D.T.1.2.1 LOW CARBON/LOW ENERGY PLAN

Version n.1

Bari, Brindisi, Foggia, Taranto-Grottaglie Airport 01/2023

Aeroporti di Puglia S.p.A.

INDEX

Table index

Figure index

INTRODUCTION

The world has a rapidly closing window of time to avoid the most catastrophic effects of climate change. Since 1990, global annual greenhouse gas (GHG) emissions have increased by 50 percent, rising from a little less than 40 gigatons (Gt) of carbon dioxide equivalent (CO2e) to just under 60 Gt of CO2e.

According to the Intergovernmental Panel on Climate Change (IPCC) 1.5°C special report (https://www.ipcc.ch/sr15), the world only has 8 years to reduce carbon emissions by 45%, and only 28 years before net zero emissions must be reached, if global average temperature rises to only 1.5°C has to be kept.

The Paris Agreement under the United Nations Framework Convention on Climate Change established a global action plan to reduce the impacts of climate change by limiting global warming to below 2°C and pursuing efforts to keep warming below 1.5°C above pre-industrial levels. Keeping the global average temperature increase to within 1.5°C requires all sectors of the economy to achieve net zero emissions by 2050.

Global concern about the effects of climate change and the impact on infrastructure is becoming increasingly prevalent. It is estimated that inclement weather results in around 70 per cent of annual flight delays and future weather changes could exacerbate these challenges. (US data 2018, Fact Sheet – Inclement Weather, https://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=23074). From sea level rise to changes in temperature, weather, wind and storm patterns, the impacts of climate change are predicted to pose a serious risk to airport operations if unaddressed.

1. TRANSPORTATION EMISSIONS

Transportation powered by fossil fuels, from ships to cars, and trucks to jet fuel airplanes is essential to the functioning of our modern economy.

Transportation as a sector account for around 16% of global emissions (IPCC Sixth Assessment Report 2022). Ground transport has made significant progress in its journey toward zero carbon mobility, but air transport has been lagging well behind. The development of low-emission aviation fuels, including biofuels, hydrogen, and electric-powered aircraft is well underway, but will take time.

Beyond the aircraft itself, the entire aviation infrastructure and services must also undergo a green transition.

2. AVIATION EMISSIONS

While the global aviation industry currently accounts for only 2.0-2.8 percent of the world's total greenhouse gas emissions, the IPCC expects this to rise to approximately 15 percent if no action is taken. In fact, the International Air Transport Association (IATA) forecasts that global passenger traffic will grow by 1.5 to 3.8 percent over the next 20 years, to 10 billion passengers by 2050. As a large contributor of greenhouse gas emissions and a difficult-to-abate sector, aviation is coming under increased scrutiny, from non-governmental organisations and activists, as well as regulators, to transform. In terms of overall aviation CO2 emissions, while the majority is produced from flying aircraft, airports' ground operations can become more sustainable. Airport-controlled activities account for around 3.0-4.0 percent (Airport Carbon Accreditation Annual Report 2017-2018, ACI-Europe).

There is a global movement toward climate neutrality within the aviation industry. In June 2019, the Airport Council International Europe committed to net zero carbon emissions by 2050 (Europe's airports commit to zero CO2 emissions by 2050, http://www.airport-world.com/news/general-news/7225-europe-s-airports-commit-to- zero-co2-emissions-by-2050.html). Launched by the French Presidency to the EU on the 4th February 2022, the so-called Toulouse Declaration is the first-ever public-private initiative supporting European aviation's goal to reach net zero CO2 emissions by 2050. This is also the first joint initiative of its kind globally, aligning all EU stakeholders on the principles and actions needed to decarbonise and transform Europe's aviation sector, representing a true breakthrough.

The Toulouse Declaration sets out the roadmap for European aviation to reach net-zero carbon emissions by 2050. Several European airports and airport associations have already endorsed the initiative, with 89 airport operators of 311 airports pledging their support. Airports of Montenegro Company operating two Montenegrin airports has endorsed this declaration, among others.

As global initiatives toward the objective of reducing or eliminating carbon emissions continue to grow, technologies designed to do so have also grown and become more financially feasible. The investment in infrastructure and new technologies to support those objective needs time to plan. Developing a roadmap towards ambitious objectives allows an airport to identify its policies and technologies in advance of their need so that they can plan and budget accordingly.

3. AIRPORT SUSTAINABILITY

An airport is a complex ecosystem of environments, services, vehicles and supporting systems, which all consume a mix of energy and resources, so airports should grow without damaging nature and biodiversity. Becoming more sustainable in terms of health and wellbeing means taking a fundamentally human-centered design approach to aviation infrastructure, operations and environments. There is likely to be growing expectation that airports commit to the concept of setting limits to environmental and climate impacts while continuing to grow economically. It would mean agreeing mutually acceptable methods of monitoring and enforcement regarding issues like noise, carbon emissions, surface access impacts, air quality and so on, but would also represent a spur to innovation. From wealth and employment to cultural exchange, airports have always made a considerable contribution to both national economy and surrounding communities.

Airports are vital national resources. They serve a key role in transportation of people and goods and in regional, national, and international commerce. Airports are connectors of multiple transportation modes: airport transfers, car rentals, pick up and collections. They are where the nation's aviation system connects with other modes of transportation and where responsibility for managing and regulating air traffic operations intersects with the role of state and local governments that own and operate most airports.

