

Istanbul Airport 

# iGA'S NETZero ROADMAP

May 2022





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# OUR 2050 **NETZero** COMMITMENT

The most pressing issue of our day is climate change. It also represents one of the most significant threats to the aviation sector's future. Nevertheless, Istanbul Airport, which serves as both Türkiye's and one of the world's most important hubs for global transfers, constantly works to improve its procedures in the fight against climate change, showcasing impressive dynamism that the necessary actions are being taken to mobilize and influence its stakeholders.

Istanbul Airport is one of 238 airports that have committed to "Net Zero CO2 emissions" as part of their efforts to manage and reduce their carbon footprints as part of the environment and sustainability program. Istanbul Airport has always conducted its operations by continuously evaluating its energy and greenhouse gas management efforts and assessing its activities that cause greenhouse gas emissions. Furthermore, Istanbul Airport communicates effectively with its partners and conducts activities and studies to reduce its partner stakeholders' greenhouse gas emissions. Istanbul Airport has received the ACI Carbon Accreditation Programme certification as part of its efforts to minimize carbon emissions by successfully installing the ISO 50001 Energy Management System and ISO 14064 Greenhouse Gas Management System. The 2050 Net Zero CO2 plan for Istanbul Airport has been created in compliance with the IPCC's 1.5 °C goals. It has developed a plan to cut carbon emissions in accordance with this roadmap target. The operational and technological requirements are continuously tracked and assessed using this technique.

By putting many of our initiatives into action, we will reach our zero-emission goals even before 2050. We are devoting a significant amount of time and effort to this. We make an effort to ensure that all of our stakeholders are inspired and renewed by the business discipline we support through our initiatives. As an airport operator, most of our emissions occur outside our organization's boundaries. In light of this, working with our stakeholders and assisting them in streamlining their processes will allow us to create a lasting and beneficial change.





# iGA NETzero ROADMAP

## Regeneration For Future Generations

**Scope 1: 37,371**  
**Scope 2: 140,453**  
**Total: 177,824**

\*Total greenhouse gas emissions in 2019 were 170 thousand tonnes of CO2. All of these emissions are within the scope of the UN 1.50°C commitment.

\*Our base year for net zero is 2019, which was our first year of operation.

## Take Off

- Renewable energy purchase
- Installation of solar panels
- Forestation efforts
- Installation of car charging stations
- Building insulation activities
- IoT LoRaWAN System applications
- Lighting Automation Systems
- Applications of Energy Management Systems
- Energy efficiency data analytics application
- Employee awareness efforts

## Scaling Up

- We will invest in renewable energy and zero-emission technologies.
- Purchasing renewable energy installation of solar panels forestation efforts
- Increasing renewable energy usage in our operations
- Using hydrogen for heating systems

## Delivering Our Promise

- We will offer an innovative airport operation powered by advanced aviation techniques with zero emissions.
- We will offset the remaining emissions with high-quality natural climate solutions that benefit people and the planet.

