

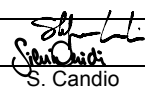


Trans Adriatic
Pipeline

TAP AG Project Title / Facility Name:
Trans Adriatic Pipeline Project

Document Title:

TAP Italia
Environmental Statement 2022 - 2025

						
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ENVIRONMENTAL STATEMENT INFORMATION

This document constitutes the 1st Environmental Declaration of TAP Italy, with data and information reported updated to 30 / 06 / 2022.

The present Environmental Declaration has been verified and validated by the Accredited Environmental Verifier SGS Italy S.p.A. (Address: Via Caldera 21, 20153 Milano (MI), Italy – Accreditation: I-V-0007).

The Italian version of the Environmental Statement is distributed and is made available to anyone who requests a copy.

It is also made public on the company website: <https://www.tap-ag.it/la-sostenibilita/la-tutela-ambientale>

Any requests and reports must be addressed to the Operations and Maintenance Country Manager in Italy, via e-mail to box tapitalia@tap-ag.com.

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1. INTRODUCTION

1.1 SCOPE

The present document applies to the **corporate services, commercial services, natural gas transportation (metering and dispatching) and maintenance activities** relating to TAP AG owned and operated facilities in Italy and in particular:

-  Italian section of the pipeline crossing the Adriatic Sea to the Italian coast, i.e. approximately 45 km from the median line of the Adriatic Sea to the Italian landfall;
-  Micro-tunnel site near the town of San Foca;
-  Pipeline right of way (8.2 km) and related buffer zone;
-  Pipeline Receiving Terminal (PRT) and back-up control centre located in Brindisi.

1.2 PURPOSE

The present document represents the 1st Environmental Statement for the Italian Branch of TAP AG (hereinafter in the document indicated as TAP Italia), in accordance with the requirements listed in Annex IV of EMAS Regulation (EC) No. 1221/2009 as modified by Regulation (EC) No. 1505/2017 and by Commission Regulation (EU) 2018/2026 of 19 December 2018.

The document illustrates the environmental performances achieved by TAP AG operated facilities in Italy in the first year of operation (2021) and in the first semester of 2022, with the aim of establishing a baseline to monitor the environmental performances of the Organisation in the years to come and to promote their continuous improvement. Data for 2022 are provided according to their availability at the time being, considering the annual approach currently adopted by TAP AG at Corporate level for the monitoring of its environmental performances.

The present Environmental Statement is produced with reference to the three-year period 2022-2024, analysing the environmental performances for the operational period of 2021 (baseline year) and the first semester of 2022, presenting the environmental improvement program for the 3-year period 2022-2024, and will therefore be updated on a yearly basis to keep track of the evolution of the environmental performances of TAP Italia during the whole three-year period identified. In this perspective, the next update will be issued within the first half of 2023 in order to provide a complete picture of the environmental performance achieved in 2022 and adjust the frequency of subsequent updates based on the data for calculating the indicators collected in the calendar year.

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1.3 ABBREVIATIONS AND DEFINITIONS

ARERA	Autorità di Regolazione per Energia Reti e Ambiente
AUA	Autorizzazione Unica Ambientale (Single Environmental Authorization)
BCMA	Billion Cubic Meter Annually
BSCC	Back-up Supervisory Control Centre
BVS	Block Valve Station
CTA	Common Terms Agreement
EA	EA – European co-operation for Accreditation
EBRD	European Bank for Reconstruction and Development
EC	European Council
EHS	Environmental, Health and Safety
EMAS	Eco-Management and Audit Scheme
ESCH	Environment, Social and Cultural Heritage
ESD	Emergency and Shut Down
ESDD	Emergency Shut Down and Depressurize
ESIA	Environmental and Social Impact Assessment
ESMM	Environmental and Social Management Manual
EU	European Union
F-GAS	Fluorinated Gas
HM	Hazardous Materials
HQ	Headquarter
HR	Human Resources
HVAC	Heating, Ventilation, and Air Conditioning
IAF	International Accreditation Forum
IFC	International Finance Corporation

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ICT	Information and Communication Technologies
ISO	International Standards Organization
ITO	Independent Transmission Operator
MUD	Modello Unico di Dichiarazione ambientale (Single model of environmental declaration)
NACE	Nomenclatura delle Attività economiche della Comunità Europea
OECD	Organization for Economic Co-operation and Development
PRT	Pipeline Receiving Terminal
QHSE	Quality, Health, Safety and Environment
RCP	Regulatory Compliance Program
ROL	Red-On-Line
SAP	Systems, Applications and Products in data processing
SCADA	Supervisory Control And Data Acquisition
SCC	Supervisory Control Centre
SRG	SNAM Rete Gas
SUAP	Sportello Unico Attività Produttive
TANAP	Trans Anatolian Pipeline
TAP/TAP AG	Trans Adriatic Pipeline AG
TSO	Transmission System Operator
VoC	Verification of Compliance

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2. ORGANIZATION ACTIVITIES

2.1 COMPANY REGISTRY

Trans Adriatic Pipeline AG

Registered Office	Lindenstrasse 2, 6340 Baar, Switzerland
Direct Employees	> 100
Director (Managing Director)	Luca Schieppati
Director of Corporate Services	Jonathan Collingwood
Operations Director	Ricardo Ruiz Nuñez
Corporate QHSE Manager	Jose de la Torre Gallegos
Website	https://www.tap-ag.com/
Phone Number	+41 41 747 3400
Fax	+41 41 747 3401
E-mail	enquiries@tap-ag.com

Trans Adriatic Pipeline AG – Italian Branch

Address of Italian Branch head office	Via Carlo Urbani 3, 72100 Brindisi, Italy
Address of the Operational site	Via Vecchia Vernole s.n.c (traversa Trans Adriatic Pipeline), 73026 Melendugno (LE), Italy
Country Representative Manager Italy	Luca Schieppati
Operations & Maintenance Country Manager - Italy	Angelo Eligio Lo Cascio
Direct Employees	32

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EA/IAF Code 31

NACE Code 49.50 (Transport via pipeline)

ATECO Code 49.50.10 (Transport via gas pipeline)

Operating Hours

Operation & Maintenance: 8-hour workdays, 5 workdays a week + on-call availability

Dispatcher Workers: 24-7 service, distributed on 3 shifts of 8-hour each

Production Capacity

10 billion cubic metres annually (bcm/a) expandable up to 20 bcm/a

Phone Number +39 0831 579611

Fax +39 0831 609877

E-mail tapitalia@tap-ag.com

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Trans Adriatic Pipeline AG (TAP) is a Company established under Swiss law (art. 620 et seq. of the Swiss Code of Obligations), with its head office in Baar, Switzerland and branch offices in Greece, Albania and Italy.

TAP is currently owned by the following shareholders (Ref. 1):

- 20% by BP Pipelines TAP Limited (a wholly owned indirect subsidiary of BP plc);
- 20% by AzTAP GmbH (a wholly owned subsidiary of Southern Gas Corridor CJSC, a company owned jointly by SOCAR and the Ministry of Economy and Industry of Azerbaijan);
- 20% by Snam S.p.A.;
- 19% by Fluxys Europe B.V. (a wholly owned subsidiary of Fluxys SA);
- 16% by Enagás Internacional S.L.U. (a wholly owned subsidiary of Enagás SA); and
- 5% by Axpo Trading AG (a 100 % subsidiary of Axpo Holding AG).

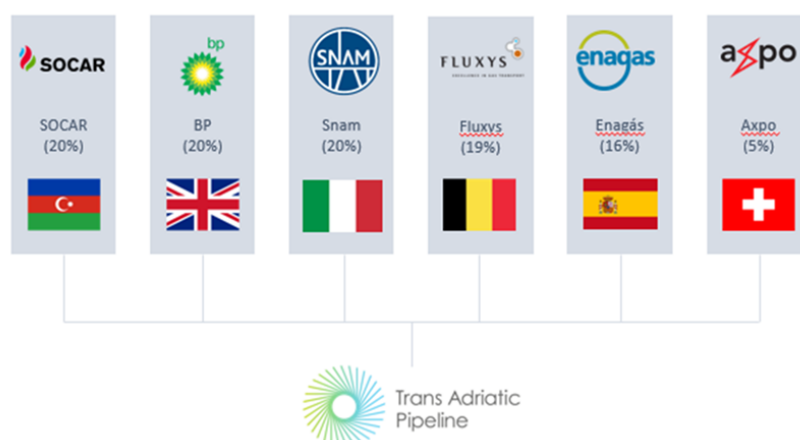


Figure 2.1: TAP Shareholders

TAP pipeline is the European section of the Southern Gas Corridor, a 3,500 Km gas value chain stretching from the Caspian Sea to Europe.

Working to national and international safety and operational standards, TAP acts as a Transmission System Operator (TSO) and Independent Transmission Operator (ITO), providing capacity to shippers interested in transporting gas in a safe, reliable and efficient manner.

The pipeline starts near the Evros area of Kipoi at the Greek-Turkish border, where it is connected to the Trans Anatolian Pipeline (TANAP). It traverses northern Greece westwards to Ieropigi, Kastoria

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at the Greek-Albanian border. Crossing Albania and the Adriatic Sea, the pipeline comes ashore in Southern Italy to connect to the Italian gas network.

TAP's routing facilitates gas supply to several South-East European countries and its landfall in Italy provides multiple opportunities for further transportation of Caspian gas to the wider European markets (Ref. 2).

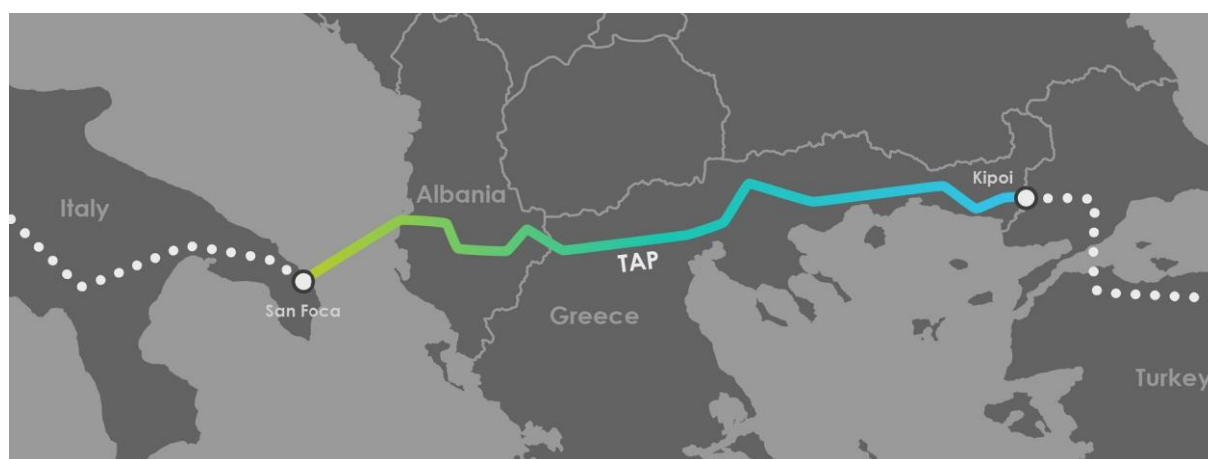


Figure 2.2: TAP's overall route (from Greek-Turkish border to Italy)

TAP's current operational capacity is 10 billion cubic meters annually (*bcm/a*). However, with the addition of two compressor stations and modification to the existing compressor stations, the existing pipeline capacity can be increased to a throughput of up to 20 *bcm/a* (Ref. 3).

In Italy, TAP operates through its Italian branch registered at the competent Chamber of Commerce, Industry and Crafts (Camera di Commercio Industria e Artigianato) and its activities in Italy can be currently divided in two main areas (Ref.1):

-  Operations management activities, which include the activities required to operate and maintain the local on- and offshore infrastructure (with subcontractors), local QHSE support, the commercial and operations system control & dispatching as well as the ICT;
-  Country office activities, which include local support in finance, ICT, procurement, legal, HR, stakeholder relations, etc.

TAP Italia holds offices in Melendugno (at the Pipeline Receiving Terminal "PRT") and Brindisi (where the Backup Supervisory Control Centre "BSCC" is located).

Currently, TAP employs over 100 Oil and Gas specialists from 24 countries and over 200 experts from contracted service companies.

As of June 2022, there are 32 direct employees in TAP AG facilities in Italy, of which 15 in force at the BSCC and 17 at the PRT. In addition to these there are also 3 workers (1 at the BSCC and 2 at

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the PRT) administered by Adecco Italia S.p.A. and 5 employees of the TAP AG Albanian office on secondment with the role of dispatchers.

In addition to the above-mentioned staff, as external collaborators, there are 5 employees of Snam Rete Gas S.p.A., which is in charge of carrying out the maintenance activities of the PRT, and 5 employees of Alma Roma S.r.l. (2 at the BSCC and 3 at the PRT for each shift), which is in charge of the guard service, divided into three daily shifts.

TAP's corporate structure ensures that day-to-day activities as a TSO are undertaken independently from the production or supply related activities and interests of its shareholders. TAP updated its Regulatory Compliance Programme (November 2020) following certification as independent transmission system operator (*ITO*) and prior to the start of commercial activities. This *RCP* has been approved by the national regulatory authorities in TAP's *host countries*, including Italian *ARERA* for Italy (Ref. 4). The RCP aims to:

-  ensure that TAP's operations are performed on an independent basis;
-  prevent any influence from TAP's shareholders active in supply and production of natural gas;
-  ensure that discriminatory conduct vis-à-vis third parties is prevented;
-  restrict the communication of commercially sensitive information towards TAP shareholders.

2.2 TAP FACILITIES IN ITALY

An overview of TAP's pipeline route (Offshore Pipeline and Onshore Pipeline Italy) is provided in Figure 2.3 below (Ref. 5). TAP's facilities in Italy are then described in the following sections.

