

***Action Plan for Carbon Emissions Reduction in Fraport Twin Star Airport Management, Varna and Burgas Airports 2024 - 2045***

**План за намаляване на въглеродните емисии във “Фрапорт Туин Стар Еърпорт Мениджмънт” АД, летища Варна и Бургас 2024 - 2045**

## **APPENDIX 1**

***CO<sub>2</sub> EMISSIONS DEVELOPMENT, TARGETS, APPROACH AND LIST OF MEASURES TO REDUCTION***

## **ПРИЛОЖЕНИЕ 1**

***РАЗВИТИЕ НА ЕМИСИИТЕ НА CO<sub>2</sub>, ЦЕЛИ, ПОДХОД И СПИСЪК С МЕРКИ ЗА НАМАЛЯВАНЕ***

## *Development of CO<sub>2</sub> emissions in FTSAM till 2022*

		ACTUAL							
Scope	unit	2015	2016	2017	2018	2019	2020	2021	2022
Scope 1	t CO2	990	1 163	1 303	1 094	1 142	470	631	721
Scope 2	t CO2	6 348	6 115	7 471	5 157	4 988	2 858	3 934	4 186
TOTAL	t CO2	7 338	7 278	8 774	6 251	6 130	3 328	4 565	4 907



## Overview of initial situation in 2024

### Market overview / National powemix / Grid emission factor etc.

- The national mix is produced by two lignite coal-fired plants (the largest share), one nuclear plant, RES and cogenerations. Almost all of the above electricity producers (with the exception of nuclear and some coal-fired plants with a state-imposed quota) sell their electricity to the National Electricity Company.
- Currently, in Bulgaria, electricity is traded at regulated and freely negotiated prices.
- For the period up to 2028, a total of 1559 MW of new capacities are planned for construction, 450 MW of which are by RES.
- Due to the lack of published official information about the forecast grid emission factor after 2025, the average emission factor for the period 2015 - 2025 has been assumed.

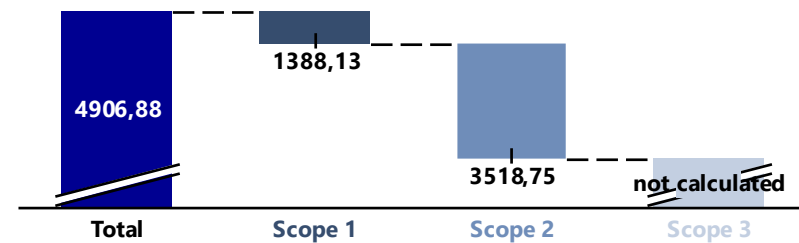
### Main Challenges for Decarbonization

- The Integrated Plan of energy and climate of the Republic of Bulgaria 2021 - 2030 envisages the prospect of coal-fired plants being the main base capacities in the Bulgarian power industry by 2030 with a horizon by 2050. The document stipulates a share of 27% for energy by RES in the total energy mix by 2030. For that reason, the grid emission factor is expected to remain high.
- Additional investment costs for alternative -powered vehicles and market availability of suitable GSE e-vehicles.

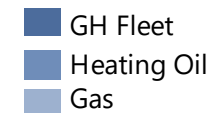
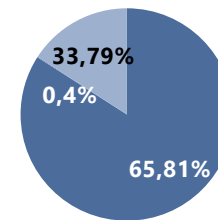
### Traffic/Construction/Operational Outlook

- Coordination and obtaining construction permits for photovoltaic systems.
- Green electricity purchasing (after 2031).
- Step by step conversion of the GSE vehicle fleet to e-vehicles or more efficient with lower consumption.
- Optimization of GSE transportation routes on the apron.
- Promoting day-to-day travel to work of all FTSAM staff by organized transport.

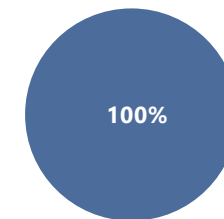
### CO<sub>2</sub> emissions 2022 - Main Drivers