Since airports are one of major employers, the sustainable airport can play a larger role in the community than merely providing jobs, besides being healthier for employees, communities and users and producing more wellbeing. The low-carbon airport requires long planning horizons and can be achieved by reducing or eliminating carbon emissions at airports. In such way, airports have an opportunity to act as an active participant in the shift to a net-zero economy. Ultimately, once airports are more vocal about their climate commitments, and making progress on a path to net zero, they will strengthen their social license to operate.

Aeroporti di Puglia in this context with the ratification of the Global Compact international document, was the first Italian airport manager to formally commit to pursuing, within its sphere of influence, ten fundamental principles relating to sustainability including social and environmental protection criteria. Principles already universally shared deriving from the Universal Declaration of Human Rights, the ILO Declaration, the Rio Declaration and the United Nations Convention against Corruption.

In particular, the commitment dedicated to the virtuous management of the Apulian airports has meant that the Apulian network has become a reference model at a national level for the methods of approaching environmental dynamics during the design and construction of new infrastructures: a further stimulus to continue on the process started which has made it possible to achieve levels of excellence in the field of airport services, in intermodal integration and in the quality of the tourist offer.

In terms of energy supply, photovoltaic systems have been in operation for years at the airports of Bari and Brindisi - for a total of 500 kW - for the production of renewable energy which is fed into the airport's service networks. This, in addition to reducing the peaks in the use of energy produced from traditional non-renewable sources and satisfying part of the energy needs of the two airports, has made it possible to reduce the effects of direct radiation on the building envelope of the passenger terminal, with a consequent reduction in consumption electrical attributable to the air conditioning system.

In addition to large-scale systems, photovoltaics has also been used for the roofing of the pedestrian walkways of the Karol Wojtyla airport in Bari, built with canopies integrated with advanced electricity production technologies, functional for managing the lighting of the walkways themselves.

At the same time as the infrastructural process, Aeroporti di Puglia has created, within the framework of the Interregional Operational Program 2007 - 2013 "Renewable energies and energy saving", a plan of integrated interventions aimed at improving the energy efficiency of the Bari airport.

Among the activities aimed at the energy efficiency of buildings and public energy users or for public use in agreement with the Ministry of the Environment and the Protection of the Territory and the Sea, ENAC and the Puglia Region, include the interventions of: biomass cogeneration serving the Bari airport; passenger terminal energy efficiency; integration of the efficiency system with a high-efficiency lighting system along the access avenue to the passenger terminal; integration of the AVL plant efficiency system.

Finally, there are numerous other applications – electric ramp vehicles, bicycles for internal movements, separate waste collection – through which Aeroporti di Puglia has implemented its environmental choices.

All the Apulian airports are in possession of the Environmental Management System Certifications according to the ISO 14001 standard.

4. SCOPES OF AIRPORT EMISSIONS

The challenge of decarbonising an airport's activities goes far beyond its ground infrastructure. For airports, it is a question of measuring greenhouse gas emissions throughout the airport value chain and working to reduce them concomitantly. The airport's direct emissions (known as scope 1), but also the direct emissions linked to its energy consumption (scope 2). And finally, and this is undoubtedly what has the greatest impact, the indirect emissions, both upstream and downstream (scope 3).

So, it is necessary to use incentives to get airlines, passengers, service providers and airport partners to change their habits and reduce their carbon emissions.

In most airport settings, airport operators typically have direct control over 20% or even less of an airport’s total GHG emissions, while airlines, caterers, cargo handlers, retailers, freight companies, and passengers are responsible for the large majority. To help standardize boundaries and emissions reporting, most airports use the three “scopes” (Scope 1, Scope 2, and Scope 3) defined by the Greenhouse Gas Protocol (WBCSD and WRI 2015), an internationally recognized standard for quantifying and tracking GHG, shown in a figure 1.

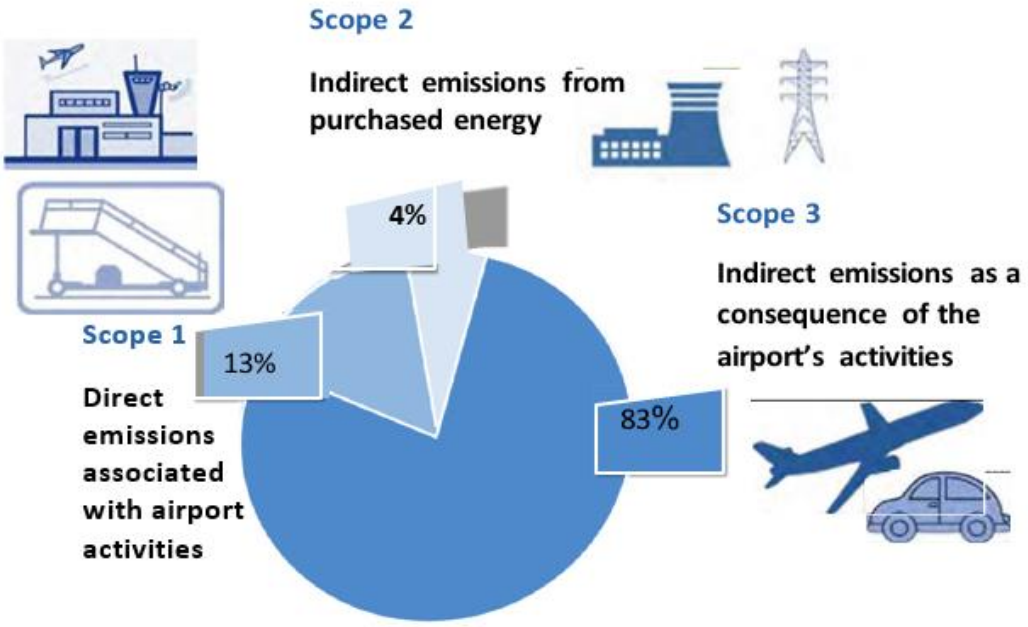

Figure 1 *Average airport emissions, by scope*

Scope 1. Airport operator emissions associated with vehicles and ground support equipment belonging to the airport, on-site waste management, on-site wastewater management, and on-site power generation, freighting exercises, boilers, and furnaces.