Current Development Process  
Road to 2050 Net Zero

We will reduce our emissions by 45% by 2030

We will reduce our emissions by 73% by 2040

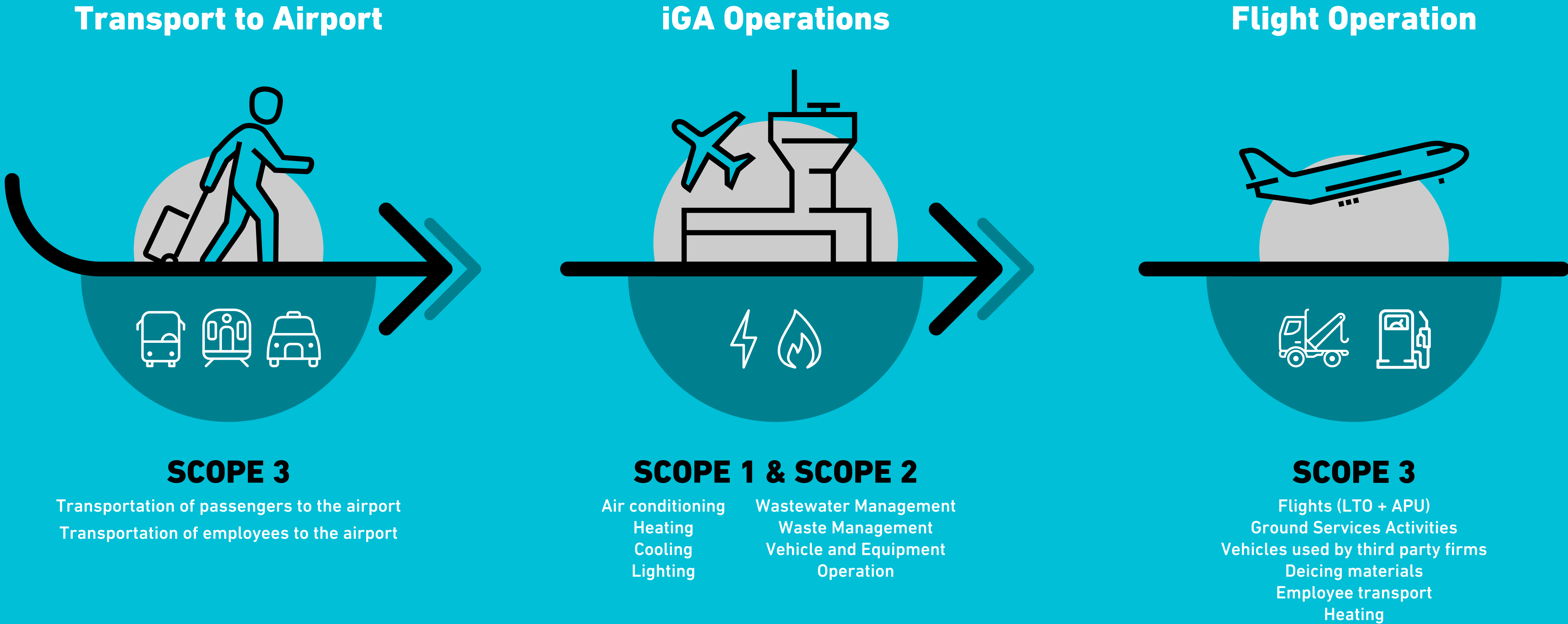
**NET**  
**zero**





# iGA CARBON FOOTPRINT PROCEDURE

We use a lifecycle approach to calculate the carbon footprint of our services. This process encompasses many operations, including passenger transportation to the airport, ground services, and terminal operation processes. Therefore, we must work through our corporate values chain to achieve net-zero greenhouse gas emissions by 2050.