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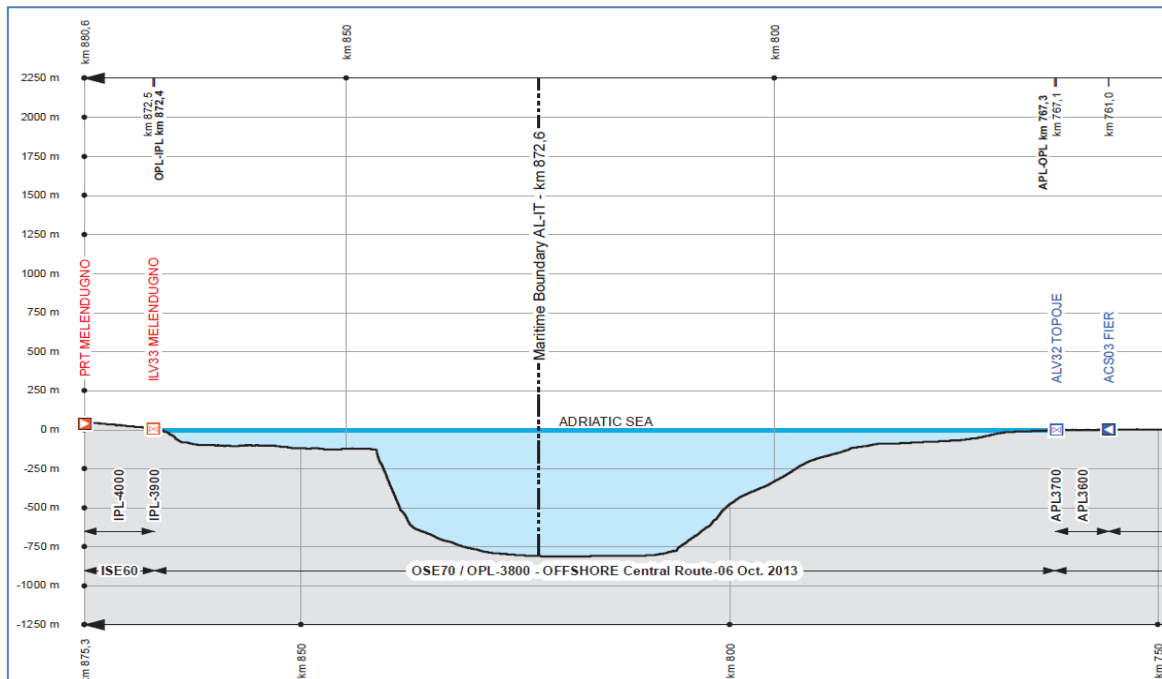
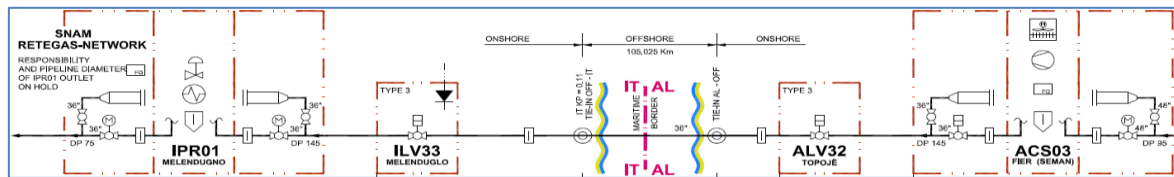
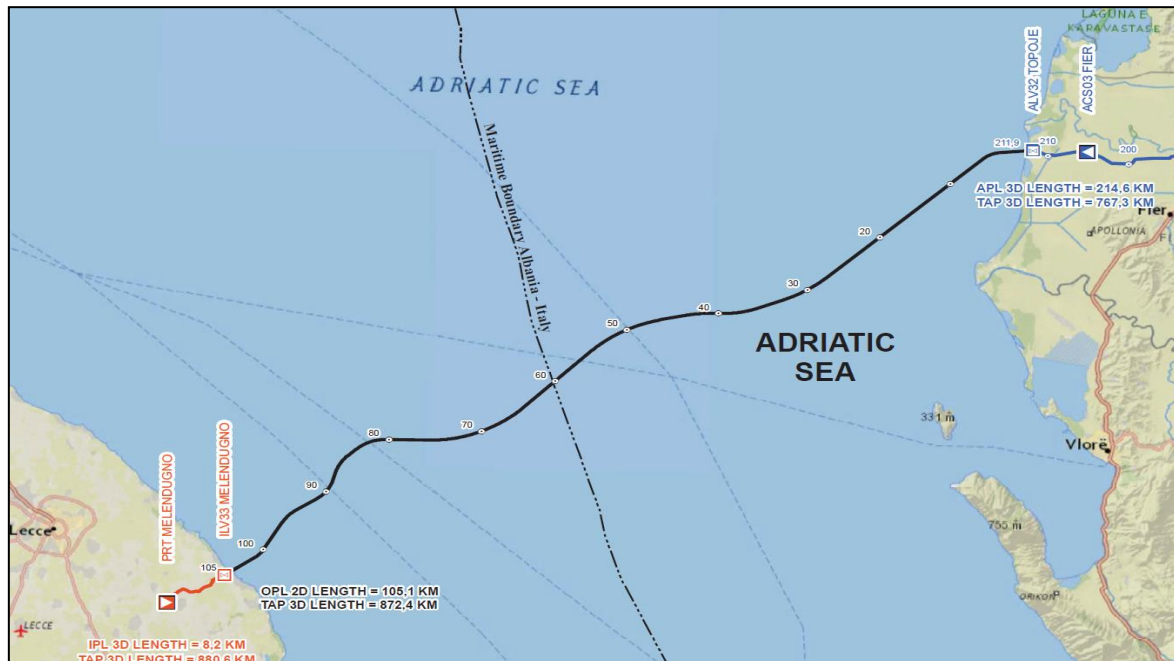


Figure 2.3: TAP Pipeline Diagram (Offshore Pipeline and Onshore Pipeline Italy)

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2.2.1 Offshore pipeline

The Offshore Pipeline is approximately 105 km long from Albania landfall to Italy landfall, of which 57 included in the Albanian side and 48 km in the Italian side (see Figure 2.3 above).

Near the Albanian landfall, in Topoje (municipality of Fier), a Block Valve Station (BVS) is located. The BVS is equipped with a motor actuated ball valve in the main line, gate valves and ball valves in the bypass line, instrumentation and a vent line with an above ground vent stack (Ref. 5).

The last section of the Offshore Pipeline (about 1.5 km long) has been accomplished with a micro-tunnel, which enabled to avoid digging trenches through the coastline and interfering with sensitive marine habitats (seagrass) and, in the on-shore section, interfering with the Mediterranean Maquis area, with the coastal dune ridge and the beach.

2.2.2 Onshore pipeline

The Onshore Pipeline in Italy is approximately 8 km long, from the Italian landfall point to the Pipeline Receiving Terminal (PRT).

The Onshore Pipeline in Italy includes a Block Valve Station (BVS) installed in the proximity of the micro-tunnel and a scraper receiver station (receiving trap station) is located inside the PRT. The BVS is equipped with an electro-hydraulic isolation valve, provided with bypass around the valve to allow pressurization and re-pressurization, and is equipped with pressure monitoring system upstream and downstream of the isolation valve.

All BVS are unmanned and operated remotely by TAP Supervisory and Control Centre (SCC) in Italy located at the PRT.

A dual fibre-optic cable is installed along the entire pipeline route (both onshore and offshore) providing redundant communication between the BVS, the Compressor Stations (located in Albania and Greece), the Italy PRT and TAP's Control Centres. Back-up communication lines are also installed (Ref. 5).

2.2.3 Pipeline Receiving Terminal (PRT)

Purpose of the Italian Pipeline Receiving Terminal (PRT) is to meter and condition the gas from TAP before it ties-in to the Snam Rete Gas (SRG) network (Ref. 5).

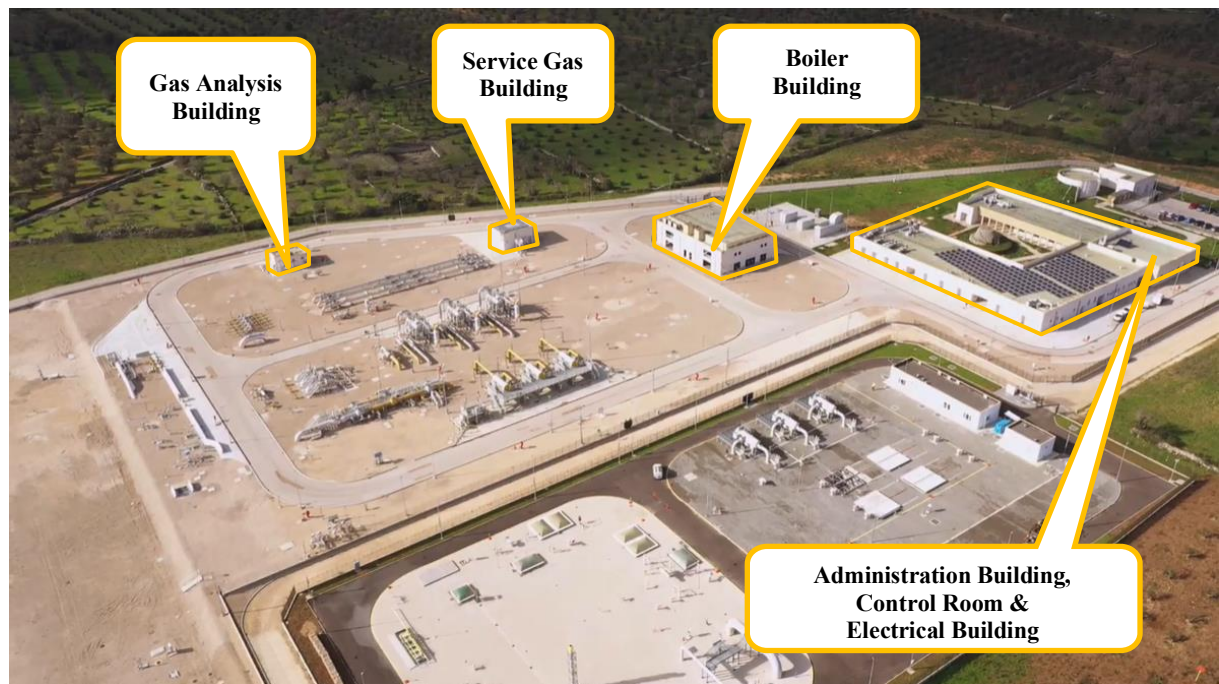
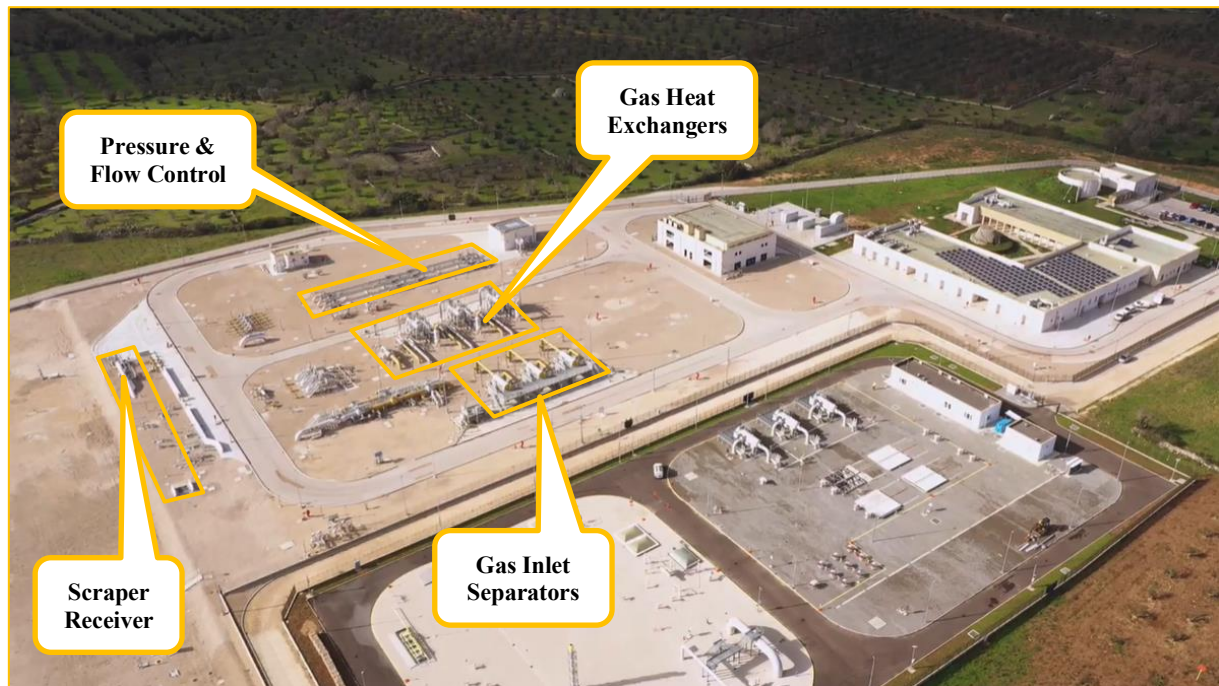
The overall PRT layout and identification of PRT units is provided in the Figures below, followed by a description of PRT main characteristics.

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Figure 2.4: Pipeline Receiving Terminal (PRT) Layout

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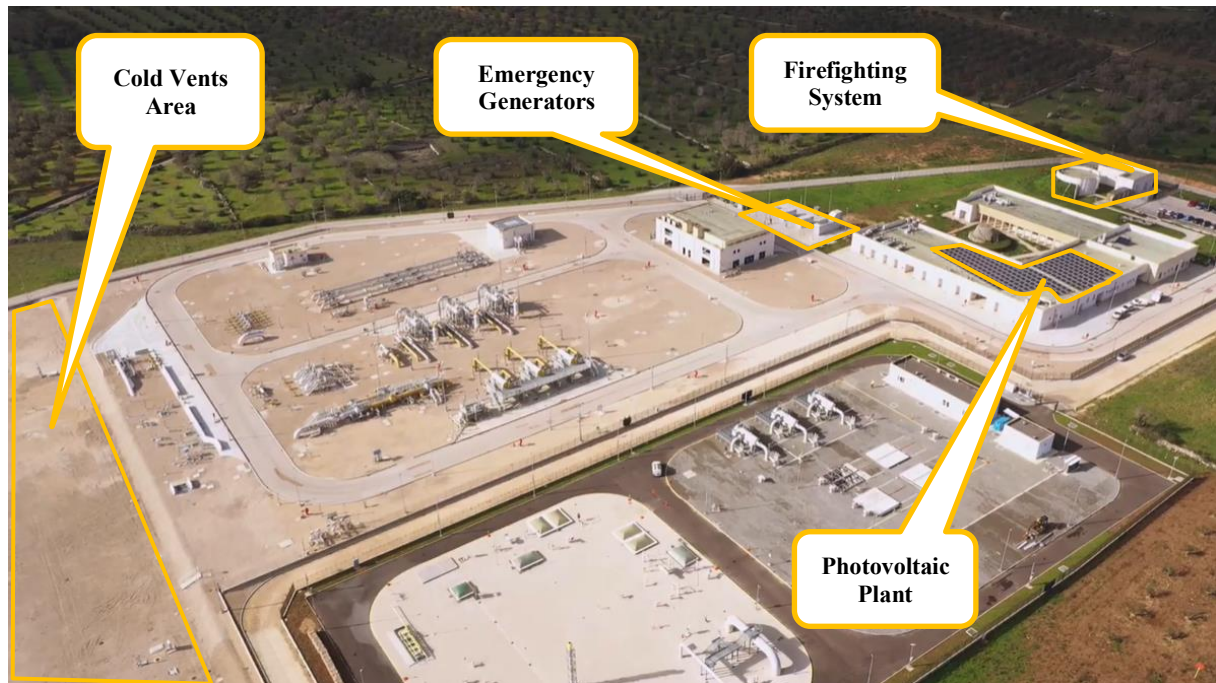


Figure 2.5: Pipeline Receiving Terminal (PRT)

Simplified Process Overview (Ref. 5)

The TAP pipeline system upstream of the terminal is rated for a design pressure of 145 barg, whereas the Snam Rete Gas (SRG) pipeline system downstream of the terminal has a design pressure of 75 barg. Pressure reduction facilities are included in the terminal to guarantee the downstream system is protected from the high-pressure upstream facility.