Scope 2. Indirect emissions from on-site purchased electricity and steam.

Scope 3. Indirect emissions as a consequence of airport activities including aircraft landing and take-on (under 3,000 feet), aircraft ground movements, auxiliary power units, third-party vehicles, ground support equipment, passenger travel to and from the airport, staff commute, on-site waste management, on-site water management, and staff business travel.

There are three entities in the airport context that own or influence emissions:

- Airport operators,
- Tenants (primarily airlines, concessionaires, and aircraft operators), and
- General public.

Table 1 gives an overview of emissions sources by scope, type, and ownership versus influence category. Scope 1 and Scope 2 emissions at an airport are owned by the airport operator, while Scope 3 emissions are owned by tenants and the general public but influenced by the airport operator. Since Scope 3 emissions are not airport controlled, they are generally the most difficult for an airport operator to reduce directly.

Table 1 *Emission sources by scope*

Category	Emissions Sources	Scope 1	Scope 2	Scope 3
		Ownership		Influence
Electricity	On-site electricity generation	X		
	Purchased grid electricity		X	
	Electricity consumed by tenants, partners, subcontractors, grid power, and other third parties			X
Stationary Sources	Airport-owned or airport-leased boilers, furnaces, burners, turbines, heaters, incinerators, engines, firefighting exercises, flares, generators, and other	X		
	Tenant-owned or tenant-leased boilers, furnaces, burners, turbines, heaters, incinerators, engines, firefighting exercises, flares, generators, and other			X
Vehicle Travel	Airport-owned or operated shuttle buses, maintenance vehicles, security vehicles, and emergency vehicles	X		
	Airport staff business travel			X
	Tenant-controlled vehicles, such as ground support equipment, passenger ground transportation, third-party owned vehicles, and Other			X
	Airport staff commuting			X
	Passenger private vehicles			X
Waste Management	On-site waste management, wastewater management, and other	X		
	Off-site waste management by third-party operators			X
Aircraft	Aircraft ground movements, taxiing, auxiliary power units (APUs), and landing and take-off			X
Other	Leaks from fire suppression activities, refrigerants, and construction emissions	X		

4.1 Short methodological structure

The methodological approach for active reduction of the airport's own carbon emissions has been taken over from Airport Carbon Accreditation (ACA) Guidance on Reducing Emissions before Offsetting (Issue 1)

https://www.airportcarbonaccreditation.org/airport/technical-documents.html.

The flow diagram (Figure 1) describes the process that airports should follow, and the steps are set out in more detail in the subsequent text. The steps below are to be carried out regularly, i.e. on a 12-monthly cycle, to ensure continued improvement and reduction of emissions. If the airport decides to purchase offsets, all further efforts to reduce emissions should still be investigated and implemented on an ongoing basis in order to offset only residual unavoidable emissions. Table 1 from ACA methodology is also used to track and account for the implementation of the emissions reduction actions/projects for each Airport.

The steps to be followed are

- Step 1: Identification – the airports map their carbon footprints for each reporting year. This allows the airports to have a clear view of what their key emission sources or 'carbon hotspots' are and how the emissions patterns are evolving year on year and allow them to understand how the airport and its operations contribute to global emissions and if/how the reduction actions are effective.
- Step 2: Planning – the identification of hotspots is an important part of the planning process as it allows the airport to then establish what opportunities they have for reducing their carbon footprint. This allows for the development of a carbon management plan and other strategies such as monitoring plans. The plan identifies ways to reduce the carbon footprint and limit emissions from future activities and airports shall use the table 1 provided in Annex 1 of this document to summarize the actions/investments that have an impact on reducing emissions and monitor their implementation.
- Step 3: Prioritisation – continuing on from the planning step, which sets carbon reduction targets and identifies possible efficiency measures to implement, these actions can be prioritised. There are a number of different factors that concur to determine this (cost, return on investment, benefits to the quality of airport services, etc.).
- Step 4: Implementation – before implementation, senior stakeholders are consulted on the carbon management plan to understand their views on specific measures, discuss any concerns they may have that could be addressed and obtain approval to proceed where necessary. Once initiatives have been prioritised and timelines are consequently defined, implementation begins.
- Step 5: Monitoring and Improvement – airports undertake periodic assessments of performance against the carbon management plan. Feedback from monitoring, allows for implementation of corrective actions for improvement to ensure that targets are achieved for any initiatives that are not delivering the projected reductions.
- Step 6: Determination – the airport could establish, through calculations, that they have implemented or have a plan to implement all the reduction options that are available to them. The methodology to establish this includes the amount and type of GHG emissions that have been reduced and the time period that this was achieved. This reduction can be quantified in absolute terms or expressed in emission intensity terms.
- Step 7: Justification – airports could also be able to justify the reasoning behind any carbon reduction initiatives that were identified in the planning stage but not implemented during Step 4. If they are able to do this, they can progress to Step 8.