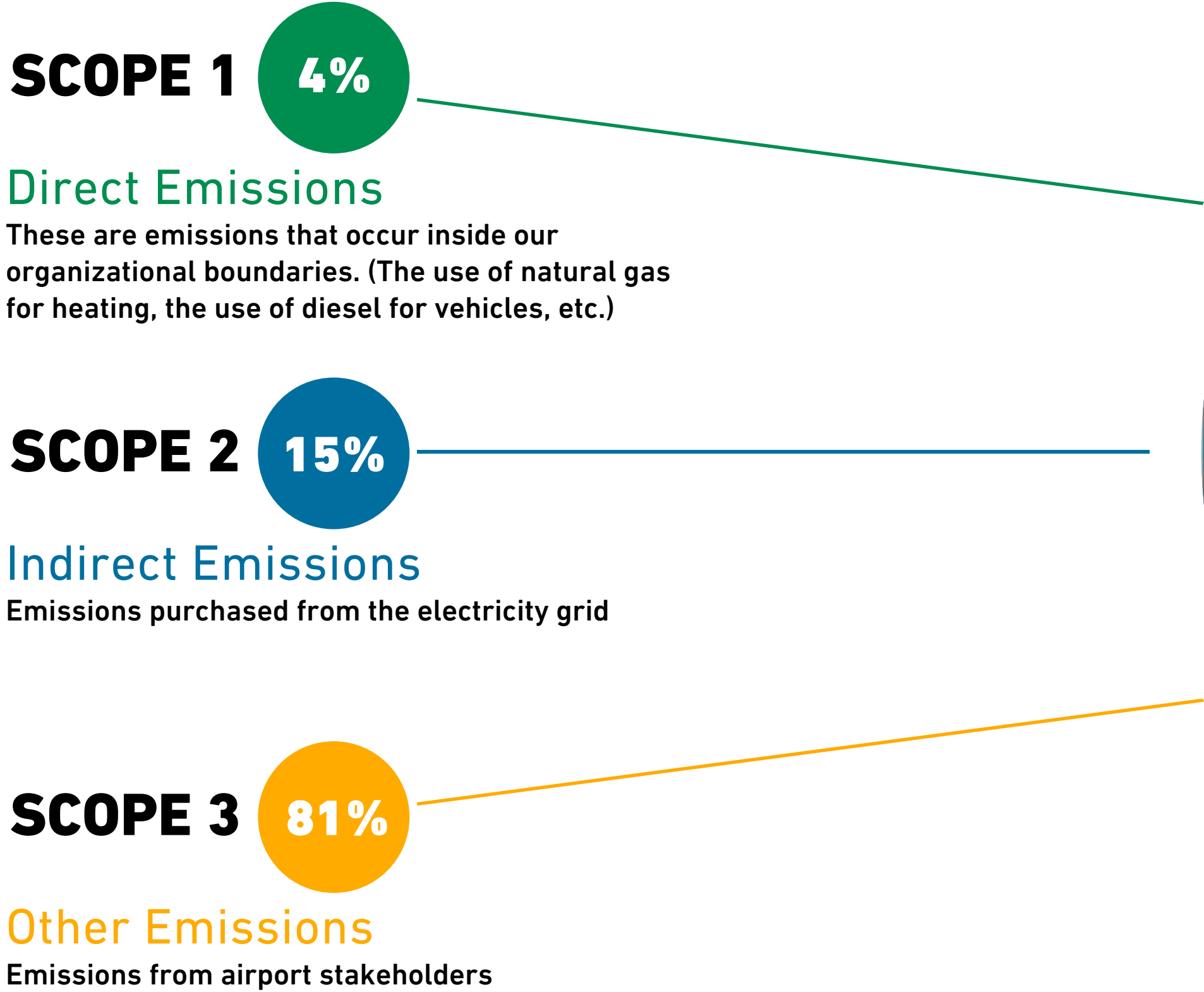




# iGA EMISSIONS BY SCOPE

Our base year for the 2050  
Net Zero objective is 2019.<sup>1</sup>

Istanbul Airport Total Emission Distributions  
thousand tonnes of CO<sub>2</sub>, 2019



Total  
**959**  
thousand  
tonnes  
of CO<sub>2</sub>

<sup>1</sup> - According to the ACA Implementation Guidelines, an airport operating after 2010 may select the first operating year as the base year.



# iGA SCOPE 1 & 2 EMISSIONS

Total Scope 1 & 2 Emissions  
thousand tonnes of CO2, 2019

**SCOPE 1** **21%**

Direct Emissions

These are emissions that occur inside our organizational boundaries. (The use of natural gas for heating, the use of diesel for vehicles, etc.)