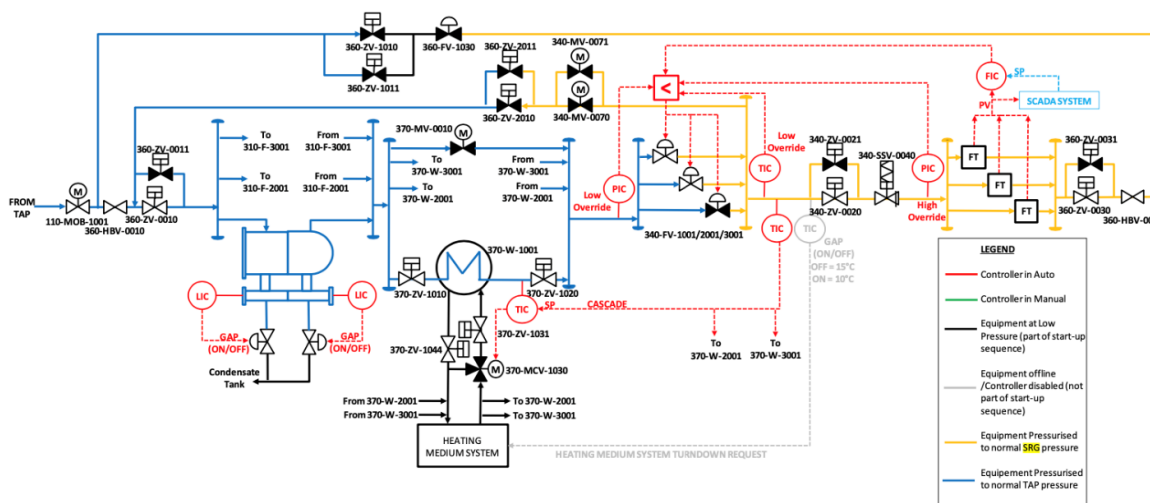


Figure 2.6: Simplified PRT Process Scheme

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Site Access (Ref. 5)

There are two access roads to the site:

 Southern access;

 Northern access.

Process Area (Ref. 5)

Process units at PRT are:

-  Scraper Receiver: this is the operational interface between the pipeline and the Pipeline Receiving Terminal.
-  Inlet-Separator: this is to separate any solid particles and free water from the gas stream (2+1 for 10 bcm/a, 4+1 for 20 bcm/a). Separation is facilitated by two separation stages. The first stage separation uses cartridges to remove any solid particles and give coalescing effects and thereby generate liquid droplets with a greater size. Finally, the gas stream enters a demisting/vane stage where these larger droplets are removed. Drainage of collected liquids is automatic.
-  Gas Heat Exchanger: as the pressure reduction causes temperature reduction (Joule-Thompson effect), the gas may require heating to maintain the temperature above the minimum (3°C). Heating is done upstream of the pressure reduction to avoid potential drop out of liquids (water or condensate). The gas heat exchanger is engineered in a 2+1 design for 10 bcm/a, (4+1 for 20 bcm/a). Preheating is achieved by warm water on the shell side of a two passes shell and tube heat exchanger. Gas may be routed through a bypass if heating is not required.
-  Pressure and Flow Control Unit: this is designed to control the flow and control the delivery pressure of the gas. The flow set point is generated by the metering system. The differential pressure between TAP and SRG network is minimized to avoid unnecessary heating of the gas by dispatching.
-  Metering: metering is done by ultrasonic flowmeters. There are 2+1 x 50% run for 10 bcm/a (4+1 for 20 bcm/a).
-  Outlet header: this is from where the gas is routed to Snam Rete Gas (SRG) network.
-  Condensate tank: the purpose of the condensate tank is the collection and storage of all liquids separated in the individual filters/separators until removal by a vacuum truck. It is double skin, trace heated, provided with a flame arrestor and located above ground. Process

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condensate is collected within the closed drainage system that conveys the condensate into the condensate tank. The collected fluids are removed by a tanker for disposal at licensed third-party facility.

-  **Fuel gas unit:** this provides fuel to the heating medium system. Gas is delivered from the SRG side and routed through a filter where liquids and deposits from the pipeline are removed. After filtering the gas is routed through an electrical heater. In this heat exchanger, the gas is preheated to compensate the temperature loss (due to Joule-Thompson effect). Downstream of the heat exchanger the gas pressure is reduced to the required pressure of approximately 3 barg, with further reduction at the consumer unit.
-  **Analyser system:** the sample points for the Analysers are located on the inlet and outlet of the metering streams. These sample results in conjunction with other operational parameters allow for accurate calculation of the quantity of gas transferred to the SRG system.

Boiler building (Ref. 5)

The boiler building provides space for:

-  Domestic Heating system;
-  Heating Medium system;
-  Instrument air Compressor to provide instrument air (three compressors in parallel).

The boiler building contains 2 electrical boilers of 1 MW capacity each, plus 2 additional boilers with methane gas burners of 3.50 MW capacity each. Gas burners can be used only as a backup, in the event electricity supply is missing. It is estimated that gas boilers can be used up to 2% of the time on a yearly basis.

Instrument air system (Ref. 5)

The instrument air system comprises:

-  Oil-lubricated air compressors;
-  One air storage vessel;
-  Instrument air dryer packages;
-  Instrument air storage vessels;
-  Service air distribution network;

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 Instrument air distribution network.

Vent and blowdown system for emergency depressurization (Ref. 5)

The vent system is designed to allow depressurisation of the station piping down to 6.9 barg within 15 minutes in accordance with EN23251 requirements.

There are 2 Vent Stacks located at the south of PRT site. Sterile area separates the Vent Stack from the next facility (the pipeline area).

Physical Dispatching has the option to isolate the station from SCADA by triggering the ESD option (Emergency Shut down) or safely vent the gas of the station by SCADA ESDD option (Emergency Shut down and depressurize)

A push button is present to allow the operator to force open the control valve. A high-pressure alarm will sound if the pressure in the vent header is greater than 0.5 barg when blowdown has not been initiated. This will indicate if there is a leaking blowdown valve. The gas is routed through a silencer and finally discharged to the vent stack.

Administration/Utility Area (Ref. 5)

The administration and workshop buildings are located in the north side of the plant (exactly diagonally opposite to the location of the vent Stack) for safety reasons, close to the site entrance gate. The guard house is integrated in the administration building and located at its corner. A parking lot is located outside of the gate. The buildings are all on one level. The meeting room, which is located within the administration building, ground floor, is also used as Emergency Response Room.

The Electrical building is directly connected to the Administration building. There is a paved area that surrounds the building from all sides.

Power Transformers are also placed within the electrical Building.

Photovoltaic Plant

A Photovoltaic Plant is installed on the roof of PRT's administration/electrical building, with a total rated output of 64,26 kW. Nearly all the electricity produced by PRT's Photovoltaic Plant is used for self-consumption requirements at the PRT.

Diesel Power generation (Ref. 5)

The auxiliary diesel power generation system at PRT can provide enough power to run the plant if the normal power supply from the grid is interrupted. It is designed for 48-hour continuous use.

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Diesel power generation is installed west of the electrical building and is surrounded by paved roads. The diesel tank is underground whilst the generators have a small tank at their base which is refilled automatically upon consumption of its capacity. This design minimizes risks for fumes, fire and spills. It has direct access to the road and is located on a paved area.

Diesel storage (Ref. 5)

The diesel storage system includes a double walled Diesel Storage Tank with 16m³ capacity, a Diesel Storage Pump, a main double walled Day Tank and 2 Emergency Day Tanks for the power generators and fire water pumps.

The Diesel storage tank is located close to the diesel power generation. All tanks include a leak detection system.

The storage tank is to be filled by road tanker using the road tanker loading pumps via hose connection. The system include an earthing/bonding facility to ensure that there is zero electrostatic potential between the tanker and the storage tank.

An audible and visible high-level alarm will warn the tanker operator when the liquid level is high. A logic prevents loading diesel in the storage tank closing the inlet valve if earth grounding point is not provided, or if high-high liquid level is reached in the tank.

Wastewater / Rainwater system

The PRT is equipped with a wastewater / rainwater collection network that connects to a dispersing lamination basin built for the collection of the following water streams before their discharge into the soil:

-  domestic wastewater from administrative buildings, following a dedicated biological pre-treatment system;
-  rainwater from paved areas and process areas, which are preliminary collected in a first rainwater tank and pre-treated with oil separation and sedimentation (Stormwater system Division A);
-  rainwater run-off from buildings' roofs and unpaved roads (Stormwater system Division B).

Fire Fighting Systems (Ref. 5)

The firefighting system includes:

-  Fire Water System;
-  Foam Extinguishing System;

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Inert Gas Extinguishing System.

It includes a water tank of about 450 m³ and two fire pumps (one electrical, one diesel-fuelled) which are installed inside a dedicated building (Pump Building). Fire hydrants are available at all main equipment through a firefighting ring network and hydrants are available in the building facilities.

HVAC System (Ref. 5)

The HVAC system provides heating ventilation and air conditioning to the buildings. The system is designed to regulate the temperature between 10 and 45°C (depending on building service).

Control Room (Ref. 5)

The Control Room (Supervisory Control Centre “SCC”) is located inside the Administration Building.

The Operators of the SCC will work around the clock (in shifts) in order to pursue:

-  the continuous supervision of the operating parameters (such as pressures, flows, temperatures, signals and alarms from the installations) through the Supervisory Control and Data Acquisition (SCADA) system.
-  the adherence to the natural gas entry and exit transportation programmes, in accordance with the respective nominations of the commercial transportation users (Shippers).
-  enhanced communication and performance of the administration activities with the upstream and the downstream network operators (Adjacent TSOs).
-  the optimization of the operating parameters of TAP’s Natural Gas Transmission System, by means of pipeline network simulation software.
-  the management of faults, gas escapes and other emergencies, including alarms from the SCADA monitoring system.
-  cooperation with the TAP Maintenance personnel, in the event of an equipment malfunction.
-  the support in the Emergency Response Coordination with the Local Authorities (Fire Brigade, Police, Ambulance etc.), in cases of emergency situations.
-  the proper implementation of emergency procedures in case of an emergency and, duly notification of the relevant authorities in the countries in the event of an emergency or of an incident.

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2.2.4 Brindisi facilities

As anticipated, TAP's organization in Italy include also the facility named "Centro Elaborazione Dati con annessi Uffici e Servizi") located in Via Carlo Urbani n.3 – Industrial Area, Brindisi (Ref. 15), which houses TAP's Backup Supervisory Control Centre (BSCC). The unit includes:

Ground Floor:

- Offices,
- Archive,
- Technical Room,
- Server Room,
- No. 2 rooms for UPS/Batteries,
- Switchboard Room,
- Restrooms;

First Floor:

- Data-Processing Room,
- Offices,
- Meeting Room,
- Break Area;

External Area for vehicles stopping, manoeuvring and parking.

The external area is complete of an underground network for the collection of rainwater runoff and of water coming from unit's rooftop, equipped with grids and inspection wells, with subsequent conveyance to a screening and sandblasting treatment system, followed by a tank (drainage basin) from where the treated water is finally returned into the soil.

The unit is also equipped with a sewage collection system for the management of "similar to urban" wastewater. The sewage collection system is "Imhoff Pit" type, with associated sub-irrigation system.

Finally, a Photovoltaic Plant of 6 kW total rated output is installed on unit's rooftop, whose electricity is partly intended for self-consumption and partly fed into the distribution grid.