If initiatives have been considered but not implemented and the reasoning cannot be justified, airports shall return to Step 4. An action plan could be useful as a structured approach to understanding the barriers to implementation (financial, physical, etc), and what needs to be done to overcome those barriers in order to invest and potentially revisit those carbon reduction opportunities in the future. The status of these initiatives can then be updated once they have been implemented.

- Step 8: Demonstration – once the airport has followed all these steps, they are able to demonstrate that they have implemented all reasonable possible measures to reduce emissions.

Having done so, if wishing to act further the airport can purchase offsets.

This entire process is to be repeated on a yearly basis to ensure continual improvement and reductions in emissions. The carbon management plan shall be revised at least every 12 months to check if any changes are needed and shall be fully updated at least every 3 years.

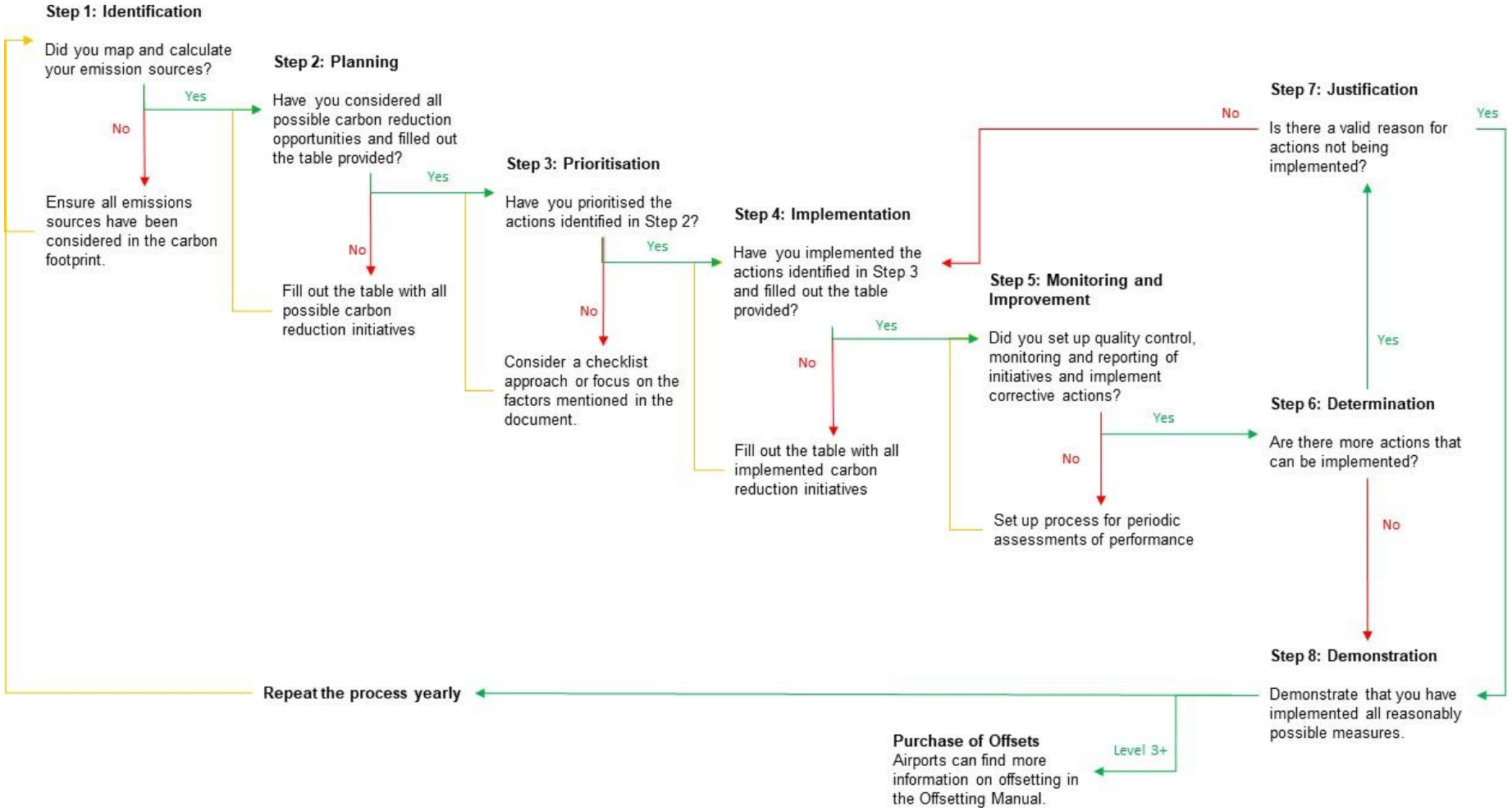

Figure 2 *Flowchart that Airports Could Follow to Reduce Emissions 'as Much as Possible*

5. DESIGNING AND OPERATING AIRPORT WITH LOWER GHG EMISSIONS

5.1 Reducing Scope 1 and 2 emissions vs Base Line year 2021

5.1.1 Energy efficiency in buildings

The projects in this category planned from 2023 or started in previous years but still to be completed are summarized hereafter for each airport.