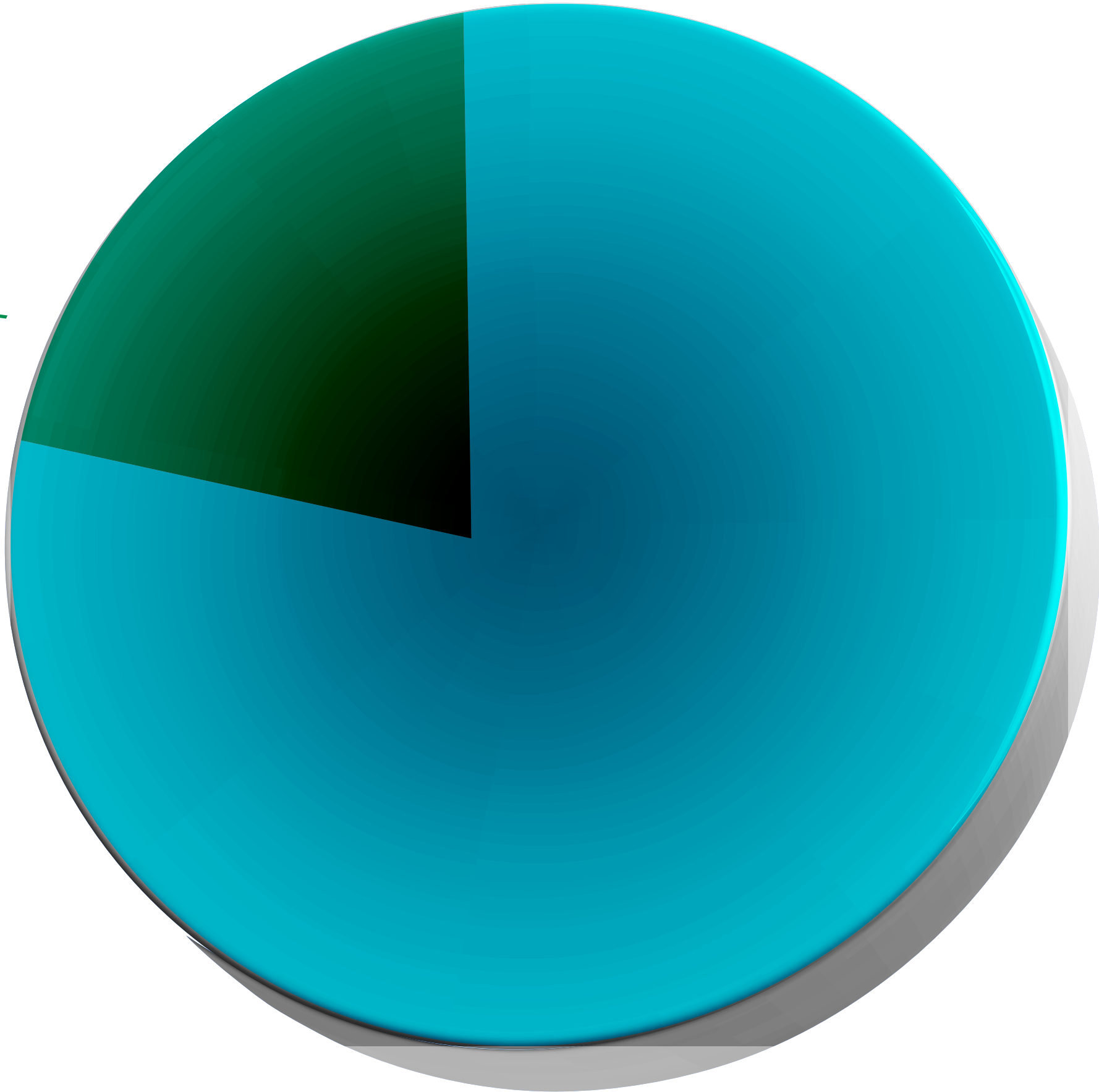
Natural Gas 91%

Fuel 9%

**SCOPE 2** **79%**

Indirect Emissions

From the generation of purchased energy from the electricity grid.



Total  
**178**  
thousand  
tonnes  
of CO2



## SCOPE 3

### Other Emissions

Emissions from airport stakeholders

**Landing Take-off Cycle (LT01)**  
Airport fuel consumption

82%

**Public Transportation**  
HAVAİST, İETT, TAKSİ Kop.,  
Private Car

10%

**Heating**  
Gas consumption  
of tenant companies

5%

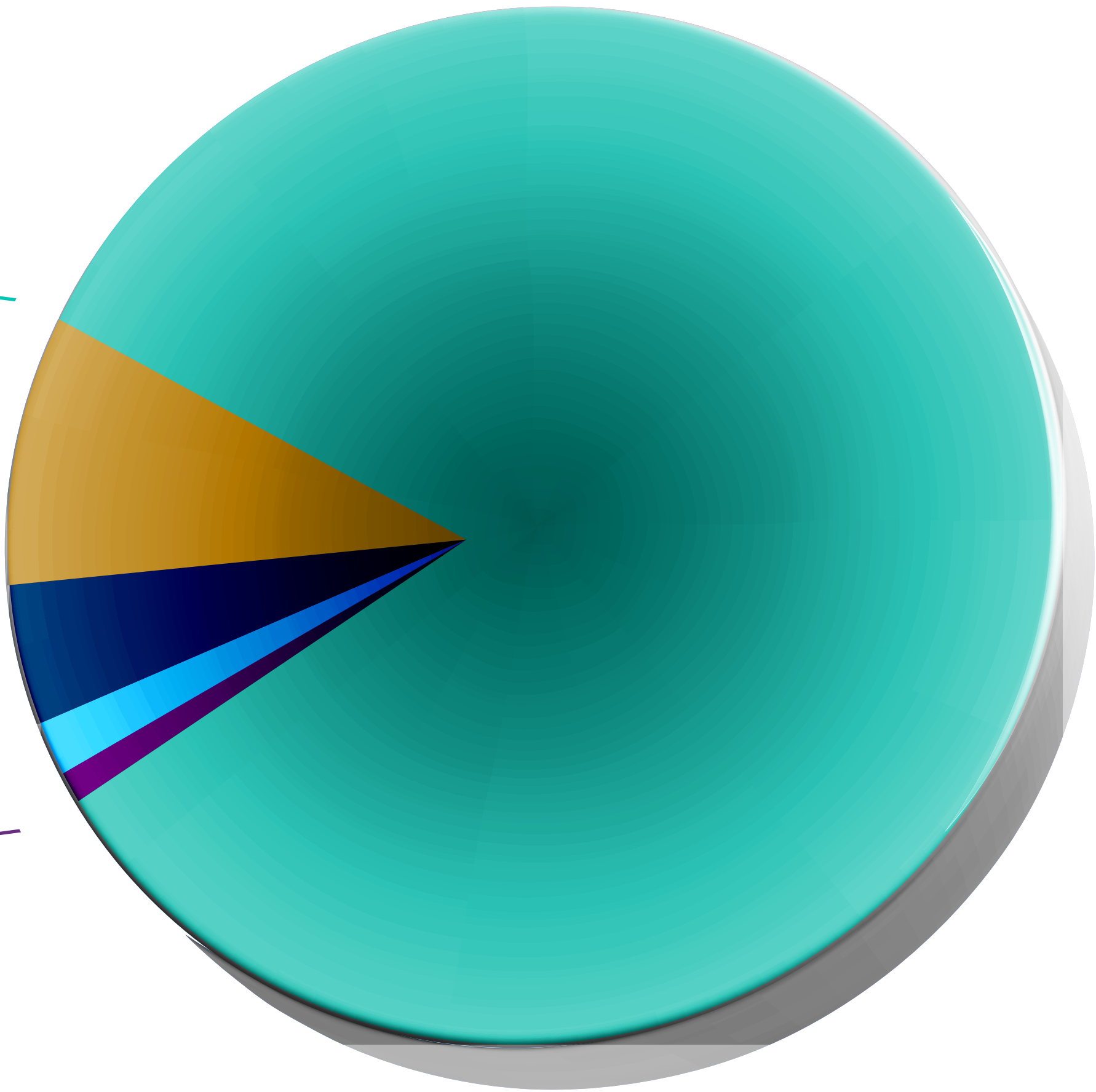
**Ground Handling Companies**  
HAVAS, CELEBİ, TGS, FUGO

2%

**Employee Shuttle**  
ALTUR

1%

**Total Scope 3 Emissions**  
thousand tonnes of CO2, 2019



**Total**  
**782**  
thousand  
tonnes  
of CO2

1 - LTO is the process where an aircraft enters airport airspace from 3,000 feet, taxis the landing and takes off, rising up to 3,000 feet again.