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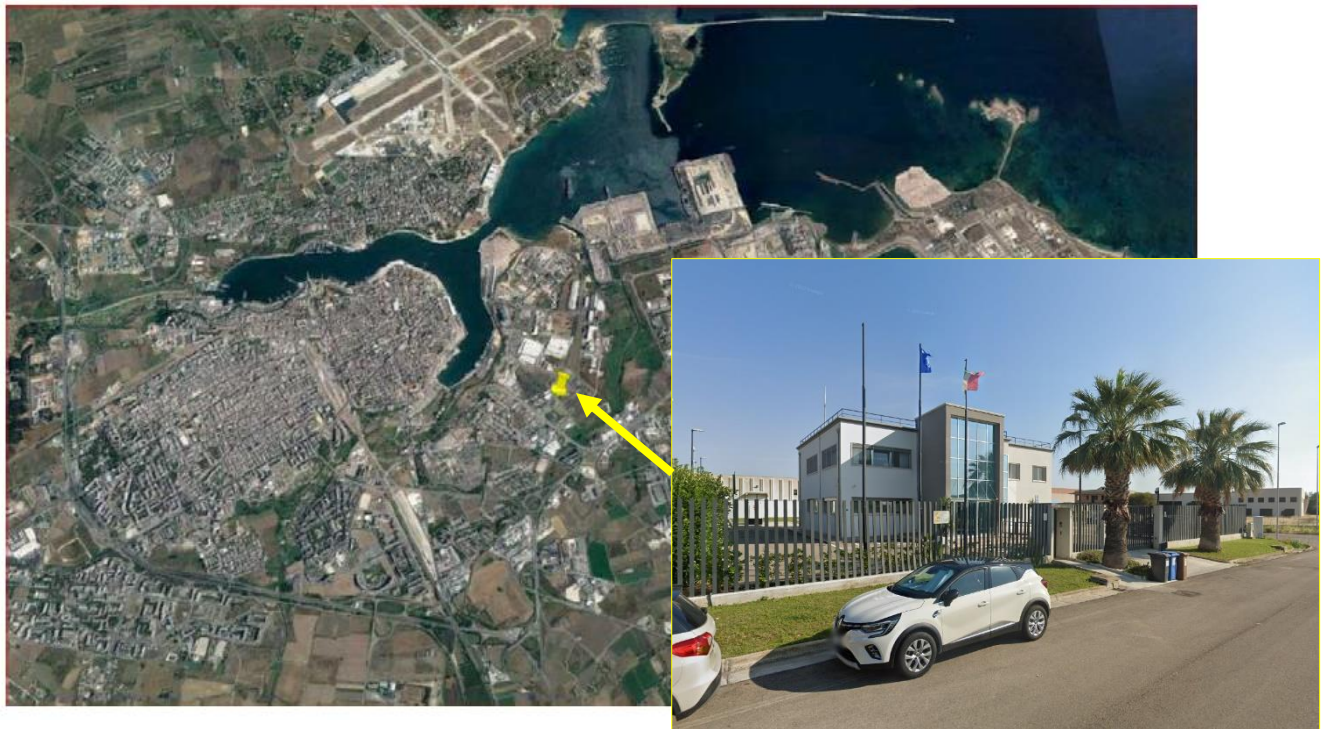


Figure 2.7: Location and detail of the Brindisi Facility (BSCC)

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3. COMPANY ORGANIZATION

3.1. ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM

TAP has developed and implemented a QHSE Management System aligned with the requirements of ISO 9001, ISO 14001 and ISO 45001. The details of the integrated management system are provided in the QHSE Management System Manual (Ref. 6), which covers TAP pipeline operations and maintenance and is a high-level document governing the management of QHSE within TAP.

Renewal of the ISO certifications has been issued on 30th June 2022 by TÜV NORD CERT GmbH (certifications validity until 5th July 2024). Copy of the certificates is available on TAP website (Ref. 7).

As an integral part of the QHSE Management System, the Environmental and Social Management Manual (Ref. 8) provides further details on environmental standards applicable to TAP's operations, management of environmental risks at operational level, key roles and responsibilities for environmental management and defines internal and external environmental reporting requirements.

An overview of QHSE Management System documents and structure is provided in the figure below.

Furthermore, the EMAS Environmental Management System Bridging Document presents the details of TAP AG environmental management system as part of TAP AG integrated QHSE management system to demonstrate its alignment with requirements of Part A and Part B of Annex II of EMAS Regulations (Regulation EC No 1221/2009 of 25 November 2009, as updated by Regulation (EU) 2017/1505 of 28 August 2017 and by Commission Regulation (EU) 2018/2026 of 19 December 2018) in preparation for registration of TAP Italia in accordance with the Eco-Management and Audit Scheme (EMAS).

An Environmental Review (Ref. 5) has been carried out to verify that design, direction, and objectives of the TAP AG environmental management system meet the requirements of Annex I and section A.3.1 of Annex II of EMAS Regulations.

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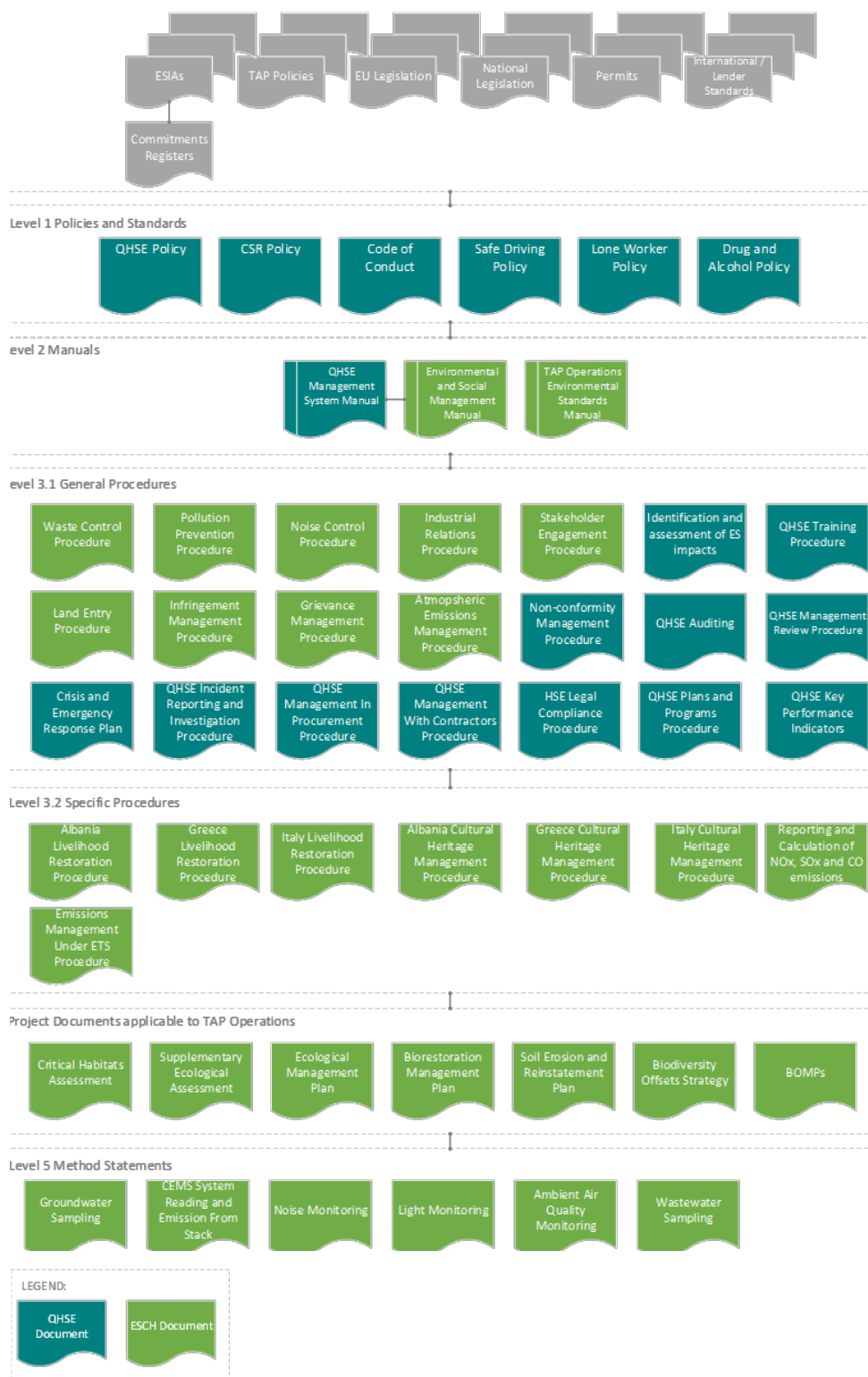


Figure 3.1: TAP's QHSE Management System

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3.2. ROLES AND RESPONSIBILITIES

TAP Board of Directors has envisaged a Headquarter (HQ) based in Baar, Switzerland to set the strategic direction for the Company, guide the Company's operational and commercial activities and ensure the Company's adherence to the applicable regulatory framework in force from time to time.

The HQ has supervision for functional and operational activities based in all host TAP countries where TAP Operates. The day-to-day management of the Company is delegated to the Managing Director with the support of the other Leadership Team members. TAP activities are performed according to a three-layered centralised functional model:

-  **Headquarter:** which represents the strategic decision-making centre of the Company;
-  **Hubs:** the execution of activities stemming from HQ's takes place in two distinct structures, Operational Services Hub to support operations of the physical infrastructure across countries and Transportation Services Hub to support physical and commercial dispatching of gas along the pipeline. This Transportation Services Hub is located in Melendugno and Brindisi, Italy.
-  **Countries:** Country Offices, each led by a Country Representative Manager to serve the local, legal and representation requirements and Asset Management Teams, led by Country O&M Managers, are established to ensure reliability of pipeline, compressors and stations, delivering maintenance and operational tasks.

The following figure illustrates the exchange of information and decision-making process across the HQs, Hubs and Countries, ensuring the efficiency of Company management and operations and timely response to critical events.

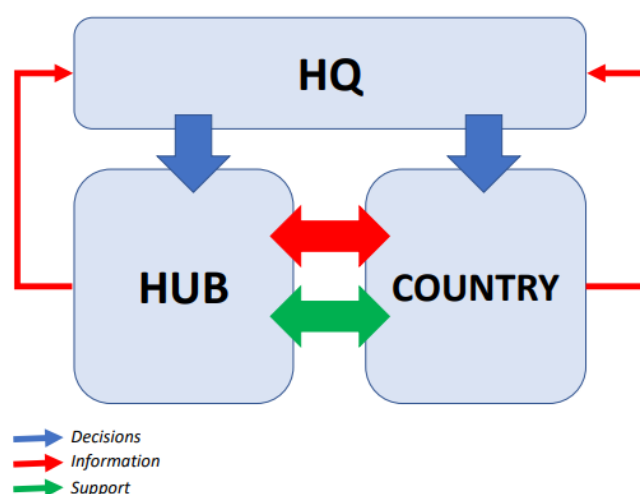


Figure 3.2: TAP's exchange of information and decision-making process across the HQs, Hubs and Countries

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Detailed TAP's organizational structure, including TAP Italian Branch organization (TAP Italia), is illustrated on the HR management tool (Success Factor) which provides an overview of the interrelationship between functions and individuals (Ref. 6). An overview of TAP's organizational structure is illustrated in Figure 3.3 below.

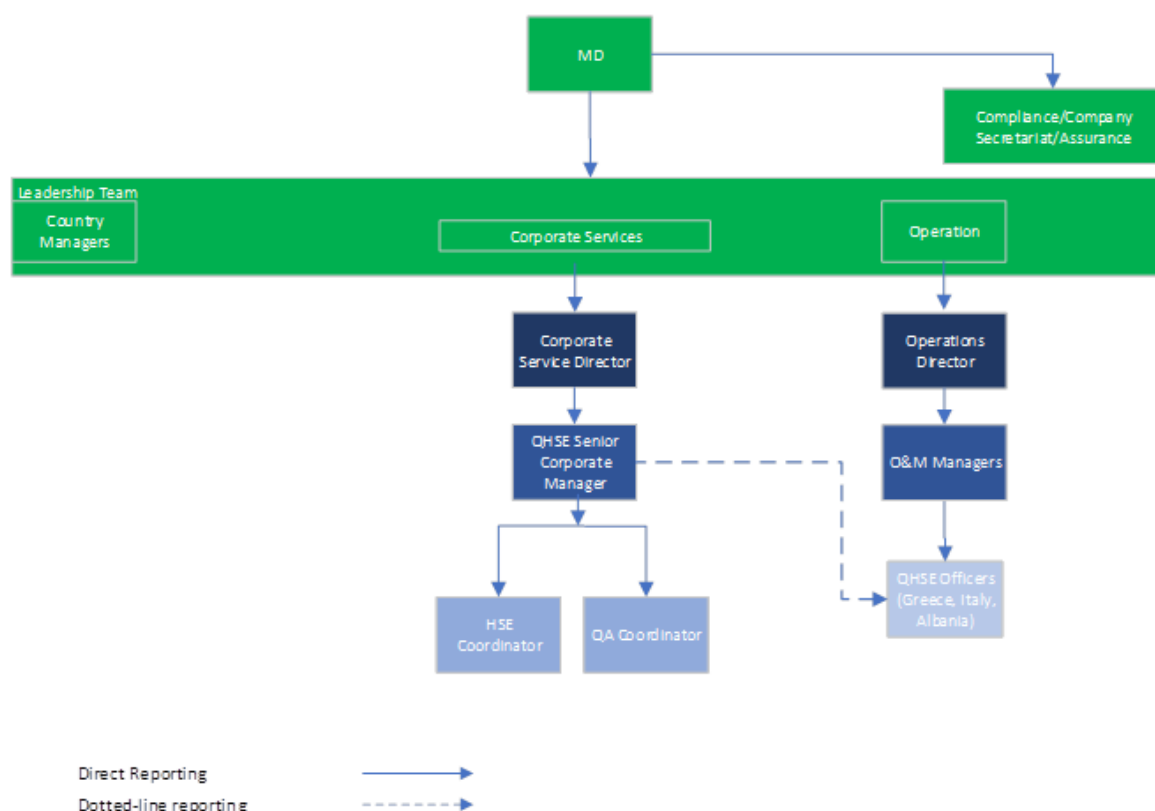


Figure 3.3: TAP's organizational structure

TAP AG organization includes roles such as the Operations Director, who shall support the roles and responsibilities presented below.

3.2.1. Operations and Maintenance Country Manager(s)

Environmental Management of operation and maintenance of TAP's pipeline systems in each host country has been delegated to the Operations and Maintenance Country Manager(s), who is responsible for:

-  Ensuring compliance with and implementation of TAP AG standards and QHSE Management System, including applicable environmental, urban and land planning legislation, Lenders and ESIA requirements, implementation of practices for the prevention of pollution and management of waste, and operation of facility flood protection, drainage and runoff systems;

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-  Ensuring implementation of the ESCH Management Controls outlined in Section 3.2 of the ESMM (Ref. 8);
-  Ensuring implementation of the ESCH Compliance Oversight and Assurance Framework outlined in Section 3.4 of the ESMM (Ref. 8).

3.2.2. Corporate QHSE Manager

Specific responsibility for the implementation of the QHSE Management System and reporting on its effectiveness has been delegated to the Corporate QHSE Manager, who is responsible for:

-  Developing and maintaining an operations QHSE management system that details how ESCH risks shall be systematically identified, assessed, avoided, mitigated and managed;
-  Acting as the management representative for QHSE Management System for EMAS in Italy;
-  Ensuring that the QHSE Management System conforms to the requirements of ISO 14001 and to the requirements of EMAS in Italy;
-  Reporting on the performance of the QHSE Management System and opportunities for improvement to the TAP AG Board of Directors;
-  Ensuring that the integrity of the QHSE Management System is maintained when changes to the system are planned and implemented;
-  Ensuring that TAP's processes are delivering their intended outputs and outcomes;
-  Providing adequate and appropriate QHSE resources for implementation of the QHSE management system;
-  Providing the operations leadership team and functional leaders with QHSE management system advice, guidance and assurance;
-  Promoting the standardisation and simplification of QHSE management system plans, processes and procedures;
-  Developing and managing a budget for the QHSE management system team and ensuring that QHSE management system team activities are effectively conducted within the constraints of the budget;
-  Review and update of the ESMM (Ref. 8) to ensure consistency with the TAP AG operations.