Bari Airport (BRI)

Table 2 *Energy efficiency in buildings Projects Bari Airport (BRI)*

Project Code	Project Description	Energy Vector	Total Expected CO2 reduction [kg]	Implementation period
EM.BRI.07	energy redevelopment of the airport power center – central building according to the "4.0 Industry" standard	Grid Electricity	29,940/year	2026/2027
EM.BRI.08	energy redevelopment of the airport power center – eastern building according to the "4.0 Industry" standard	Grid Electricity	29,940/year	2026/2027
N. EM.BRI.16	implementation of SCADA asset supervision and control system	Grid Electricity	59,880/year	2029/2030

Brindisi Airport (BDS)

Table 3 *Energy efficiency in buildings Projects Brindisi Airport (BDS)*

Project Code	Project Description	Energy Vector	Total Expected CO2 reduction [kg]	Implementation period
EM.BDS 11	implementation of SCADA asset supervision and control system	Grid Electricity	32,770/year	2023/2024

Foggia Airport (FOG)

Table 4 *Energy efficiency in buildings Projects Airport of Foggia (FOG)*

Project Code	Project Description	Energy Vector	Total Expected CO2 reduction [kg]	Implementation period
EM.FOG.04	Redevelopment of aerostation building to have a higher energy efficiency	Grid electricity	22,650/year	2028/2029

Taranto/Grottaglie Airport (TAR)

Table 5 *Energy efficiency in buildings Projects Taranto - Grottaglie Airport (TAR)*

Project Code	Project Description	Energy Vector	Total Expected CO2 reduction [kg]	Implementation period
EM.TAR.01	energy redevelopment of the airport buildings	Grid Electricity	21,610/year	2023/2024
EM.TAR.04	implementation of SCADA asset supervision and control system	Grid Electricity	2,880/year	2023/2024

5.1.2 Heating, Ventilation and Cooling (HVAC) Technologies

The projects in this category planned from 2023 or started in previous years but still to be completed are summarized hereafter for each airport.

Bari Airport (BRI)

Table 6 *HVAC projects Bari Airport*

Project Code	Project Description	Energy Vector	Total Expected CO2 reduction [kg]	Implementation period
EM.BRI.01	Replacement of the 2 Heat Pumps (Mac Quay model MPH 215 2 ST) on duty in the "Airstation 01" since the year 2003, with Heat Pump having the same size but highest energy efficiency	Grid Electricity	89,820/year	2023/ 2024

EM.BRI.02	Replacement of the 2 Cooling Units (Mac Quay model MPH ALSD 327 3 XE ST) on duty in the "Airstation 01" since the year 2003, with Heat Pump having the same size but higher energy efficiency	Grid Electricity	119,770/year	2023/ 2024

Brindisi Airport (BDS)

Table 7 *HVAC projects Brindisi Airport*

Project Code	Project Description	Energy Vector	Total Expected CO2 reduction [kg]	Implementation period
EM.BDS.02	Substitution of nb. 02 Heat pumps (operating since 2006 in the Aeropax) – THERMOCOLD model AWA ENERSAVE E 4590 ZXH SP, with nb. 02 equivalent machines with high efficiency	Grid electricity	43,690/year	2023/2024
EM.BDS.10	Substitution of pumps/engines of the central heating unit with higher efficiency ones	Grid electricity	32,770/year	2025/2026

Foggia Airport (FOG)

No HVAC projects planned

Taranto/Grottaglie Airport (TAR)

No HVAC projects planned

5.1.3 Renewable electricity generation and consumption

No projects foreseen

5.1.4 Airport-Owned and Airport-Operated Vehicles

No projects foreseen

5.1.5 *Waste Management*

No projects foreseen

5.1.6 *Other*

Bari Airport (BRI)

Table 8 *Other projects Bari Airport*

Project Code	Project Description	Energy Vector	Total Expected CO2 reduction [kg]	Implementation period [year]
EM.BRI.03	Replacement of the actual 180 lamps of the gym path (150W halide lamps) with equivalent LED technology lamps	Grid Electricity	29,940/year	2025/ 2026
EM.BRI.04	Energy redevelopment of the BHS system throughout the replacement of the electric engines with equivalent and higher efficiency ones	Grid Electricity	239,530/year	2023/ 2024
EM.BRI.05	Energy redevelopment of the lighting plant of the military external area	Grid Electricity	119,770/year	2025/ 2026
EM.BRI.06	Energy redevelopment of the lighting plant of the landside external area	Grid Electricity	119,770/year	2025/ 2026
EM.BRI.10	Energy redevelopment of the transformer substation MV/LV of the aerostation central building	Grid Electricity	59,880/year	2027/ 2028
EM.BRI.11	Energy redevelopment of the transformer substation MV/LV of the aerostation eastern building	Grid Electricity	59,880/year	2027/ 2028
EM.BRI.12	Energy redevelopment of the transformer substation MV/LV of the firefighters building	Grid Electricity	29,940/year	2027/ 2028
EM.BRI.13	GPU Energy redevelopment	Grid Electricity	29,940/year	2028/ 2029
EM.BRI.14	Energy redevelopment of the water station pumps	Grid Electricity	59,880/year	2029/ 2030
EM.BRI.15	Energy redevelopment of the thermal power plant pumps	Grid Electricity	119,770/year	2029/ 2030

Brindisi Airport (BDS)