# PERFORMANCE METRICS

Our Net Zero targets for 2050 have been established in line with the IPCC's 1.5°C goals. In compliance with the interim reduction metrics in Table 1, our performance criteria have been divided into phases. Our 2050 Net Zero targets include emissions from both Scope 1 and Scope 2 sources. Scope 3 emissions are monitored per the Stakeholder Management Plan of the Airport Carbon Accreditation program. To the greatest extent possible, we want to assist our stakeholders' efforts on this journey with information and infrastructure by working with them at the highest level possible.

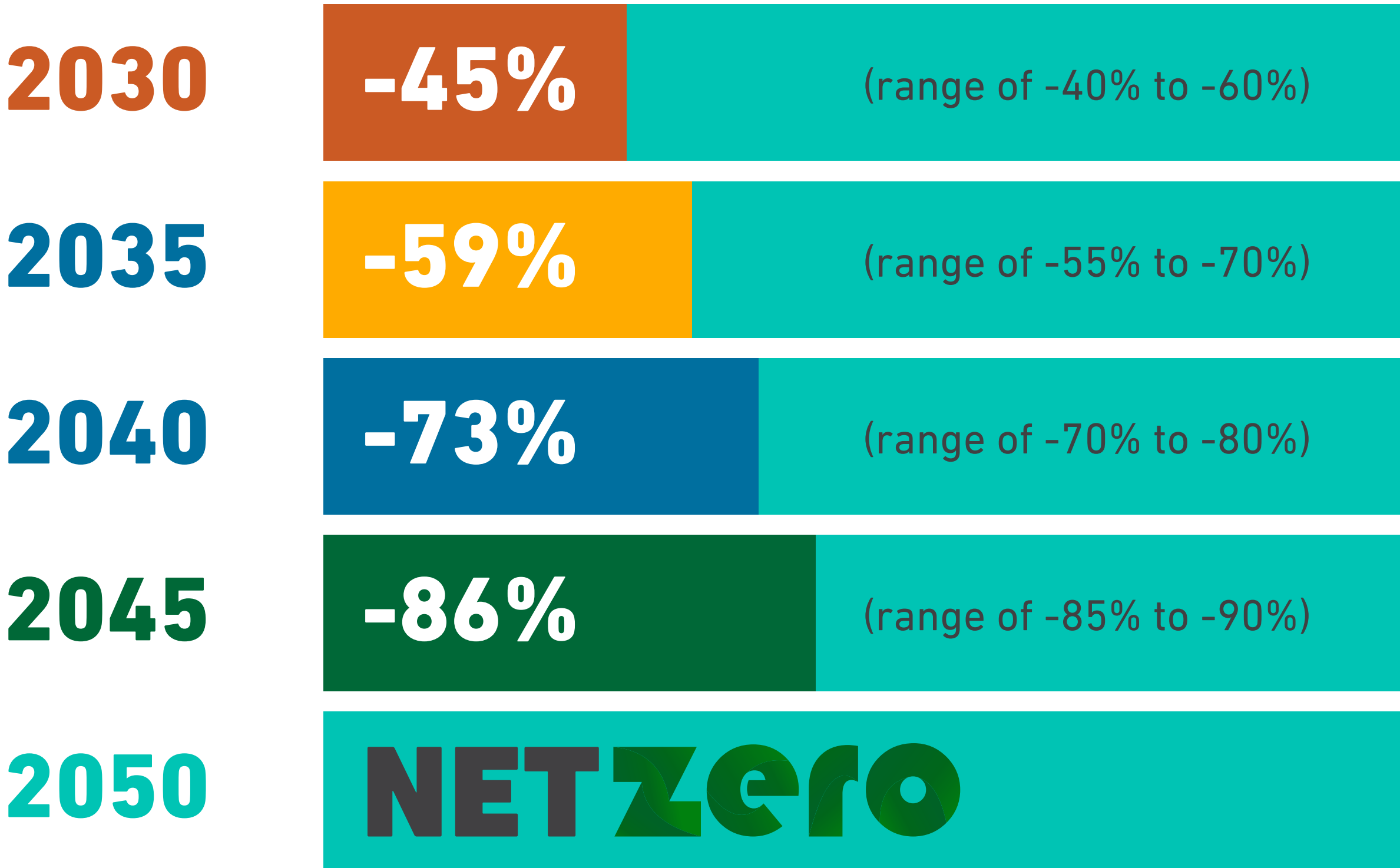


Table-1 IPCC 1.5°C pathway



# SCOPE 1 EMISSIONS

Our fuel and natural gas use is the primary source of our Scope 1 emission sources. For example, natural gas is used for heating and hot water at our airport. In addition, service vehicles, automobiles, emergency power generators, and solid waste transport vehicles consume fuel. We want to cut Scope 1 emission sources by 45% in 2030 and 73% in 2040 to meet our 2050 Net Zero targets.