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3.2.3. QHSE Officers

The QHSE Officer(s) supports the implementation of the TAP environmental performance standards and is responsible for:

-  Monitoring Contractors' compliance with contractual environmental requirements (e.g., waste control procedure, pollution prevention procedure, etc.);
-  Performing environmental incident investigation and reporting, where needed;
-  Provision of technical environmental advice to TAP AG operations;
-  Facilitation of environmental assurance activities;
-  Reporting on environmental compliance and corrective action implementation.

3.3. QHSE POLICY

TAP has implemented its QHSE Policy (Ref. 9) to provide a framework for TAP's QHSE Management System and delivery of QHSE Objectives. The QHSE Policy is applicable also to TAP's Italian Branch.

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Document Title:	QHSE Policy	
Document No.:	CAL00-TAP-QHSE-X-TVO-0001	Rev. 8
Classification:	PUBLIC	

Quality, Health, Safety and Environmental (QHSE) Policy

TAP's vision is to safely and cost effectively deliver Caspian gas to Europe. In pursuit of this vision, TAP follows an integrated approach to managing risks and opportunities. Being aware of its responsibilities and duties towards its shareholders and stakeholders, TAP is committed to internationally recognized quality, health, safety, and environmental standards and the use of best practice. We will act in an ethical and socially responsible manner.

Our ambition is to avoid negative impacts where possible, enhance positive effects and contribute to sustainable development.

This policy applies to all activities of TAP from conceptual design to operations; its principles apply to all personnel working for TAP. As a rule, TAP will aim at agreeing with relevant TAP contractors and suppliers that they abide by this policy.

We are committed to:

- Providing a framework for setting QHSE and other objectives and a management system aimed at their achievement.
- Integrating QHSE in how we do business and demonstrating the QHSE importance through hands-on leadership and behaviour.
- Identifying critical success factors, monitoring, measuring and seeking to continually improve performance in relation to these via the achievement of associated KPIs as our objectives (including QHSE and Asset Management objectives).
- Developing opportunities to continually improve performance against our identified KPIs (with regard to Quality, Health, Safety, Welfare, Environment and utilisation of our assets).
- Operating the pipeline safely, protecting people, the environment, communities and assets through the implementation of integrated QHSE Management System.
- Respecting the cultural heritage of countries in which we operate.
- Endeavor to meet stakeholder's expectations on providing gas capacity products and gas transportation services
- Comply with applicable laws, regulations, including all applicable health, safety and environmental laws
- Consulting with our workforce and promoting workforce participation.
- Provision of the necessary means and resources for the above

How we work:

QHSE is a common responsibility:

- All personnel acting on behalf of TAP are responsible for ensuring that the QHSE policy and principles are understood and implemented at all levels of the organisation ensuring participation and consultation. Managers will be held accountable for QHSE performance.
- Respecting human rights, within our area of influence.

QHSE Risk Management

- We work systematically; eliminate hazards, understand and manage risk, undertake improvement processes based on surveys and risk assessments. For any identified QHSE hazards and impacts, measures will be taken to reduce any related risks to As Low As Reasonably Practicable (the ALARP principle).

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Classification:	PUBLIC	

Safety first

- Safety comes first. Facilities and operations will be developed, planned and maintained, taking safety parameters into account to prevent accidents. All employees have the duty to stop any works if adequate systems to control risks are not in place.

Environmental protection

- Facilities will be designed, constructed and operated to minimize energy and water consumption, emissions to air, noise, discharges of liquid effluents, and waste generation. The principle of Best Available Techniques (BAT) shall apply.
- We work systematically to reduce the physical footprint of the project. Facilities shall be located and operated to minimize physical and ecological impacts.
- We seek to avoid, or minimize the impact of our activities on flora and fauna affected by its activities.

Attitude towards personnel:

- The health and well-being of personnel is important for TAP. We monitor occupational risks of personnel and take appropriate actions. We aim for a safe and attractive working environment characterised by respect, trust and cooperation.
- All personnel will have necessary qualifications and QHSE training for their tasks. QHSE training needs will be evaluated regularly, and relevant training programs established.

Contractors and Suppliers:

- QHSE management of contractors and suppliers shall be done in line with this policy. In addition, we expect our contractors and suppliers to fully comply with this QHSE Policy.

QHSE performance improvement - incident investigation, audits and inspections:

- We want to learn from mistakes and make sure they do not happen again. All individuals, whether contractor or staff, shall therefore report all incidents and near misses. Incident will be investigated to identify actions to be taken to prevent their recurrence. Audits will be conducted to verify implementation of the QHSE policy.

Emergency Response and Business continuity:

- We have emergency systems and trained personnel for emergency response in place for our activities. Should an accident occur, our emergency preparedness routines and resources will be available to assist in limiting the consequences and restore safe operations ensuring also business system continuity in case of organisational change or extraordinary events.

TAP shall implement our integrated management system via compliance with the associated manual, processes, procedures and work instructions as the primary means of deploying these principles into our everyday working practices, at all levels and locations in the TAP organisation. TAP reserves the right to amend this policy at any time.

Luca Schieppati (Managing Director)

Baar,

Revision 8, 06.02.2020

Figure 3.4: TAP AG QHSE Policy

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3.4. DETERMINATION OF ORGANIZATIONAL CONTEXT AND RISK AND OPPORTUNITIES ASSESSMENT (Ref. 5)

TAP AG organizational context is defined as the business environment in which TAP AG operates; it comprises of internal and external issues and external and internal interested parties. Within TAP AG, it is the Managing Director's responsibility to provide clarity on internal and external factors with potential to impact TAP AG's business environment and to ensure that both an initial and current analysis of the business environment are carried out.

The analysis has been carried out in March 2021 by the Corporate QHSE Senior Manager and documented in the TAP Context Analysis – Risk Opportunities and Action Report (Ref. 18) with the purpose of setting direction and objectives of the QHSE Management System for the four countries that TAP operates and ensuring that the system can achieve its intended outcomes, prevent or reduce undesired effects and remain continuously improving.

The context analysis considered external and internal factors that may positively or negatively influence the operational environment of TAP AG and the organizational governance structures on both corporate and business process (country of operation) levels. For each of the identified issues and interested parties, the context analysis identified the source of information, risk/opportunity action and monitoring requirements.

Additional information on the determination of the organizational context, identification of the interested parties and determination of their relevant needs and expectations and assessment of risk and opportunities can be found in the Environmental Review Report (Ref. 5).

3.5. QHSE INTERNAL AND EXTERNAL COMMUNICATION

Internal and external communication in the area of QHSE at TAP AG facilities, including TAP AG Italian Branch (TAP Italia) is managed through the “QHSE - Communication Procedure” (Ref. 23).

TAP AG has identified the necessary internal and external communications that are required for the operation of the environmental management activities and has determined the information that need to be communicated, the frequency of communication, the internal and external recipients, along with the communication tools.

As indicated also in section “Environmental Statement Information” the Italian version of the Environmental Statement, reporting on TAP Italia environmental performances and objectives, is distributed and is made available to anyone who requests a copy. It is also made public on the company website: <https://www.tap-ag.it/la-sostenibilita/la-tutela-ambientale>.

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3.6. PERSONELL TRAINING

Training activities and actions aimed at improving the involvement of the employees (at each level) in the achievement of the environmental objectives defined in the present Environmental Statement (see following Section 7) are managed through TAP AG “QHSE Training Procedure” (Ref. 24).

As reported in the QHSE Management System Manual (Ref. 6), TAP AG has appointed QHSE Ambassadors in each Country where it operates, to facilitate consultation and participation of non-management personnel on a range of issues, including the policy, setting objectives and determining applicable controls for outsourcing, procurement activities and contractors. In particular, QHSE Ambassadors:

-  actively participate in the review of QHSE procedures, when necessary;
-  provide advice to the QHSE Officers on any new HSE risks identified during the execution of the activities or on any little-known dangers;
-  provide advice in the reorganization of activities in relation to HSE aspects and the emergency provisions of TAP offices and structures;
-  participate in the investigation of incidents and non-conformities and in the determination of corrective actions, where necessary;
-  present any points of concern regarding health and safety during the periodic meetings of the HSE Ambassadors, organized by the QHSE Officials at least every two months;
-  make suggestions to improve the HSE system;
-  participate in the review of the management system by providing input on any HSE-related topics that should be taken into consideration;
-  participate in the preparation of the QHSE Activity Plans and Programmes;
-  participate in the drafting/revision of the EMAS Environmental Declaration when necessary (Italian team).

Monthly meetings are also held to keep the action plan updated to ensure full implementation of the environmental requirements deriving from the ESIA and from the operating permits for PRT and BSCC. The meetings are held by an Environmental Focus Group, which involves the QHSE Department and the Operations Department of TAP AG (Ref. 26).

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4. ENVIRONMENTAL ASPECTS

In the Environmental Review Report (Ref. 5) the activities of TAP have all been analysed, and the environmental aspects identified.

The identification and assessment of potential impacts from TAP AG operations in Italy on the environmental components includes:

-  Physical Environment: air quality, noise, surface and groundwater, marine waters, geology, geomorphology, soil quality and seabed, landscape and visual amenity;
-  Biological Environment: flora and vegetation, fauna and habitats and protected areas.

It encompasses potential direct and indirect environmental impacts identified from routine and non-routine operations of TAP and aims to verify that current environmental management system documentation prioritises and addresses significant aspects and impacts.

For the purpose of the assessment, the area of influence for the TAP AG operational activities has been defined as the area in which a direct or indirect impact on the physical and environment might occur. For environmental impacts, the area of influence is defined as a 2 km corridor along the pipeline centre line (1 km wide either side) and 1 km from the boundary of work sites, BVS, PRT. This area is considered sufficient to encompass the area physically affected by operational activities and most offsite environmental impacts (e.g., noise and air quality impacts).

The assessment of the significance of the direct and indirect environmental aspects of TAP activities was carried out based on the criteria described in the following paragraphs.

4.1 CRITERIA FOR SIGNIFICANCE ASSESSMENT OF ENVIRONMENTAL ASPECTS

Methodology for determination and assessment of significant environmental impacts follow the methodology outlined in HSE Hazard – Impact and Risk Assessment Procedure (Ref. 10).

Evaluation of significance is based on the judgement informed by reference to legal standards, national and regional government policy, lenders' requirements, current international good practice/standards and the views of stakeholders.

Criteria for assessing the significance of impacts is defined for each type of impact and considers whether TAP AG operations will:

-  Cause legal or accepted environmental standards to be exceeded, e.g., air, water or soil quality, noise levels, or make a substantial contribution to the likelihood of exceedance

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-  Adversely affect protected areas or features, or valuable resources, e.g., nature conservation areas, rare or protected species, protected landscapes, historic features, high quality agricultural land, important sources of water supply, other key ecosystem services; and
-  Conflict with established government policy e.g., to reduce CO₂ emissions, recycle waste, etc.

Summary of significance criteria is presented in Table 4.1. The degree of significance attributed to impacts is related to the weight assigned to them for decision making process during operation of TAP AG facilities in Italy.

Table 4.1: Significance Criteria

Risk	Impact Level	Criteria for Management of Risk	Risk Rank
64-256	5	Impact or Risk is unacceptable	High
	4		
	3		
16-32	2	Impact or Risk is acceptable if demonstrated to be as Low as reasonably possible (ALARP)	Significant
1-8	1	Impact or risk is generally acceptable	Low

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4.2 SIGNIFICANT ENVIRONMENTAL ASPECTS

Based on the results of the significance assessment of environmental aspects, the aspects on which the organization has a direct control (direct aspects) and/or indirect (indirect aspects) and that lead to significative impact are:

Table 4.2: TAP significant direct and indirect environmental aspects

OFFSHORE/ ONSHORE ACTIVITIES	Direct (D) / Indirect (I)	Environmental aspect	Description	Risk	Environmental Targets
OFFSHORE	D	Physical alternation of seabed on marine benthos and increase in turbidity in marine benthos (positive significant aspect)	Due to the presence of the pipeline, that enhance the alternation of seabed and so composition and abundance of the benthic community	Significant (positive)	Monitoring Programme
ONSHORE	D	Emissions of natural gas	Due to the operation of cold vents (in emergency conditions)	Low	Improvement Objective
	D	Emissions of NOx and CO	Due to the operation of gas heating system of PRT (in normal condition) and of diesel generator (in emergency conditions)	Low	Monitoring Programme

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OFFSHORE/ ONSHORE ACTIVITIES	Direct (D) / Indirect (I)	Environmental aspect	Description	Risk	Environmental Targets
ONSHORE	I	Water Consumption	Due to general maintenance activities during the operation of PRT, BSCC and BVS	Low	Improvement Objective
	I	Consumption of energy		Significant	Improvement Objective
	I	Noise		Significant	Monitoring Programme
	D+I	Waste production and potential contamination of water resources and soil by spills and hazardous and non-hazardous waste		Significant	Improvement Objective
	I	Loss of natural vegetation	Due to routine inspections and repair interventions	Low	Monitoring Programme
	I	Visual / physical disturbance		Low	Monitoring Programme
	D	Potential occupation of soil by PRT with limitation of soil functions (habitat, human activities, landscape), soil tamping, increase of waterproof surface	Due to physical presence of PRT, BSCC, BVS	Low	Monitoring Programme

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OFFSHORE/ ONSHORE ACTIVITIES	Direct (D) / Indirect (I)	Environmental aspect	Description	Risk	Environmental Targets
ONSHORE	D	Physical changes to landscape features	Due to physical presence of PRT, BSCC, BVS	Low	Monitoring Programme
	D	Visual impact		Significant	Monitoring Programme

In Chapter 6 the impacts deriving from the identified environmental aspects have been quantified, whenever possible, by calculating environmental performance indicators required by *ANNEX IV, point B, lett. F* of COMMISSION REGULATION (EU) 2018/2026 of 19 December 2018.

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5. LEGAL/COMPLIANCE FRAMEWORK

TAP AG ensures, through the Managing Director and as outlined in the QHSE Policy, that it complies with all applicable laws and regulations, including all applicable compliance obligations set out in environmental legislation in all countries where it operates.