Table 9 *Other projects Brindisi Airport*

Project Code	Project Description	Energy Vector	Total Expected CO2 reduction [kg]	Implementation period
EM.BDS.01	Redevelopment of flight infrastructure RWY 05/23, with lights substitution	Grid electricity	54,620/year	2022/2024
EM.BDS.04	Replacement of lights with high efficiency ones in the place areas AA.MM.	Grid electricity	32,770/year	2024/2025
EM.BDS.05	Replacement of lights with high efficiency ones in the external areas land-side.	Grid electricity	21,850/year	2024/2025
EM.BDS.06	Redevelopment of the power center aeropax – to the standard Industry 4.0 (sustainability 4.0)	Grid electricity	21,850/year	2023/2024
EM.BDS.03	Redevelopment BHS system, installation of high efficiency engines and implementation of new supervision system	Grid electricity	76,460/year	2023/2024
EM.BDS.08	Replacement of Distribution Transformers MT/BT Aeropax with higer efficiency ones	Grid electricity	21,850/year	2025/2026
EM.BDS.09	Replacement of pumps/engines of the central hydraulic unit with higher efficiency ones	Grid electricity	32,770/year	2025/2026

Foggia Airport (FOG)

Table 10 *Other projects Foggia Airport*

Project Code	Project Description	Energy Vector	Total Expected CO2 reduction [kg]	Implementation period
EM.FOG.01	Substitution of lights with high efficiency ones in the place areas AA.MM.	Grid electricity	4,530/year	2026/2027
EM.FOG.02	Substitution of lights with high efficiency ones in the external areas land-side.	Grid electricity	4,530/year	2026/2027
EM.FOG.03	Redevelopment of the AVL (bright visual aids) system	Grid electricity	4,530/year	2028/2029

Taranto/Grottaglie Airport (TAR)

Table 11 *Other projects Taranto - Grottaglie Airport*

Project Code	Project Description	Energy Vector	Total Expected CO2 reduction [kg]	Implementation period
EM.TAR.02	AVL Energy redevelopment	Grid Electricity	21,610/year	2025/ 2026
EM.TAR.03	Energy redevelopment of the lighting plant of the military external area	Grid Electricity	7,200/year	2026/ 2027

5.1.7 Offset Emissions

None

5.1.8 Certified Emissions Reduction

None

5.1.9 Proprietary Verified Emissions Reduction

None

5.1.10 Sequestration

None

5.2 Reduce Scope 3 emissions

At the moment AdP plans on acting to reduce those Scope 3 emissions that are within its sphere of influence as the business travel and commuting of staff through training and behavioural changes.

Likewise, AdP is planning to engage stakeholders as tenants etc. through 2 forums to highlight possible energy efficiency measures and drive behavioural changes.

However at the moment Scope 3 emissions have not be quantified therefore a proper analysis of quantified GHG reductions for this Scope will be conducted once there is a measured baseline also for Scope 3 emissions.

6. CONCLUSIONS

Considering the cumulative effect of all projects planned at this stage as per "ENERGY MANAGEMENT RELAZIONE ANNUALE ANNUALITA' 2022" and previous tables, with quantified reductions impacting Scope 2, it is possible to confirm that the actions planned are in line with the target foreseen by AdP.

The conditions used in the analysis are:

- Base year: 2019
- Target year: 2030
- Forecast of activity growth (traffic): based on EUROCONTROL, Forecast Update 2022-2028 - ITALY, base case, assuming same percentage of growth for all airports.
- Reduction pathway selected for the analysis: - 1,5%/Year (in line with a scenario that would keep global temperatures under a 2°C increase in 2050)
- KPI: passengers

The Reduction pathway obtained through the reduction projects is -13% for the whole of AdP and is in line with the -1,5%/Year reduction pathway shown in the table below:

Table 12 *GHG emission reduction pathway 2030 vs 2019*

AIRPORT	Absolute Reduction pathway 2030 vs 2019	Overall KPI [kgCO2/pax] 2030 vs 2019
Bari	-12%	-41%
Brindisi	-12%	-43%
Foggia	-12%	-88%
Taranto-Grottaglie	-12%	-50%
OVERALL	**-12%**	**-41,6%**