## Following activities have been undertaken and are ongoing to achieve our 2040 emissions target

Mechanical System  
Automation Studies

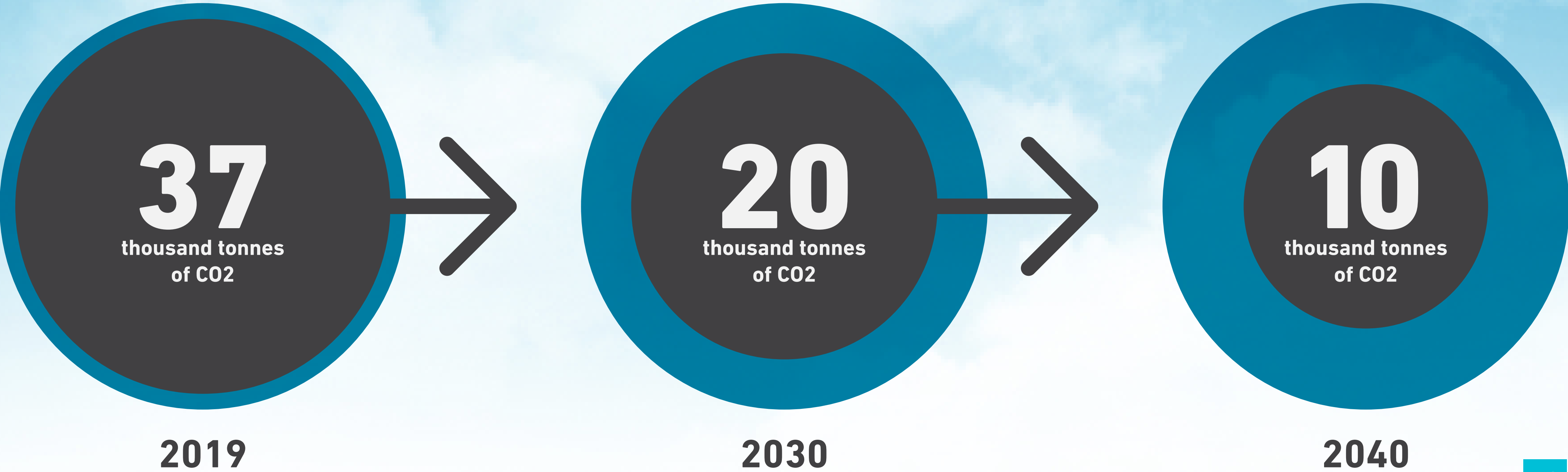
Building structure insulation work  
(vestibule production, roof, facade works, insulation etc.)

IoT and Energy Efficiency  
Data Analytics Applications

Conversion to Electric  
/Hydrogen Vehicles

Rotational Optimisation for  
Waste Management Vehicles

Fuel conversions  
(Biodiesel fuel use)





# SCOPE 2 EMISSIONS

Our sources of Scope 2 emissions are from energy-based greenhouse gas emissions that we buy from the power grid. According to our goals for 2050 Net Zero, we want to reduce our Scope 2 emissions by 45% in 2030 and 73% in 2040.

In order to meet our 2040 emissions target, the following initiatives have been taken and are currently being worked on:

Energy Management  
System Activities

Lighting  
Automation System

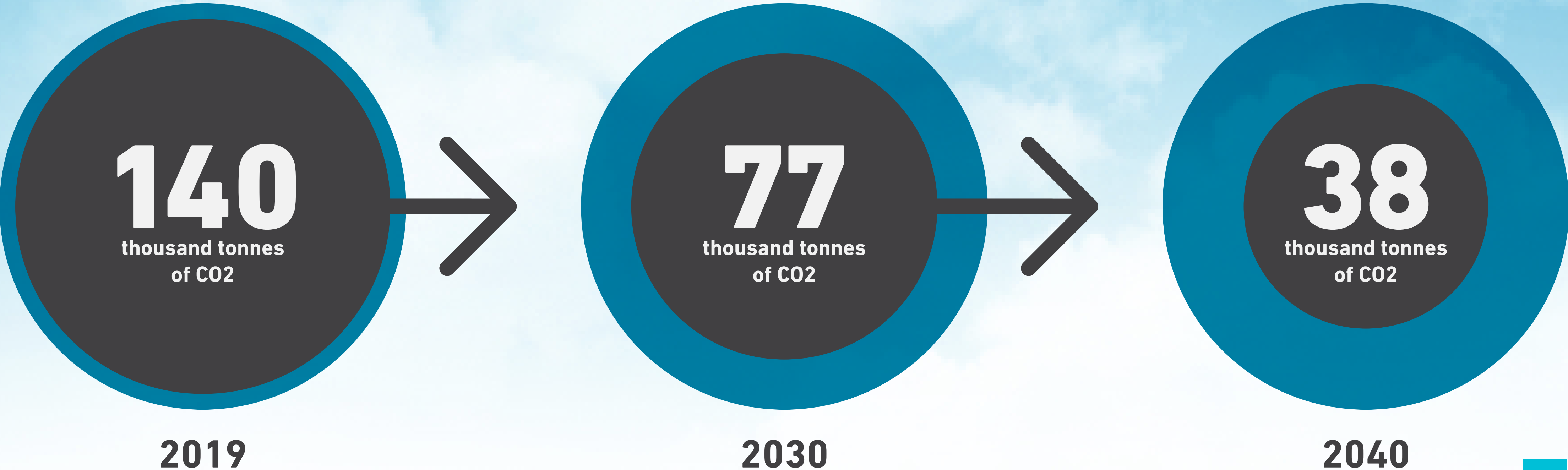
IoT and Energy Efficiency  
Data Analytics Applications

Green Energy  
Purchases (YEK-G)

Installation of  
Solar Panels

**Decarbonisation of the Power Grid**

The emission of the energy provided from the electricity grid is a combination of the power generation plants in the Turkish grid. According to Türkiye's energy regulations, energy output from renewable sources is growing yearly, which should lead to a reduction in carbon emissions from the power system over time.





# SCOPE 3 EMISSIONS

Our Scope 3 emission sources are greenhouse gas emissions from airport stakeholders' activities. Our 2050 Net Zero Goals do not include targets for reducing Scope 3 emissions. The efficiency activities carried out within the scope of our Partner Management Plan, on the other hand, are indicated. The TFS company provides SAF fuel in order to reduce aircraft emissions. Furthermore, fuel dispensers have been electrically converted. There are 50 dispensers available at our airport.

## Activities that have been undertaken and are ongoing to reduce our Scope 3 emissions

Training activities

Field Inspections

Working on Additional  
Taxi Time and Additional  
AS-MA Time in partnership  
with Eurocontrol

Implementation of  
A-SMGC Level 4  
Follow the Greens  
integration studies

Surveys

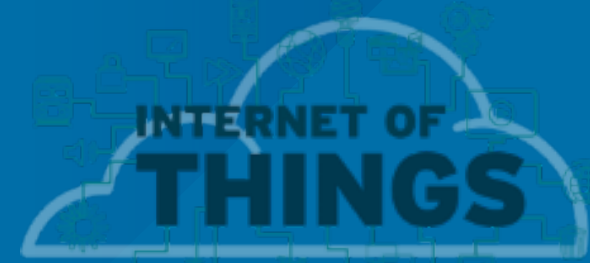
Workshops





# OUR SIGNIFICANT EFFORTS TO REDUCE OUR CARBON FOOTPRINT

## IoT and ENERGY EFFICIENCY PRACTICES



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## SOLAR PANEL DEPLOYMENT



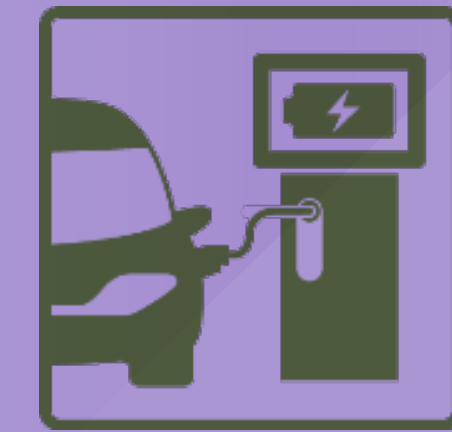
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## MECHANICAL SYSTEMS AUTOMATION EFFORTS



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## VEHICLE CONVERSIONS



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## GREEN ENERGY PURCHASES



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## FORESTATION EFFORTS



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## EFFORTS FOR RAISING AWARENESS



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## WE USE OUR ABILITIES TO INITIATE THE NET ZERO ACTION



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# IoT and ENERGY

## EFFICIENCY PRACTICES

The wireless IoT LoRaWAN network covers 76 million square meters of iGA Istanbul Airport using 107 IoT Gateways. This technology ensures remote monitoring of all endpoints and continuous tracking of alarm/status information for operation optimization and efficiency. In addition, IoT includes technologies that use real-time data to optimize processes and decision making. IoT technology is an essential tool for reaching net zero in energy. The energy sector is shifting from an outdated centralised system to distributed, smart, and integrated networks

The use of decision-making tools will be very important when it comes to the expansion of renewable energy resources. Renewable energy, on its own, will not be the solution for reducing emissions. A reduction in consumption will be a key factor in making systems more efficient and sustaining the renewable energy sources. Implementing IoT technologies will significantly contribute to the actions to combat Climate Change, a central pillar of ESG (Environmental, Social, Governance) risks.

