019. The emerging issue accounted for the number of curbside drop-offs for enplaned passengers. 2016-2018 Scope 3 emissions were revised to account for the emissions from those passengers (which are based on a 2016 passenger survey and are 35%).

\(^1\) https://www.sdge.com/residential/savings-center/solar-power-renewable-energy/interim-pool
gas emissions. Of note: although the RCC is on SAN’s medium voltage electricity distribution loop, the electricity from the RCC is cataloged as “Scope 3” emissions as recommended by a third-party verifier, because the Authority doesn’t have direct control of its operations (the RCC is operated by Conrac Solutions).

**Figure 2: 2019 Scopes 1, 2, and 3, by Percentage**

![Figure 2: 2019 Scopes 1, 2, and 3, by Percentage](image)

Figure 3 illustrates the percentage breakdown of Scope 3 activities. The majority of the 2.9% increase in emissions come from airport operations, which increased 2.8% from 2018\(^2\), and from an 8% increase in emissions over the previous year attributed to cars/taxis (including TNCs) delivering passengers to SAN. Of note, in 2019, Lyft offset the CO\(_2\) emissions associated with their domestic trip mileage, allowing SAN to remove those associated emissions from the Scope 3 inventory. The Authority’s TNC Policy also contributed to a decrease in emissions from rideshare companies visiting the airport.

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Carbon Reduction Policies

The Airport Authority is committed to environmental excellence in new construction projects and in ongoing operations. The Authority’s Sustainability Management Program\(^3\) represents an active carbon management plan at SAN and contains the following elements:

- Responsibility, resource allocation, and organizational structure
- Carbon management initiatives
- Implementation plan
- Communication, awareness, and training
- Self-assessment/auditing

A Memorandum of Understanding (MOU)\(^4\) signed in 2008 with the Attorney General of the State of California includes specific emissions reduction targets for SAN including: landside power and preconditioned air at all new gates; retrofit existing gates with landside power and preconditioned air; provision of landside power at all new cargo facilities and hangars; retrofit all existing cargo facilities and hangars with landside power; cargo and general aviation use of landside power; and aircraft movement reduction. Specific measures of the MOU to reduce landside energy usage include: the replacement of existing tow vehicles with electric/alternative fuel aircraft pushback tractors; and the replacement of shuttles with electric or alternative fuel vehicles through an incentive-based program. The MOU also lays out the following methods to meet the use of green materials and sustainable design measures:

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\(^3\) All seven plans within the Sustainability Management Program can be viewed and downloaded at [https://www.san.org/Airport-Projects/Environmental-Affairs](https://www.san.org/Airport-Projects/Environmental-Affairs)

use of cool roofs (or solar panels) and cool pavements, and construct all new facilities to meet LEED certification (or equivalent), with a target of Silver or better.

The Airport Authority’s Sustainability Policy\(^5\), one of the first for a major airport in the U.S., establishes the Authority’s commitment to sustainability and environmental stewardship in business practices. A portion of this policy commits the Authority to adopt the standards set forth by the United States Green Building Council (USGBC)’s Leadership in Energy and Environmental Design (LEED) as guiding criteria for achieving sustainable design in the development and remodeling of airport facilities, while also applying LEED criteria as a significant factor when reviewing tenant development projects. The Sustainability Policy was adopted by the Board in 2008, and was updated in 2019.

The Authority’s Carbon Neutrality Plan\(^6\) (one of the seven plans in the Authority’s Sustainability Management Program) discusses source-specific goals and the initiatives in alignment with and in support of California and aviation industry greenhouse gas (GHG) reduction goals. A primary goal of the Plan is to minimize the Authority’s direct operational impact on climate change, including Scope 1, 2, and Airport staff business travel emissions reductions, to 80% below 2015 levels by 2035. Due to operational efficiencies and the Authority switching to SDG&E’s green tariff called “EcoChoice,” the 2019 emissions inventory represents a 68% greenhouse gas emissions reduction, compared to 2015 levels.

**Governance**

The Airport Authority is governed by a nine-member Board of Directors that maintains overall responsibility for climate change matters. In 2017, the Airport Authority’s Board of Directors and Executives developed a SAN-specific definition of sustainability as "building an enduring and resilient enterprise by effectively managing our financial, social and environmental risks, obligations and opportunities." This definition is included in San Diego International Airport’s annual sustainability report and other public-facing communications.