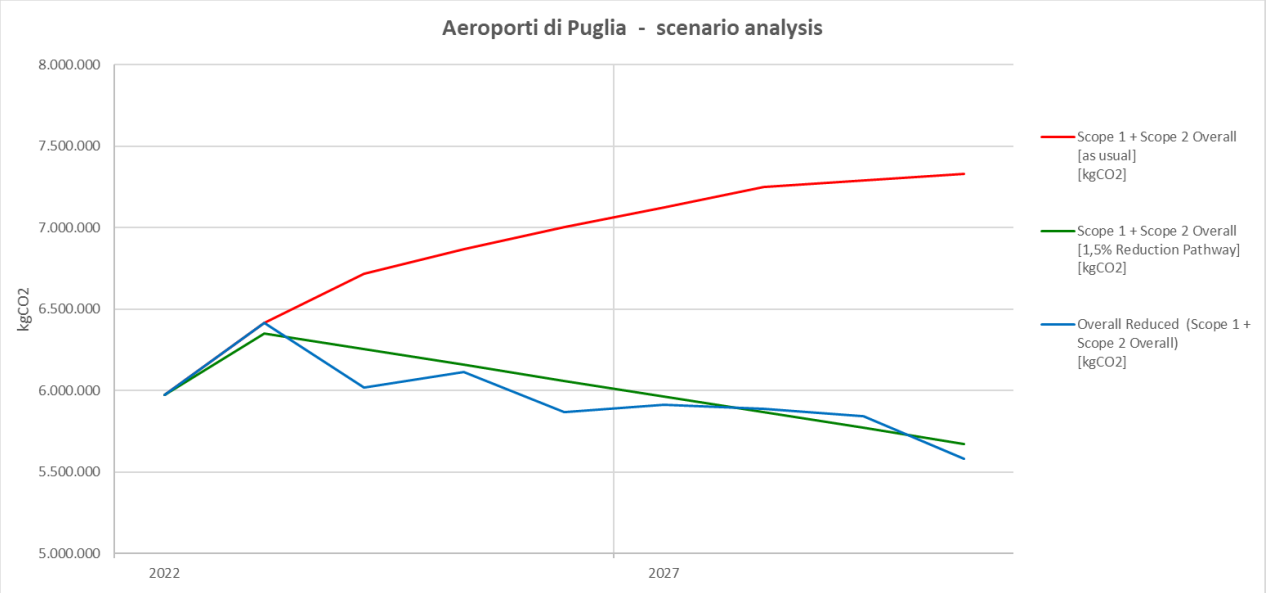

Figure 3 *Aeroporti di Puglia – Scenario analysis*

In this analysis a - 1,5% yearly reduction rate consistent with keeping global temperatures within 2°C (2DS scenario) was considered achievable as potential target.

However, the latest AR6 IPCC report and latest evolution of ACA program encourages organizations to have more ambitious targets consistent with the Paris agreement.

The Reduction pathway required by the Paris Agreement is in the range between - 2,5%/Y (WellBelow2DS scenario) and -4,20%/Y (1,5DS Scenario), therefore in future updates of the carbon management plan this will be considered and revaluated.

ANNEX - AIRPORT DATA

Bari Airport (BRI)

Table 13 *Bari Airport Summary of Low carbon project Planning and Implementation Stages*

PLANNING								IMPLEMENTATION	
SCOPE	**GROUP**	**DETAILED SOURCE**	**TECHNICAL**	**OPERATIONAL**	**REGULATORY**	**ECONOMIC**	**OTHER**	**STATUS**	**REASONING**
SCOPE 1	//	//	//	//	//	//	//	//	//
SCOPE 2	Electric	HVAC	2 Heat pumps replacement					Planned	
			2 Cooling Units replacement					Planned	
		Lighting Systems	Replacement of 180 lamps of the gym path (150W halide lamps) with equivalent LED technology lamps					Planned	
			Energy redevelopment of the lighting plant of the military external area					Planned	
			Energy redevelopment of the lighting plant of the landside external area					Planned	
		Engines	higher efficiency engines (BHS)					Project/ realization	
			higher efficiency pumps and engines (water station)					Planned	
			higher efficiency pumps and engines (Thermal power station)					Planned	
		Other	energy redevelopment of the airport power center – central building					Planned	
			energy redevelopment of the airport power center – eastern building					Planned	
			implementation of SCADA asset supervision and control system					Planned	
			Energy redevelopment of the transformer substation MV/LV of the aerostation central building					Planned	
			Energy redevelopment of the transformer substation MV/LV of the aerostation eastern building					Planned	
			Energy redevelopment of the transformer					Planned	

PLANNING								IMPLEMENTATION	
SCOPE	**GROUP**	**DETAILED SOURCE**	**TECHNICAL**	**OPERATIONAL**	**REGULATORY**	**ECONOMIC**	**OTHER**	**STATUS**	**REASONING**
			substation MV/LV of the firefighters building						
			GPU Energy redevelopment					Planned	
SCOPE 3	Staff business travel				Policies per type of travel depending on distance			Planned	
	Commuting						Training staff	Planned	

Table 14 *Bari Airport Planned reductions 2023-2030*

CO2 Reduction Project		Expected CO2 Reduction per year [kg]						
Scope	**project code**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
1	//	//	//	//	//	//	//	//
2	EM.BRI.07	-	-	-	29,940	29,491	29,049	28,613
2	EM.BRI.08	-	-	-	29,940	29,491	29,049	28,613
2	EM.BRI.16	-	-	-	-	-	-	59,880
2	EM.BRI.01	89,820	88,473	87,146	85,838	84,551	83,283	82,033
2	EM.BRI.02	119,770	117,973	116,204	114,461	112,744	111,053	109,387
2	EM.BRI.03	-	-	29,940	29,042	28,606	28,177	27,754
2	EM.BRI.04	239,530	239,530	239,530	239,530	239,530	239,530	239,530
2	EM.BRI.05	-	-	119,770	116,177	112,692	109,311	106,032
2	EM.BRI.06	-	-	119,770	116,177	112,692	109,311	106,032
2	EM.BRI.10	-	-	-	-	59,884	59,884	59,884
2	EM.BRI.11	-	-	-	-	59,884	59,884	59,884
2	EM.BRI.12	-	-	-	-	29,942	29,942	29,942
2	EM.BRI.13	-	-	-	-	-	59,884	59,884
2	EM.BRI.14	-	-	-	-	-	-	119,767
2	EM.BRI.15	-	-	-	-	-	-	119,767
	Tot Scope 1	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Tot Scope 2	**449,120**	**445,976**	**712,359**	**761,105**	**899,505**	**948,354**	**1,237,001**

Brindisi Airport (BDS)

Table 15 *Brindisi Airport Summary of Low carbon project Planning and Implementation Stages*