5.1 LEGAL REGISTER (REF. 5)

Evaluation of compliance to legal and other environmental requirements is carried out in accordance with the HSE Legal Compliance Procedure (Ref. 19)

Identification of applicable environmental legislation has been conducted in collaboration with specialised external provider (RINA) and using electronic database Red-On-Line.

The Red-On-Line (ROL) database is updated periodically to ensure it remains reliable and current. Notification on updates to the legislation is carried out automatically to relevant parties within TAP organisation via emails from the database to ensure the awareness of relevant functions of updates that may affect legal obligations of TAP.

Each Legal Entry identifies the subject, title of the legislative act, article reference and detailed compliance requirements (both applicable and for information only) for which timely evidence is provided and the deadlines for any compliance updates are defined where applicable.

5.2 ESIA AND EIA DECREES (REF. 5)

TAP AG operations are required to be performed in line with TAP ESIA for Italy (Ref. 11) and ESIA Approval Decree No. 223/2014 issued by the then Ministry of the Environment and Protection of Land and Sea. Commitments from the TAP Italy ESIA are compiled into the Commitments and Licence to Operate Registers (Ref. 12, 16 and 17).

5.2.1 Compliance framework of Melendugno site (PRT, onshore and offshore section of the pipeline)

The following Decrees set a prescriptive compliance framework comprising of Verification of Compliance (VoC) conditions for various stages of TAP Pipeline design, construction and operations:

-  EIA Decree No. 223/14 as modified by Decree No. 72/15, including all the provision coming from:
 - EIA Screening Decree No 116/2018 related with microtunnel construction (VoC A.5 of EIA Decree),

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- EIA Screening Decree No 327/2019 related with offshore pipe installation in the bioconstruction areas (VoC A.9, A.10 and A.31 of EIA Decree);

 Single authorization for construction and operation (Autorizzazione Unica) Decree of 20/05/2015, which includes also the following environmental authorizations:

- Authorization for atmospheric emissions, valid for 15 years (renewal request to be sent by 01/09/2034),
- Water discharges authorizations for domestic water and rain/washing water, valid for 4 years (renewal request to be sent by 09/29/2023);

 Fire Prevention Certificate No. 33512, issued on 29/01/2021 by the Fire Prevention Office of the Lecce Provincial Fire Brigade Command for the pipeline and the PRT. By 09/25/2025, the Certificate of Periodic Renewal of Fire Fighting Conformity must be produced (5 years from the certified reports of the start of activity of the PRT and the gas pipeline, acquired by the Provincial Command of the Fire Brigade of Lecce with prot. n. 0015860 and prot. 0015857 of 09/25/2020).

Compliance to VoC conditions from the above Decrees is managed through Licence to Operate process and with the use of Verification of Compliance Matrix.

Compliance with main national and EU environmental regulations (such as Regulation (EU) 517/2014 on Fluorinated Greenhouse Gases) is tracked through the electronic database Red-On-Line (see section 5.1) and as summarised in Appendix 1 (Legal Registers).

5.2.2 Compliance framework of Brindisi site

The Backup Supervisory Control Centre (BSCC) located in Brindisi operates under Single Environmental Authorisation (AUA) Decree No. 13 dated 16/07/2019, issued by the “Sportello Unico Attività Produttive” (SUAP) of Brindisi Municipality. The AUA is valid for 15 years from the aforementioned date of issue of the authorization by the SUAP.

With regards to fire prevention, a “Certified notification of the start of business for fire safety purposes” (Segnalazione Certificata di Inizio Attività ai fini della Sicurezza Antincendio) according to D.P.R. No. 151/2011, Art. 4 has been submitted to the Brindisi Provincial Fire Brigade Command on 22/11/2019 (Fire Brigade Practice No. 19553), which favourably completed the related fire prevention procedure initiated by TAP AG on 20 October 2019 through the SUAP of the Municipality of Brindisi (Dossier n. 12318591000-20102019-2336). For the BSCC, a periodic renewal request for fire compliance is foreseen every five years (next deadline: 22 November 2024).

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5.3 ENVIRONMENTAL PERFORMANCE STANDARDS

TAP AG complies with and demonstrates Good Industry Practice (GIP) as described in the Common Terms Agreement (CTA) signed with its lenders and continues to align with the standards of international financial institutions such as:

-  The EBRD Performance Requirements (PRs 1 through 6, 8 and 10)¹ as per EBRD's Environmental and Social Policy (2014);
-  The EIB Environmental and Social Practices and Standards (2013);
-  The IFC Performance Standards (PS 1 through 6 and 8)² (January 2012);
-  The IFC EHS General Guidelines (2007);
-  IFC Industry-specific Guidelines: the IFC EHS Guidelines for Onshore Oil and Gas Development (2007) and the IFC EHS Guidelines for Offshore Oil and Gas Development (2015);
-  The Equator Principles III (2013);
-  The OECD Common Approaches (2012).

Requirements of the above performance standards are incorporated into the management system documentation, such as ESMM (Ref. 8) and supporting environmental procedures and method statements. The TAP Operations Environmental Standards Manual (Ref. 13) details the performance standards derived from the applicable legislation requirements and standards and principles listed above. Whenever applicable, the most stringent requirement was considered in setting the performance standards.

5.4 ENVIRONMENTAL MONITORING PLAN

An Environmental Monitoring Project for the Italian section of TAP pipeline (Ref. 14) has been approved by the relevant authorities as per Condition A.31 of the ESIA Approval Decree No. 223/2014. The document outlines monitoring requirements for the pre-construction (ante operam), construction and operations phase (post operam). Any relevant environmental limits or standards included in the Environmental Monitoring Project (against which compliance monitoring is required) have been considered in development of the TAP Operations Environmental Standards Manual and Commitment Registers (Ref. 13, 16 and 17). Compliance to Environmental Monitoring Plan is tracked through deliverables trackers for onshore and offshore scopes as well as through ESCH Compliance Register.

¹ EBRD PR 7 is a performance requirement in relation to Indigenous Peoples and is not applicable to TAP. EBRD PR 9 is a performance requirements for financial intermediaries and is not applicable to TAP.

² IFC PS 7 is a performance standard in relation to Indigenous People and is not applicable to TAP.

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6. ENVIRONMENTAL INDICATORS

In this chapter environmental indicators will be quantified with reference to the in the first year of operation (2021) and in the first semester of 2022, during which TAP was fully operating, with the aim of establishing a baseline to monitor the environmental performances of the Organisation in the years to come and to promote their continuous improvement.

Data for 2022 are provided according to their availability at the time being, considering the annual approach currently adopted by TAP AG at Corporate level for the monitoring of its environmental performances.

The quantification is provided for:

-  core environmental performance indicators;
-  specific environmental performance indicators relating to the significant direct and indirect environmental aspects of TAP activities.

Each core environmental indicator is composed of:

-  **Figure A:** indicating the total annual input/output related to the activities;
-  **Figure B:** indicating the quantity of cubic metres of natural gas dispatched from TAP, as the reference value representing the activity of the organisation in the reference period;
-  **Figure R** indicating the ratio A/B.

Given that TAP has become operational only at the end of December 2020, it has not been possible to make a comparison on two entire years of activity. Therefore, the core indicators trend has not been commented in this first edition of the Environmental Statement. Considering that data for 2022 are not referred to an entire year of operation, those have been indicated with an asterisk (*) in the following graphs / tables.

6.1 NATURAL GAS DISPATCHED

The table and graph below report the total natural gas processed at the PRT in Melendugno, in the first year of operation (2021) and in the first semester of 2022. Data are provided in Standard Cubic Meters (Smc).

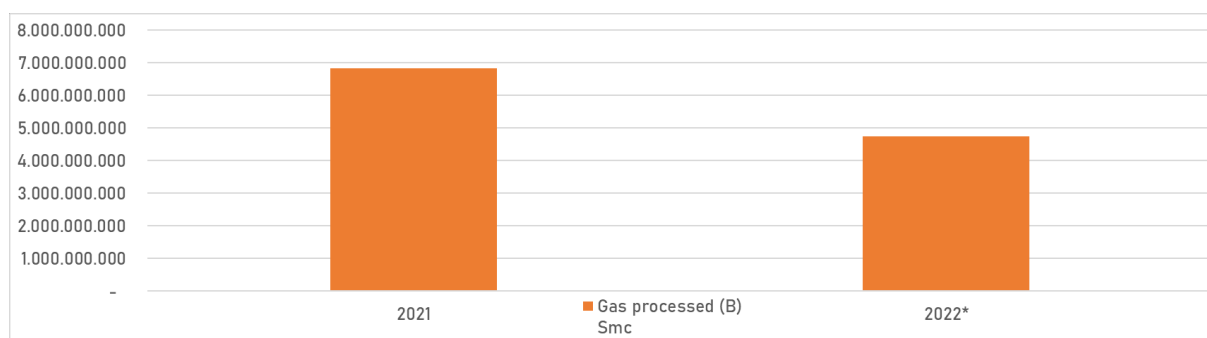
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Table 6.1: Total natural gas processed at the PRT per year

Measured Gas Flow at the Interconnection Point of Melendugno

	2021	2022*
Gas processed (B) Smc	6.829.121.013	4.732.258.425

(*) Data referred to the first semester of 2022



(*) Data referred to the first semester of 2022

Figure 6.1: Total natural gas processed at the PRT per year

Data source	
Total natural gas processed	Gas flow measured at the Melendugno Interconnection Point (IP) by the Commercial Dispatching Information System

6.2 ENERGY

The energy sources consumed by TAP Italia are:

-  electricity, for powering electric boilers for gas heating, administrative buildings and fire-fighting system. Electricity is supplied by both the public grid and the photovoltaic plants. The quantity of electricity consumed has been calculated based on information about electricity consumption extracted from the bills of the company that manages the electricity network (ENEL). In Table 6.2 below, energy consumption data are reported separately for

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PRT, BSCC and BVS (ILV33). Electric energy consumption in the first three months of 2021 have been partially affected by initial testing activities at the PRT;

-  diesel fuel: in the event of a planned lack of electricity from the network, two emergency diesel generators allow to power the essential electrical loads in the event of a blackout in the PRT. There is also an emergency generator for the BSCC. Diesel fuel is stored in the diesel storage system at the PRT. The quantity of diesel fuel consumed has been calculated based on tank refill reporting;
-  natural gas, for the supply of gas boilers to support electric boilers for gas heating. Natural gas is supplied by Enet Energy SA, through a specific pipeline for the quantification of the amount of gas provided to TAP for internal use. The quantity of natural gas consumed has been calculated based on the bills of Enet Energy SA.
-  gasoline and diesel, to power company vehicles and the vehicles of third-party maintenance service providers. The petrol and diesel consumed by the company vehicles is estimated based on the number of kilometres travelled by the company vehicles, considering an indicative average consumption value for each vehicle, equal to 16 km /l.

In addition, as anticipated in section 2.2 both PRT and Brindisi facilities are equipped with Photovoltaic Plants for electricity production purposes.

Energy consumption data for each energy source are summarised in the table and graphs below, which also provide the total amount of renewable energy generated by the Photovoltaic Plants and of that auto-consumed by TAP facilities in Italy. It should be noted that:

-  for year 2021, renewable energy generation and consumption data of the Photovoltaic Plant at Brindisi site have been considered starting from March, month in which the electricity exchange contract with the Italian “Gestore dei Servizi Energetici” (GSE S.p.A.) has been activated (Contract n. SSP00814008 dated 5 March 2021). In the first two months of 2021 the photovoltaic plant at Brindisi site was partially operated to carry out some trial tests, but no specific data are available for that initial testing period;
-  for the first half of 2022, the value of the portion of renewable energy produced by the PRT's photovoltaic plant and which is almost entirely self-consumed by the plants/structures of the terminal itself is not reported, as this data is not currently available on a half-yearly basis. For year 2021, the data was estimated on an annual basis, starting from the data of total self-consumption of renewable energy traceable in the "Report on greenhouse gas emissions for 2021" (Ref. 20), subtracting the self-consumption of the BSCC and adding a small amount of energy (about 1.6 kWh) produced in excess by the photovoltaic plant of the PRT and fed into the grid (data taken from the monthly reports extracted from the E-distribuzione portal). Through the application on the national providers E-distribuzione and GSE, an action

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finalized to the recovery of data relating to the self-consumption of the PRT photovoltaic plant has been implemented. In the meantime, the monthly manual recording of data directly on the meter that records the total KWh produced by the photovoltaic plant will be implemented.

Table 6.2: Energy consumed / generated by TAP facilities in Italy per year with environmental indicators

ELECTRIC ENERGY CONSUMPTION		
	2021	2022*
Electric energy consumption – PRT kWh	1.465.694	440.500
<i>PRT- POD IT001E74532368</i>	424	107
<i>PRT - POD IT001E74532369</i>	1.465.270	440.393
Electric energy consumption – BSCC kWh	192.992	101.044
<i>BSCC-POD IT001E04583507</i>	192.987	101.041
<i>BSCC -POD ITP0AE04583507</i>	5	3
Electric energy consumption – ILV33 kWh	7.008	3.717
<i>ILV33 -POD IT001E74472282</i>	7.008	3.717
Total electric energy consumption kWh	1.665.694 (of which around 682.160 from renewable sources)	545.261 (of which around 207.600 from renewable sources)

(*) Data referred to the first semester of 2022.

(**) Net of the self-consumption of electricity produced by the photovoltaic plants of the PRT and the BSCC, the portion of electricity from renewable sources imported from the grid was considered equal to approximately 38.08% of the total, as it can be inferred from the invoices of the supplier (ENEL). This percentage value refers to the composition of the energy mix used for the production of electricity sold by ENEL in 2020 (pre-final data provided by GSE pursuant to the MSE decree dated 31 July 2009).

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Table 6.3: Direct energy consumption of TAP facilities in Italy on yearly basis

DIRECT ENERGY CONSUMPTION

	2021	2022*
Electric energy consumption	1.665.694	545.261
Diesel consumption kWh	12.440	NA
Diesel consumption -vehicle kWh	2.959	10.200
Gasoline consumption -vehicle kWh	1.248	2.837
Natural gas consumption kWh	206.027	NA
Total energy consumption (A₁) kWh	1.888.368	558.297
Gas processed (B) Smc	6.829.121.013	4.732.258.425
Total energy consumption (A₁/B) kWh/Smc*1000	0,277	0,118

(*) Data referred to the first semester of 2022.