Periodic Utility Working Group meetings are held to provide an ongoing forum to discuss and coordinate energy and water management initiatives across Authority departments. Attendees include staff from a variety of departments including Planning and Environmental Affairs, Airside & Terminal Operations, Facilities Management, Airport Design and Construction, Finance, and Information & Technology Services.

Day-to-day responsibility for carbon and energy management lies within the Authority’s Planning and Environmental Affairs Department as well as the Facilities Management Department. The measurement and reduction of carbon emissions and energy consumption is managed by the Planning and Environmental Affairs Department, which is also responsible for developing the Authority’s Strategic Energy Plan, Water Stewardship Plan, Clean Transportation Plan, Carbon Neutrality Plan, and other plans within a Sustainability Management Program. For instance, the Strategic Energy Plan provides a framework for rethinking how the Authority manages their energy resources, while preparing to

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\(^6\) [https://san.org/Portals/0/Documents/Environmental/2019-Draft/08292019_SD_Intl_Airport_Carbon_Neutrality_plan_lowres.pdf](https://san.org/Portals/0/Documents/Environmental/2019-Draft/08292019_SD_Intl_Airport_Carbon_Neutrality_plan_lowres.pdf)
accommodate passenger growth, development projects, and the added variability of a changing climate. The strategic plans establish key long-term goals in energy and water efficiency and conservation, onsite energy generation and storage, enhanced monitoring of key energy metrics, clean transportation opportunities, storm water management, and other mechanisms through which to engage stakeholders. Progress on implementing the plans is communicated through official presentations to the Airport Authority’s Board of Directors.

The Facilities Management Department maintains responsibility over the day-to-day energy management and performance throughout airport facilities. The Planning and Environmental Affairs department calculates and publishes carbon and energy performance metrics, which are presented annually to senior management for review. Metrics are also shared with external audience via the publication of an annual Sustainability Report\(^7\) that is only available through an online format to increase interactivity and to discourage printing.

In consideration of the fact that the vast majority (~98.6\%) of its greenhouse gas (GHG) emissions footprint is associated to activities carried on by third parties (Scope 3 GHG emissions), the Authority understands the importance of involving key external stakeholders in the development and implementation of carbon management and reduction practices. For this reason the Authority actively engages in an on-going basis with stakeholders with the aim of reducing Scope 3 GHG emissions generated at the airport by their operations. This engagement is driven by the understanding that the Authority cannot control third party operations, but can guide and influence them to varying degrees.

Below are the primary contributors to the airport’s greenhouse emissions inventory:

- Airlines: All airlines operating aircraft at the airport
- Tenants: All tenants and employees operating at the airport
- Passengers: Customers traveling to and from the airport
- Ground transportation operators: Taxis, Transportation Network Companies (TNCs), Employee and Rental Car Center (RCC) shuttles and buses, Hotel Shuttle and Limousine Operators, etc.
- Utilities: Providers of services including energy, waste, and water management

### 2019 Emerging Issues

When working with the Authority’s third party verifier on 2019 emissions, there were some historical issues that emerged and were addressed in the 2019 emissions publication. Those emerging issues include:

- Rental Car Center shuttle fuel use emission factor in 2017: the Authority had used incorrect carbon intensity (CI) numbers to represent fuel usage; updated numbers document an even greater emissions reduction than previously reported.
- Rental Car Center electricity double-counting for Scope 2 emissions in 2017 and 2018: the Authority had inadvertently double-counted Rental Car Center emissions in both Scope 2 and Scope 3 emissions; updated numbers remove Rental Car Center emissions from Scope 2.

\(^{7}\) [http://sustain.san.org/](http://sustain.san.org/)
Passenger curbside drop off emissions added in 2019: based on results of a 2016 passenger survey, the emissions inventory now catalogs emissions from 35% of passengers being dropped off curbside by private vehicles in calendar years 2016 – 2019.