### Scope 1



### Scope 2

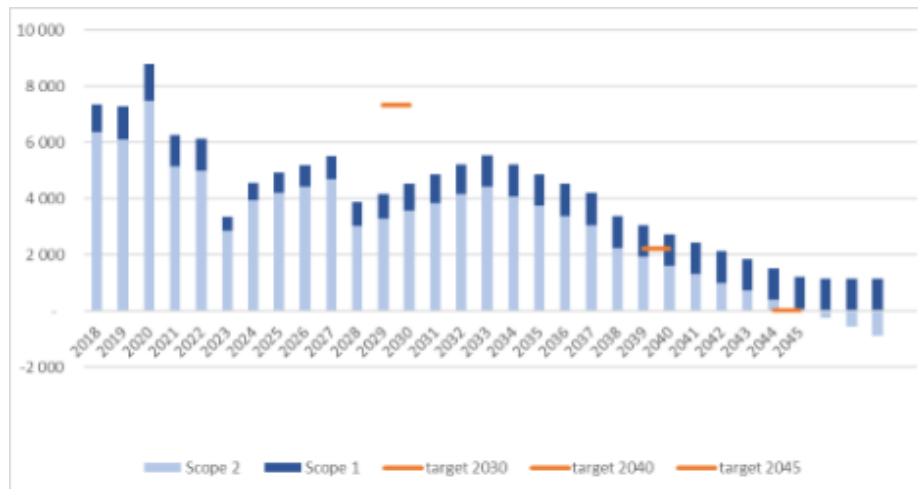


## Approach and TOP measures



Target and Approach	2023-2025		2026-2030
<b>Target 2030: 7338 tons CO<sub>2</sub></b> (0% vs 2015) <b>Target 2040: 2201 tons CO<sub>2</sub></b> (-70% vs 2015) <b>Target 2045: 0 tons CO<sub>2</sub></b>	<ul style="list-style-type: none"> <li>Coordination and obtaining construction permits for photovoltaic systems</li> <li>Construction of photovoltaic systems</li> <li>Parking areas lights replacement with LED</li> </ul>		<ul style="list-style-type: none"> <li>Gradual replacement of the vehicles fleet with electric or more efficient with lower consumption (appr. 40% by 2030)</li> <li>Constant improvement of the level of infrastructure and equipment maintenance to reduce electricity consumption</li> </ul>
TOP Measures	PV Plant BOJ	PV Plant VAR	Reducing energy consumption
<b>Description</b>	<ul style="list-style-type: none"> <li>Construction of photovoltaic system 1,15 MW BOJ to generate own green electricity (phase 1 and phase 2).</li> </ul>	<ul style="list-style-type: none"> <li>Construction of photovoltaic system 1,26 MW VAR to generate own green electricity.</li> </ul>	<ul style="list-style-type: none"> <li>Gradual replacement of indoor, outdoor, parking and runway lighting to LED; continuous improvement of the BMS in T2; renovation and insulation of the old buildings, etc.</li> </ul>
<b>Energy saving</b> <i>(MWh or 1.000 Liter)</i>	-1920 MWh -1200 MWh	-1890 MWh	-8340 MWh
<b>CO<sub>2</sub> reduction (t CO<sub>2</sub>)</b>	-986 t CO <sub>2</sub> /year -501 t CO <sub>2</sub> /year	-970 t CO <sub>2</sub> /year	-3788 t CO <sub>2</sub> (total)
<b>Capex (Euro)</b>	1300000 1000000	1300000	-
<b>Implementation (Year)</b>	2025 2035	2025	2023 - 2045

## CO<sub>2</sub>-Emissions (thous. t) - Development and Plan



### Comment

- The calculated level of CO<sub>2</sub> emissions in 2030, when implementing the measures set out in the plan, show a tendency to achieve the target of 7339 tons with the expected increase of traffic.
- In the plan from 2031 to 2045, a relatively high estimated grid emission factor is set, and its value has a significant influence on the calculated emissions.



## List of Measures

#	Measure / Action / Effect	Type of Measure / Effect	Implementation by (Year)	Investment/ Cost (EUR)	Expected Reduction (kWh/L per year)	Expected ren. energy amount (kWh)	CO <sub>2</sub> Emissions
1	Photovoltaic plant phase 1 BOJ	Emission free energy generation	2025	1300000	-1920 MWh	1920 MWh	-986 t/year
2	Photovoltaic plant phase 2 BOJ	Emission free energy generation	2035	1000000	-1200 MWh	1200 MWh	-501 t/year
3	Photovoltaic plant VAR	Emission free energy generation	2025	1300000	-1890 MWh	1890 MWh	-970 t/year
4	Traffic growth	Diesel	2023 - 2045	-	-154 000 L (total)	-	-413 t (total)
5	Traffic growth	Electricity	2023 - 2045	-	-7519 MWh (total)	-	-3397 t (total)
6	Green electricity purchasing	Emission free energy generation	2031 - 2045	-	-1 000 MWh	-	-6005 t (total)