Table 6.4: Production and auto-consumption of renewable energy of TAP facilities in Italy on yearly basis

PRODUCTION / AUTO-CONSUMPTION OF RENEWABLE ENERGY

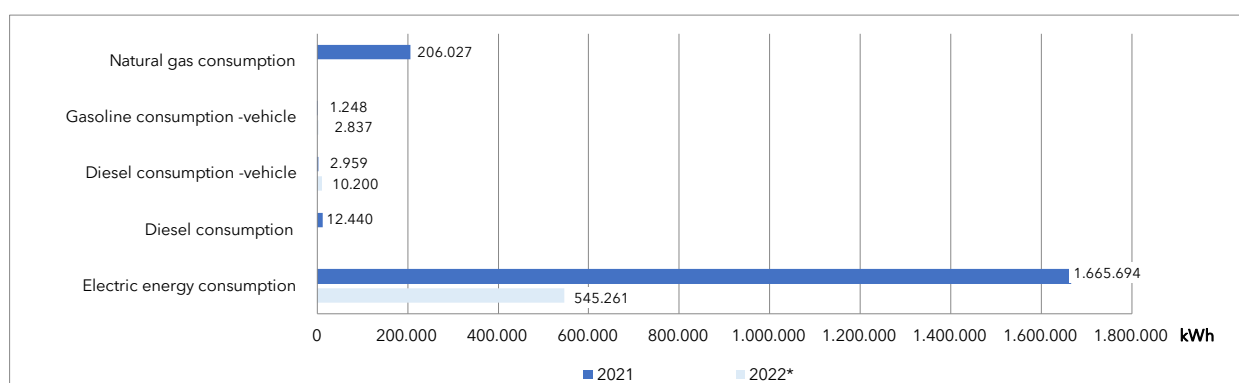
	2021	2022 ⁽ⁱ⁾
Renewable energy generation – PRT kWh	89.596,91 (iii)	(ii)
Renewable energy generation – BSCC kWh	7.474 (iv)	4.405 (iv)
BSCC-POD IT001E04583507	7.470	4.402
BSCC-POD ITP0AE04583507	4,7	2,7
Total renewable energy generation (A₂) kWh	97.071	(ii)
Renewable energy auto-consumed – PRT kWh	89.595 (iii)	(ii)

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PRODUCTION / AUTO-CONSUMPTION OF RENEWABLE ENERGY

	2021	2022 ⁽ⁱ⁾
Renewable energy auto-consumed – BSCC kWh	4,7	2,7
Total renewable energy auto-consumed (A₃) kWh	89.600	(ii)
Gas processed (B) Smc	6.829.121.013	4.732.258.425
Total renewable energy generation (A₂/B) kWh/Smc*1000	0,014	(ii)
Total renewable energy consumption (A₃/B) kWh/Smc*1000	0,013	(ii)

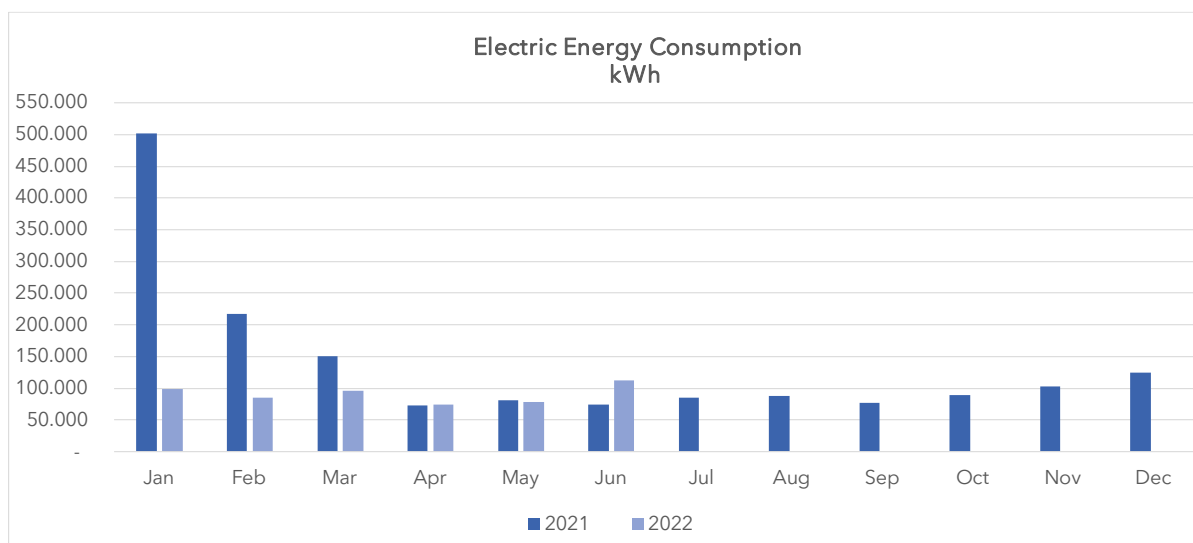
- (i) Data referred to the first semester of 2022.
- (ii) Data on the amount of renewable energy produced and almost entirely self-consumed by the PRT plants currently not available on a six-month basis (the process to keep track of the monthly energy production is under implementation).
- (iii) For year 2021, the self-consumption data of the PRT was estimated on an annual basis, starting from the data of total self-consumption of renewable energy traceable in the "Report on greenhouse gas emissions for 2021" (Ref. 20), subtracting the self-consumption of the BSCC taken from the monthly reports extracted from the E-distribuzione. The renewable energy produced by the PRT was then estimated by adding to the self-consumption data a small quantity of energy (about 1.6 kWh) produced in excess by the photovoltaic system of the PRT and fed into the grid (also taken from the monthly reports extracted from E-distribuzione portal).
- (iv) (iv) BSCC data taken from the monthly reports extracted from the E-distribuzione portal.



(*) Data referred to the first semester of 2022

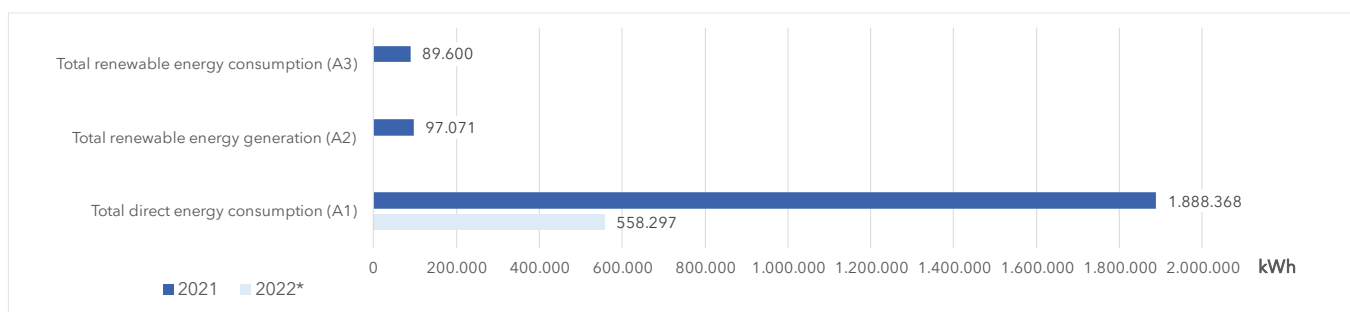
Figure 6.2: Total direct energy consumption

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(*) Data referred to the first semester of 2022

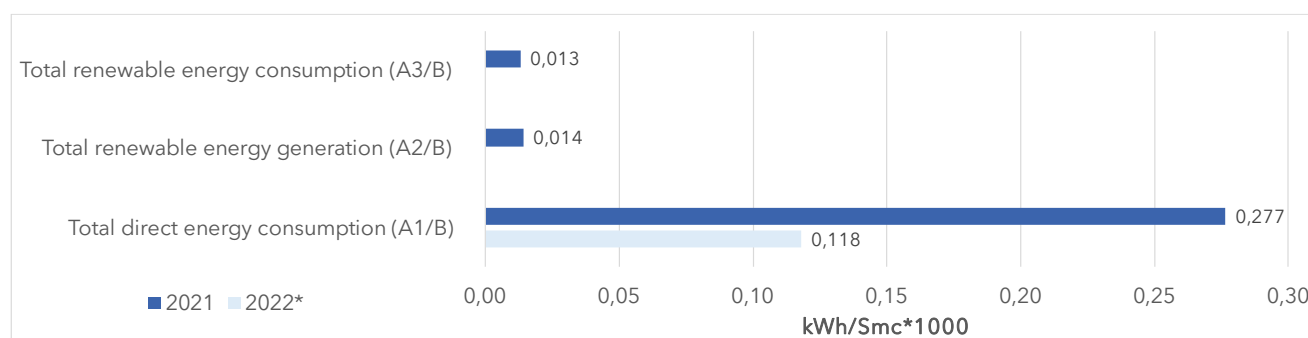
Figure 6.3: Electric energy consumptions per month



(*) Data on the amount of renewable energy produced and almost entirely self-consumed by the PRT plants currently not available on a six-monthly basis. For the year 2022 and following the process to track monthly energy production is being implemented.

Figure 6.4: Total energy consumption and renewable energy generated/auto-consumed per year

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(*) Data on the amount of renewable energy produced and almost entirely self-consumed by the PRT plants currently not available on a six-monthly basis. For the year 2022 and following the process to track monthly energy production is being implemented.

Figure 6.5: Environmental indicators for Energy Consumption / Generation

Data source	
Electric energy consumption (PRT, BSCC, ILV33)	Supplier invoices (ENEL)
Diesel consumption	Tank refill reporting
Diesel and gasoline consumption (vehicle)	Estimated based on the number of kilometres travelled by Company's vehicles (monitoring report)
Natural gas consumption	Supplier invoices (Enet Energy SA)
Total renewable energy generated and self-consumed by the BSCC and excess renewable energy produced fed into the grid by the PRT	Monthly reports extracted from the E-distribuzione portal (from meter records)
Total renewable energy produced for auto-consumption (PRT+BSCC)	Report on greenhouse gases emissions for 2021

6.3 MATERIAL

The main materials consumed are those used for PRT operation and maintenance.

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In particular, the consumption of non-hazardous materials is determined on the basis of the incoming and outgoing material flows recorded on the SAP management system.

With reference to dangerous materials, the materials included in the procurement/inventory system launched from the entry into operation of the PRT are currently registered on SAP, other materials instead come from supplies carried out during the testing phase of the plant or acquired by Snam Rete Gas within the framework of the PRT maintenance contract. Considering the above, as part of the QHSE Management System procedures, an inventory of hazardous materials is kept continuously updated, with a summary document that is issued on a quarterly basis (Ref. 27).

The main hazardous materials stored are oil, grease, gases under pressure and some chemicals. These materials are stored in a dedicated area specifically designed for petroleum materials, chemical products and gas storage, in order to avoid the dispersion of dangerous substances in the environment.

The table below reports the amount of main material consumed.

Table 6.5: Main material consumed on yearly basis

Material Consumption

Material	Hazardous	2021	2022 *	Source **
INDUSTRIAL LUBRICANT ADICOMP ADIC BIO G (litre)	✓	1,20	-	SAP
VISCOUS LIQUID AIRCOL SN 100, 20L E4 - 20 L BOTTLE (litre)	✓	40	-	SAP
CIRCUIT BREAKER 2 POLE C10 6KA (pieces)		1	-	SAP
CONDENSATE DRAIN (pieces)		1	1	SAP
ENGINE OIL CASTROL CRBO MULTI 15W-40 CI-4/E7 (litre) *	✓	20	-	SAP

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Material Consumption

Material	Hazardous	2021	2022 *	Source **
DEHYDRATOR FILTER (litre)		2	-	SAP
ENGINE AIR FILTER (pieces)		-	1	SAP
ENGINE FUEL FILTER (pieces)		1	-	SAP
ENGINE OIL FILTER (pieces)		1	-	SAP
FILTER FOR DEW POINT SENSOR/ANALYZER (pieces)		1	-	SAP
HYPOCHLORITE SODIUM (litre)		-	100	SAP
INERT GAS BOTTLE - 80 LTR (litre)	✓	320	-	SAP
LINEAR HALOGEN LAMPS ECO 400W (pieces)		14	64	SAP
LIP-SEAL (pieces)		1	-	SAP
OIL FILTER CARTRIDGE (pieces)		3	-	SAP
PSV TAG: IPR01-370-PSV-2061 (pieces)		1	-	SAP
SCALANCE XB205-3 MANAGED LAYER 2 IE (pieces)		1	-	SAP

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Material Consumption

Material	Hazardous	2021	2022 *	Source **
SEAL FOR INSPECTION HOLE (pieces)		-	1	SAP
SET OF PUMP PACKING RINGS (pieces)		-	1	SAP
SIMATIC S7, A.I. SM336 6A.I.3849 (pieces)		-	1	SAP
SOFT GOOD KIT MAIN VALVE (pieces)		-	2	SAP
SPIRAL WOUND BODY GASKET (pieces)		1	-	SAP
SPIRAL WOUND SEAT GASKET (pieces)		2	-	SAP
ANTI- SEIZE AS ASSEMBLY PASTE WEICON (g)	✓	450	-	HM Inventory
ANTIFREEZE PARAGEL (kg)	✓	150	-	HM Inventory
FOAM (CONCENTRATED) ORCHIDEX AFFF 3% TP (kg)	✓	800	-	HM Inventory
GREASE VASELINE WURTH (mg)	✓	750	-	HM Inventory
GREASE CASTROL SPHEEROL EPL 2 (g)	✓	400	-	HM Inventory

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Material Consumption

Material	Hazardous	2021	2022 *	Source **
TRIBOL GR 3020/1000-1 PD (kg)	✓	36	-	HM Inventory
HIGH TEMPERATURE ANTI- SEIZE PASTE MOLYKOTER (kg)	✓	8	-	HM Inventory
HYDRAULIC OIL HF95T ENERPAC (kg)	✓	40	-	HM Inventory
LUBRICANT 5-56 SUPER (ml)	✓	300	-	HM Inventory
LUBRICANT WD-40 (g)	✓	8	-	HM Inventory
LUBRIFICANT VAL-TEX (kg)	✓	18	-	HM Inventory
SIP ANALYTICAL - 2.5% METHANE IN AIR - 68 BAR COMPLETE WITH REGULATOR - 0,5 KG (kg)	✓	-	0,5	HM Inventory
SPRAY - BLACK VARNISH MAURER (ml)	✓	800	-	HM Inventory

(*) Data referred to the first semester of 2022

(**) Where not available in the SAP management system, the data on the consumption of hazardous materials was estimated based on the data reported in the Inventory of Hazardous Materials (Ref. 27). In particular, 2021 consumption is estimated as the difference between the stored quantities recorded in the inventory updates relating to the first and fourth quarters of 2021, while the data referring to the first half of 2022 is estimated as the difference between the data for the fourth quarter 2021 and those of the update relating to the second quarter of 2022.