2019 Accomplishments

Below is a short list of 2019 accomplishments of note:

SAN Obtains Carbon Neutrality
San Diego International Airport has become one of only two airports in North America\(^8\) to successfully reach Airport Carbon Accreditation Level 3+. The third-party verified ACA program is a framework that helps airports identify, manage, and ultimately reduce their carbon emissions while also effectively partnering with its business partners – such as airlines, concessions, and ground transportation operators – to lower their emissions at the airport. At this “Carbon Neutrality” level, the Airport Authority demonstrated that it is reducing carbon emissions under its direct control (namely, from fuel used in fleets and generators, purchased electricity, and staff business travel), engaging with airlines and other business partners to help them reduce their onsite emissions, and offsetting the remaining carbon emissions under its direct control. The Airport Authority was recognized for SAN’s 2018 carbon neutrality accomplishment at an aviation industry forum in September 2019, and the Authority is pursuing a “carbon neutrality” renewal for the 2019 SAN greenhouse gas emissions inventory. Achievement of Level 3+ was outlined in the Airport Authority’s 5-Year Strategic Plan. In addition to reducing Scope 1 and Scope 2 emissions year-over-year, the Authority purchased carbon offsets via The Good Traveler program to mitigate 5,847 metric tons of greenhouse gases that represent the SAN’s 2019 Scope 1, 2, and Staff Business Travel.

Renewable Energy and Battery Storage
The Authority purchases renewable photovoltaic solar electricity through SDG&E’s green tariff called EcoChoice, and in 2019 the portion of grid-delivered renewable energy exceeded 70%. Combined with 5.5 megawatts of on-site photovoltaic solar electricity, the total amount of renewable energy at SAN in 2019 was more than 85%.

In 2019, the Authority also continued steps to install and operate a battery energy storage system at SAN. The 2-Megawatt battery energy storage system will significantly help reduce the Authority’s electricity demand costs and implements an important near-term priority identified in the Airport’s Strategic Energy Plan. The system is almost completed with an anticipated activation date of Summer 2020.

Ground Transportation Incentive Program
The airport employs an incentive program to encourage ground transportation providers at the airport to convert their fleets to alternative fuels or other clean air vehicles. The incentive program allows ground transportation operators to pay lower airport fees if they operate alternative fuel or clean air vehicles.

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\(^8\) [https://www.airportcarbonaccreditation.org/airport/participants/north-america.html](https://www.airportcarbonaccreditation.org/airport/participants/north-america.html)
The incentive program is applicable to all eligible airport-permitted commercial ground transportation operators, including taxicabs, vehicles for hire, hotel shuttles, off-airport parking shuttles, rental car shuttles and transportation network companies (TNC). Limousines and charter vehicles are exempt from the requirements of the program. The goal of the incentive program is to convert 100% of the applicable commercial ground transportation vehicles at the airport to Alternative Fuel Vehicles (AFVs) or other clean air vehicles.

The Airport Authority’s annual TNC Permit also demonstrates a Scope 3 emissions reduction initiative. The Authority has created a mechanism to incentivize TNCs to bring lower emission vehicles to the airport. Vehicles with a lower Greenhouse Gas Rating (GGR) – vehicles with higher greenhouse gas emissions – pay a higher trip fee.

The table below shows the absolute reduction in average grams of CO₂ per mile for TNCs.

<table>
<thead>
<tr>
<th>TNC Average Grams of CO₂/Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
</tr>
<tr>
<td>259 average grams of CO₂/mile</td>
</tr>
<tr>
<td>2019</td>
</tr>
<tr>
<td>210 average grams of CO₂/mile</td>
</tr>
</tbody>
</table>

In calendar year 2019, three of the four major rideshare (TNC) companies had a greenhouse gas rating (GGR) of 9, which is between 205-237 grams CO₂/mile for fleets; and two of those companies actually achieved the Authority’s highest GGR of 10 (0-204 grams CO₂/mile for fleets).

The Good Traveler

In 2015, the Authority developed and launched The Good Traveler, a carbon offsetting program designed to encourage sustainable travel by enabling individuals to offset the environmental impact of their journey in an affordable, easy and meaningful way. There are now 17 partner airports in The Good Traveler carbon offset program, including San Diego International Airport, from all over the country. In 2019, total carbon offset reductions attributed to The Good Traveler equaled 42,219 metric tons which is equivalent to emissions from more than 270 million air miles.

Stormwater Capture and Reuse System

Commissioned in late 2018, the Terminal 2 Parking Plaza was designed with SAN’s first stormwater capture and reuse system. The system conveys rainwater from the facility to a series of media and UV filters, before sending the water to the Central Utility Plant for use in its cooling towers (which would otherwise use potable water purchased from the City). In 2019, the amount of storm water captured, treated, and reused surpassed 1.8 million gallons, a 386% increase from the previous year.