Combining environmental management disciplines with electronic technologies offers a fresh viewpoint on sustainability. Moreover, this technologically oriented environmental perspective has ensured the integration of all other business operations on the energy efficiency data analysis application.





# SOLAR PANEL DEPLOYMENT

The zero-emission sources assessed under our net-zero goals include solar panel installations. We have identified potential locations for our airport's solar panel installation. The potential and viability of solar panels are continually assessed in line with the advancement of technology. The preliminary analysis completed in areas with potential for solar power plants determined the planned total installed power to be 348.3 MW. 300 million tonnes of CO2 emissions a year will be prevented when all installations are operational.



The outdoor air temperature and humidity are taken into consideration, and the mechanical systems are operated under the most efficient conditions, by monitoring and managing the buildings within the scope of the Terminal Building and External Buildings through the central automation system. All thermal loads that can be managed mechanically offer automatic control by opening and closing the control valves 24/7 at the automatically computed percentages under the best possible circumstances to get to the value programmed on the system.



Due to its 24-hour management, the mechanical automation system enables optimal energy savings. Direct and timed controllers are present on every component that can be observed and managed by the mechanical automation system, including A/C stations, water pumps, exhaust fans, and FCUs. When the equipment is not needed or when it is not in use in a particular location, timed controls will automatically turn it off.



# VEHICLE CONVERSIONS

Our airport is converting electric vehicles and installing vehicle charging stations. Our airport currently has four charging stations. The airside operation makes use of four electric vehicles. Following technological developments, hydrogen production and the use of hydrogen-powered vehicles are planned for the medium and long term.



EES and environmental management disciplines are conducting ongoing research and studies. Negotiations are taking place with the airport's stakeholders and suppliers, and the feasibility of future demands is being assessed. Efforts are being made to source energy for electric vehicle charging stations from renewable sources.





# GREEN ENERGY PURCHASES

With the YEK-G Certificate in Türkiye, renewable energy can be purchased from the electricity grid.

With the YEK-G system, manufacturers can increase the use of renewable energy sources for electric generation and consumption.



The suppliers are able to confirm if the origin of the power they supply is a renewable source.

Consumers, on the other hand, can contribute to the protection of the environment by being informed about the source of the energy they purchase and by having the option to choose between different electricity products.

The Airport Carbon Accreditation programme recognises the REGO (YEK-G) certificate. Therefore, purchasing renewable energy with the YEK-G certificate is an important alternative in line with our 2050 NET Zero roadmap performance criteria.





# FORESTATION EFFORTS

Our airport's ongoing forestation efforts are expected to be a significant carbon footprint sink in the medium and long term. The General Directorate of Forestry (OGM) has planted 2,031,950 trees since the airport's opening, and iGA Landscaping Directorate has planted another 215,000.



In 25 years, these forestation efforts, which were made up to 2022, should produce 924,000 tonnes' worth of CO2 sinks. By 1,84 times, this sink can offset all of our Scope 1 and Scope 2 emissions in 2019, 2020, and 2021.





# EFFORTS FOR RAISING AWARENESS

Through the iGA Academy online learning management system, all employees and affiliates at our airport can receive ISO 14001 Environmental Management System and ISO 50001 Energy Management System training. These training programs were completed during the past year by all iGA workers. Additionally, the iGA Academy offers face-to-face internal Carbon Management training at the airport. Through monthly reports, the environmental performance data of the airport's stakeholders is digitally tracked. Critical stakeholders are the target of audits carried out using field audit planning. As a result, compliance with national and international standards by airport stakeholder companies and personnel are continuously monitored. These audits also cover the companies' greenhouse gas management practices. Surveys, workshops, and webinars keep airport staff and stakeholders informed.





# WE USE OUR ABILITIES TO INITIATE THE NET ZERO ACTION

At iGA Istanbul Airport, we are planning our operations for a sustainable future. In line with this matter, and with consideration for the continuity of aviation activities, we are researching alternative sources to fossil fuels and following technological developments.

We anticipate that hydrogen will be an important energy source for our emission goals for 2030 and beyond. We operations, both for transportation vehicles and heavy duty vehicles, which will provide important operational flexibility as we consider the charging times of these. The use of hydrogen as an alternative to the use of natural gas for heating purposes, which is one of our current Scope 1 emissions, is a viable option.

In the use of hydrogen sources, we adhere to the most recent technologies. We negotiate with national and international companies and share our expectations. We are one of the key players in the transformation towards a more sustainable future.





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