PLANNING								IMPLEMENTATION	
SCOPE	**GROUP**	**DETAILED SOURCE**	**TECHNICAL**	**OPERATIONAL**	**REGULATORY**	**ECONOMIC**	**OTHER**	**STATUS**	**REASONING**
SCOPE 1	//	//	//	//	//	//	//	//	//
SCOPE 2	Electric	HVAC	2 Heat pumps replacement					Planned	
			higher efficiency pumps and engines (central heating unit)					Planned	
		Lighting	lights replacement (Flight infrastructure RWY 05/23)					Project/ realization	
			lights replacement (areas AA.MM.)					Planned	
			lights replacement (land-side external areas)					Planned	
		Engines	higher efficiency engines (BHS)					Project/ realization	
			higher efficiency pumps and engines (central hydraulic unit)					Planned	
		other	Redevelopment power center Aeropax					Project/ realization	
			Distribution transformers MT/BT substitution					Planned	
			implementation of SCADA asset supervision and control system					Project/ realization	
SCOPE 3	Staff business travel				Policies for type of travel depending on distance			Planned	
	Commuting						Training staff	Planned	

Table 16 *Brindisi Airport Reductions planned 2023-2030*

CO2 Reduction Project		Expected CO2 Reduction per year [kg]						
Scope	**project code**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
1	//	//	//	//	//	//	//	//
2	N. EM.BDS 11	32,770	32,770	32,770	32,770	32,770	32,770	32,770
2	N. EM.BDS.02	43,690	43,035	42,389	41,753	41,127	40,510	39,902
2	N. EM.BDS.10	-	-	32,770	32,278	31,794	31,317	30,848
2	N. EM.BDS.01	54,620	52,981	51,392	49,850	48,355	46,904	45,497
2	N. EM.BDS.04	-	32,770	31,787	30,833	29,908	29,011	28,141
2	N. EM.BDS.05	-	21,850	21,195	20,559	19,942	19,344	18,763
2	N. EM.BDS.06	21,850	21,850	21,850	21,850	21,850	21,850	21,850
2	N. EM.BDS.03	76,460	76,460	76,460	76,460	76,460	76,460	76,460
2	N. EM.BDS.08	-	-	21,850	21,850	21,850	21,850	21,850
2	N. EM.BDS.09	-	-	32,770	32,770	32,770	32,770	32,770
Tot Scope 1		**-**	**-**	**-**	**-**	**-**	**-**	**-**
Tot Scope 2		**229,390**	**281,716**	**365,232**	**360,974**	**356,826**	**352,786**	**348,851**

Foggia Airport (FOG)

Table 17 *Foggia Airport Summary of Low carbon project Planning and Implementation Stages*

PLANNING								IMPLEMENTATION	
SCOPE	**GROUP**	**DETAILED SOURCE**	**TECHNICAL**	**OPERATIONAL**	**REGULATORY**	**ECONOMIC**	**OTHER**	**STATUS**	**REASONING**
SCOPE 1	//	//	//	//	//	//	//	//	//
SCOPE 2	Electric	HVAC	Redevelopment aerostation buildings					Planned	
		Lighting	Lights substitution (areas AA.MM.)					Planned	
		Lighting	Lights substitution (land-side external areas)					Planned	
		Lighting	AVL system redevelopment					Planned	
SCOPE 3	Staff business travel				Policies for type of travel depending on distance			Planned	
	Commuting						Training of staff	Planned	

Table 18 *Foggia Airport Planned reductions 2023-2030*

CO2 Reduction Project		Expected CO2 Reduction per year [kg]						
Scope	**project code**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
1	//	//	//	//	//	//	//	//
2	N. EM.FOG.04	-	-	-	-	-	22,650	22,650
2	N. EM.FOG.01	-	-	-	4,530	4,530	4,530	4,530
2	N. EM.FOG.02	-	-	-	4,530	4,530	4,530	4,530
2	N. EM.FOG.03	-	-	-	-	-	4,530	4,530
Tot Scope 1		**-**	**-**	**-**	**-**	**-**	**-**	**-**
Tot Scope 2		**-**	**-**	**-**	**9,060**	**9,060**	**36,240**	**36,240**

Taranto/Grottaglie Airport (TAR)

Table 19 *Taranto/ Grottaglie Airport Summary of Low carbon project Planning and Implementation Stages*

PLANNING								IMPLEMENTATION	
SCOPE	**GROUP**	**DETAILED SOURCE**	**TECHNICAL**	**OPERATIONAL**	**REGULATORY**	**ECONOMIC**	**OTHER**	**STATUS**	**REASONING**
SCOPE 1	//	//	//	//	//	//	//	//	//
SCOPE 2	Electric	Lighting	AVL Energy redevelopment					Planned	
			Energy redevelopment of the lighting plant of the military external area					Planned	
		Other	energy redevelopment of the airport buildings					Project/ realization	
			implementation of SCADA asset supervision and control system					Planned	
SCOPE 3	Staff business travel				Policies per type of travel depending on distance			Staff business travel	
	Commuting						Training staff	Commuting	

Table 20 *Taranto/ Grottaglie Airport Planned reductions 2023-2030*

CO2 Reduction Project		Expected CO2 Reduction per year [tons]						
Scope	**project code**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
1	//	//	//	//	//	//	//	//
2	N. EM.TAR.01	21,611	21,287	20,968	20,653	20,344	20,038	19,738
2	N. EM.TAR.02	-	-	21,611	20,963	20,334	19,724	19,132
2	N. EM.TAR.03	-	-	-	7,204	6,988	6,778	6,575
2	N. EM.TAR.04	2,882	2,882	2,882	2,882	2,882	2,882	2,882
	Tot Scope 1	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Tot Scope 2	**24,493**	**24,169**	**45,461**	**51,702**	**50,547**	**49,422**	**48,327**

AEROPORTI DI PUGLIA - Viale Enzo Ferrari, 70128 Palese BA (Italy)

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