Employee Workplace Electric Vehicle Charging

In early 2019, the Authority, in collaboration with San Diego Gas & Electric’s “Power Your Drive” employee workplace electric vehicle charging program, successfully installed and activated 20 new charging ports in the SAN Employee Lot on the airport’s north side. Since then, Authority staff have been

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9 https://thegoodtraveler.org/airport-partners/
promoting driver enrollment. The cost of the energy used to charge an employee’s electric vehicle is billed directly to the driver’s SDG&E account. Total 2019 usage was more than 8,326 kWh, equivalent to the avoided CO₂ emissions from 662 gallons of gasoline\(^1\).

**Annual Ground Support Equipment Inventory**

Authority staff annually complete a Ground Support Equipment (GSE) inventory to assess airlines and other business partners’ progress in converting their equipment to alternative fuel technologies. In 2019, 831 pieces of GSE were deployed airside, and 30% of them are classified as “Low Carbon Emission” (i.e. electric, propane, biodiesel, renewable diesel, or compressed natural gas powered). Most of the alternatively fueled GSE are powered by electricity, with 26% of all GSE categorized as electric. Moving forward, the Authority will continue to prioritize conversion of third party owned GSE to alternative fuel.

**Sustainability Management Program**

As part of a FAA-funded sustainability planning grant, the Airport Authority developed multiple plans to serve as guideposts for environmental achievements. All plans were accepted by the Authority Board and can be accessed at www.san.org/green.

The Strategic Energy Plan (STEP) was last updated August 2019. The document contains a table of Phase 1 Energy Projects within the Implementation Roadmap, showing a short-term goal of energy efficiency projects. Six energy efficiency lighting projects with airfield and in-terminal replacements were completed in 2019, with significant financial and energy savings.

\[
\begin{align*}
\text{Total estimated annual financial savings: } & \$332,752 \\
\text{Total estimated annual energy savings: } & 4,126,028 \text{ kWh}
\end{align*}
\]

The Climate Resiliency Plan serves as the Authority’s overall strategy towards reducing climate change risks on airport operations and infrastructure. Specifically, the plan assesses SAN’s vulnerability to potentially higher sea levels, more intense rainfall, and more extreme heat, and outlines adaptation strategies to minimize these stressors in the future. The plan was developed in close coordination with the City of San Diego and Port of San Diego, since many potential climate change impacts occur offsite and, thus, require a regional solution.

The Carbon Neutrality Plan establishes the strategies for managing greenhouse gas emissions over which the Authority has control and provides a framework for achieving “carbon neutrality” (Level 3+) under the ACI Airport Carbon Accreditation program.

The Clean Transportation Plan provides the Authority’s approach for managing various ground transportation emission sources, including all vehicles and equipment accessing and operating at the airport.

**Airport Authority Participates in San Diego Climate Summit**

In March 2019, an Airport Authority staff served as a panelist at the “2019 San Diego Climate Summit” held at the Scripps Institute of Oceanography. The annual summit focuses on bringing together leading scientists, government agencies, and non-profit organizations to discuss efforts associated with understanding the impacts of climate change and adaptation strategies. The panel discussed preparing

\(^1\) [https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator](https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator)
San Diego’s energy, water, and transportation infrastructure for the impacts of climate change, and also included representatives from the San Diego County Water Authority and SDG&E. An update on the Airport Authority’s efforts to develop a Climate Resiliency Plan and its recent storm water capture and reuse system installation was provided to the 200+ attendees.

Airport Authority Partners with SANDAG on Regional Transit Connectivity
Over the last year, the Airport Authority has partnered with the San Diego Association of Governments (SANDAG) to create an Airport Connectivity Subcommittee to identify future solutions for improved transit and road connectivity to the San Diego International Airport. The Subcommittee met multiple times during 2019 and included senior leaders from the Port of San Diego, City of San Diego, County of San Diego, Metropolitan Transit System, North County Transit District, and Caltrans District 11. The Subcommittee’s resulting report\(^\text{12}\) identified four possible fixed-rail alignments and complementary roadway improvements. During 2020, the Authority will be assisting SANDAG with further developing these concepts and initiating their environmental review.