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Data source	
Hazardous / Non-hazardous materials consumption	Extraction of warehouse movements data from SAP management system
Hazardous materials consumptions	Where not already present in SAP: Hazardous Material Inventory

6.4 WATER

The water is used for:

-  civil uses in administrative buildings;
-  irrigation of green areas (only for maintenance);
-  power supply to the fire-fighting system.

The water consumed is supplied by the aqueduct.

The core indicator on total annual water use has been calculated based on water consumption data extracted from bills of the Company that manages the aqueduct network (Acquedotto Pugliese S.p.A.).

Table 6.6: Water consumption data per year with environmental indicator

Water consumption		
	2021	2022*
Water consumption – PRT mc	635	405
Water consumption – BSCC mc	2.272**	502**
Water consumption (A) mc	2.907	907
Gas processed (B) Smc	6.829.121.013	4.732.258.425

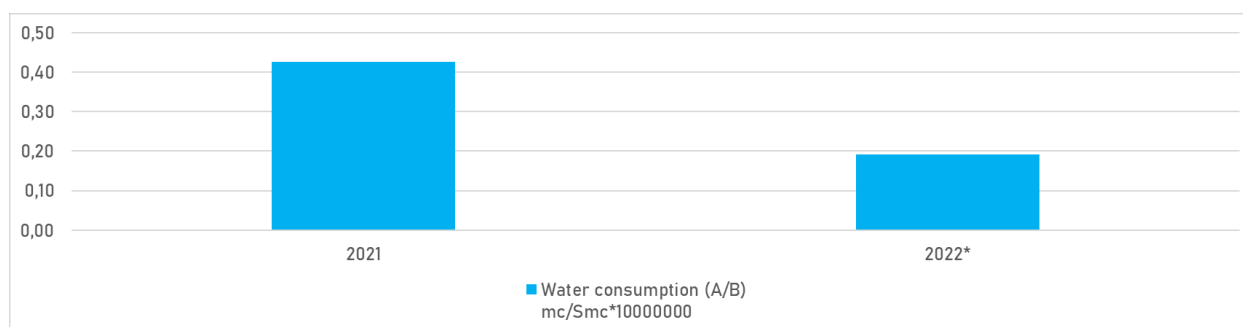
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Water consumption

	2021	2022*
Water consumption (A/B) mc/Smc*10000000	0,43	0,19

(*) Data referred to the first semester of 2022.

(**) The water consumption of the BSCC includes the contribution of the irrigation system of the green areas.



(*) Data referred to the first semester of 2022

Figure 6.6: Environmental indicator for Water Consumption

Data source	
Water Consumption	Supplier invoices (Acquedotto Pugliese S.p.A.)

6.5 WASTE

In 2021 and 2022 only municipal wastes from the activities carried out in the administrative buildings located at the PRT and in Brindisi have been produced, which can be classified as urban.

The municipal wastes produced are all non-hazardous waste and belong to the following categories:

 Mixed wastes

 Plastic

 Paper

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-  Organic
-  Glass
-  Steel scrap
-  Toner and printer cartridges

The wastes generated by operation and maintenance activities are special waste and managed directly by the contractors, as producers. At the time being, SNAM is the sole company which has been assigned for plants maintenance services at the pipeline receiving terminal and that takes care of the direct management of waste from maintenance activities.

The special wastes produced are hazardous and non-hazardous wastes and belong to the following categories:

-  Used Batteries (non-hazardous, CER code 16.06.04)
-  Dirty cotton wipes (hazardous, CER code 15.02.02*)
-  Motor oil (hazardous, CER code 13.02.05*)
-  Spray cans (hazardous, CER code 15.01.11*)
-  Discarded equipment (hazardous, CER code 16.02.13*)

The indicator about the generation of waste has been calculated based on both the monitoring records of municipal wastes generated at PRT and Brindisi facilities and from the “Modello Unico di Dichiarazione ambientale” (MUD) declared by SNAM for year 2021.

For waste produced by contractors in the first half of 2022, data obtained from the related loading and unloading registers and from the monthly waste registers (Monthly Waste Report) implemented as part of the QHSE Management System procedures (Ref 28) have been considered.

It should be noted that, starting from 2022, the management of the “Formulario di Identificazione Rifiuti” (FIR) for purge water (CER 16.10.02) from piezometers’ monitoring has been also integrated (activity currently carried out by Shelter S.r.l., contractor for the execution of environmental monitoring).

The following tables and figures show the separate data for the waste produced by TAP Italia and that produced by contractors.

It should be noted that, in addition to the ratio with the total of natural gas dispatched (see Par. 6.1 above), for the purpose of calculating the indicators, the production of waste was also compared with

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the total number of internal and external workers employed by the organization, resulting equal to 44 units both in 2021 and in the first half of 2022 (for the count, see the previous Par. 2.1).

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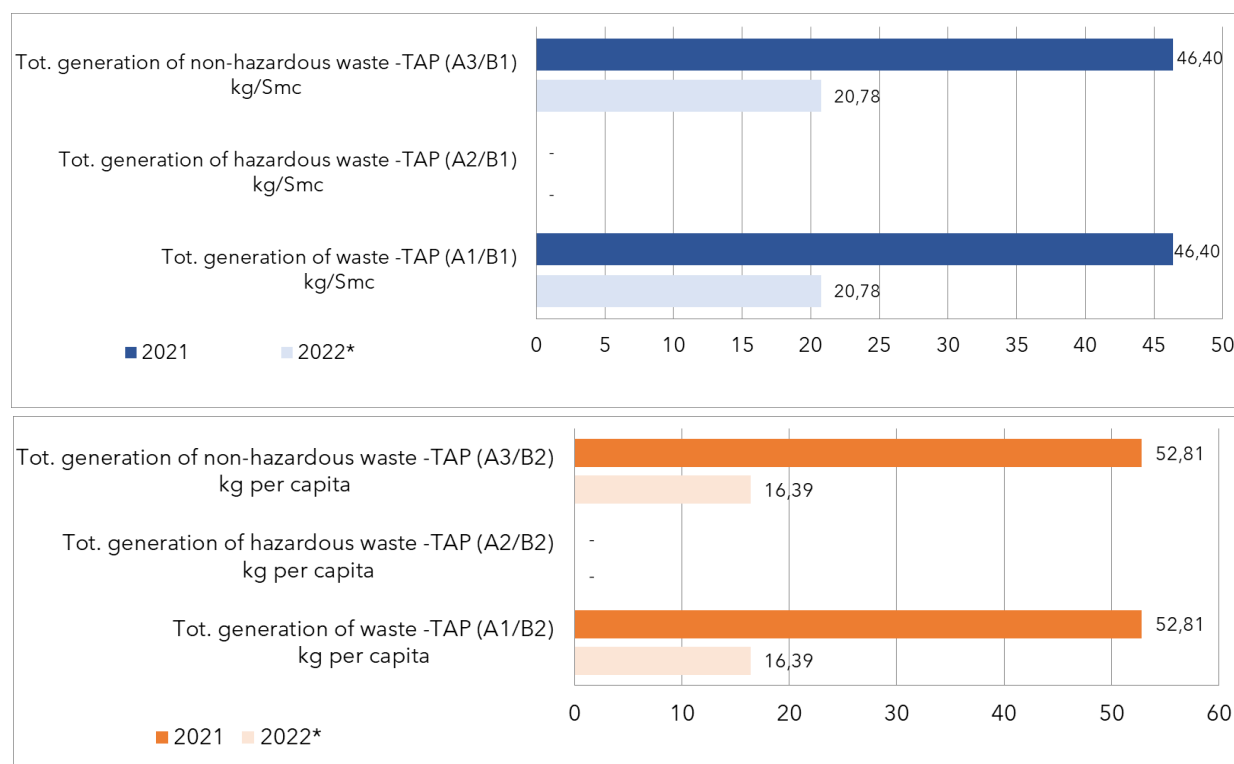
Table 6.7: Waste produced by TAP AG Italy, Branch

Waste production – TAP AG Italy, Branch

		2021	2022*
Mixed kg	NH	1.842,96	522,07
Plastic kg		336,52	76,45
Paper kg		488,45	150,63
Organic kg		381,05	195,53
Glass kg		31,15	6,55
Steel scrap kg		88,39	8,26
Toner and printer cartridges kg		-	24,00
Total generation of waste (A₁) kg		3.169	983
Total generation of hazardous waste (A₂) kg		-	-
Tot generation of non-hazardous waste (A₃) kg		3.169	983
Gas processed (B₁) Smc		6.829.121.013	4.732.258.425
Internal and external workers in force at the organisation (B₂)		60	60
Tot. generation of waste (A₁/B₁) -TAP kg/Smc*100.000.000		46,40	20,78
Tot. generation of waste (A₁/B₂) -TAP kg per capita		52,81	16,39
Tot. generation of hazardous waste (A₂/B₁)-TAP kg/Smc*100.000.000		-	-
Tot. generation of hazardous waste (A₂/B₂)-TAP kg per capita		-	-
Tot. generation of non-hazardous waste (A₂/B₁)-TAP kg/Smc*100.000.000		46,40	20,78
Tot. generation of non-hazardous waste (A₂/B₁)-TAP kg per capita		52,81	16,39

(*) Data referred to the first semester of 2022

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(*) Data referred to the first semester of 2022

Figure 6.7: Environmental indicators for waste produced by TAP Italia

Table 6.8: Waste produced by TAP Italia's contractors

Waste production – Contractors

		2021	2022*
Purge waters from piezometers' sampling activities (16.10.02) kg	NH	.	3.200
Used Batteries (16.06.04) kg		4	
Non-contaminated cotton wipes (15.02.03) kg		-	33
Contaminated cotton wipes (15.02.02*) kg	H	44	10
Motor oil (13.02.05*) kg		20	-
Spray cans (15.01.11*) kg		3	-
Discarded equipment (16.02.13*) kg		4	1,35

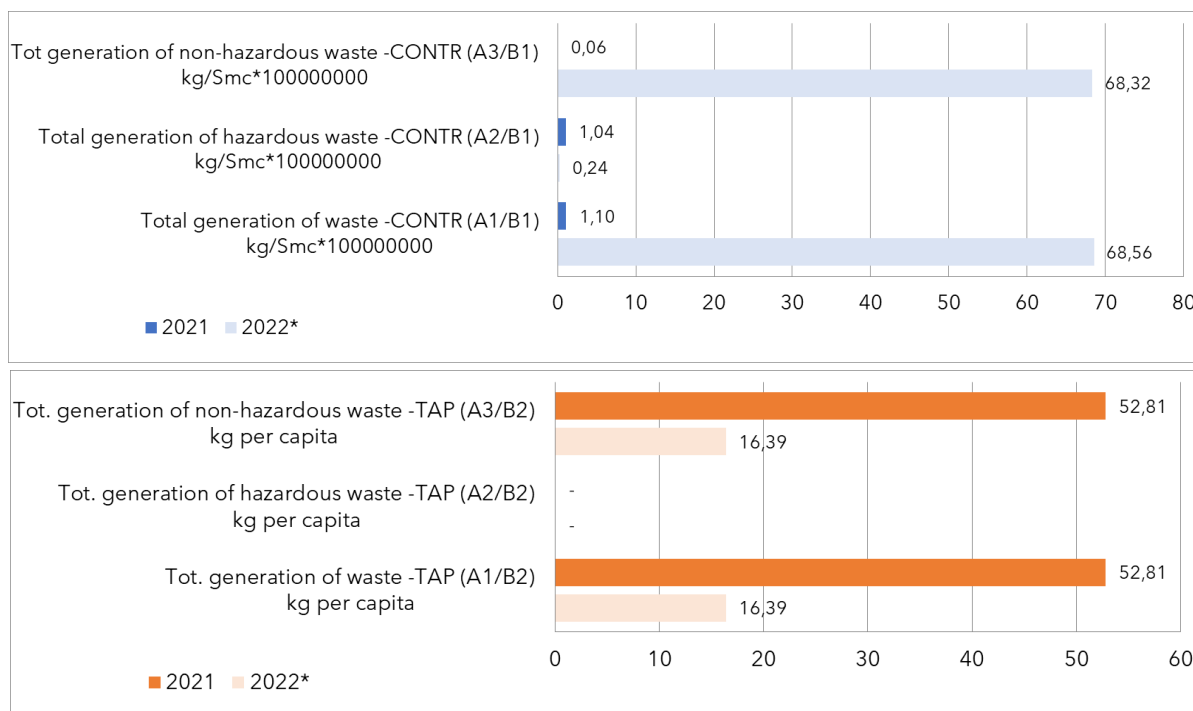
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Waste production – Contractors

		2021	2022*
Total generation of waste (A₁) kg		75	3.245
Total generation of hazardous waste (A₂) kg		71	11
Tot generation of non-hazardous waste (A₃) kg		4	3.233
Gas processed (B₁) Smc		6.829.121.013	4.732.258.425
Internal and external workers in force at the organisation (B₂)		44	44
Total generation of waste (A₁/B₁) – contractors kg/Smc*100.000.000		1,10	68,56
Total generation of waste (A₁/B₂) – contractors kg per capita		1,25	54,08
Total generation of hazardous waste (A₂/B₁) – contractors kg/Smc*100.000.000		1,04	0,24
Total generation of hazardous waste (A₂/B₂) – contractors kg per capita		1,18	0,19
Total generation of non-hazardous waste (A₃/B₁) – contractors kg/Smc*100.000.000		0,06	68,32
Total generation of non-hazardous waste (A₃/B₂) – contractors kg per capita		0,07	53,89

(*) Data not available for the first semester of 2022

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(*) Data not available for the first semester of 2022. The increase in the indicators relating to non-hazardous waste (and consequently also in total) compared to 2021 is essentially attributable to the production of purge water (CER 16.10.02) associated with groundwater monitoring activities using piezometers.

Figure 6.8: Environmental indicators for waste produced by TAP Italia's contractors

The following figures show the breakdown of waste produced directly by TAP Italia and that produced by TAP Italia contractors in 2021 and in the first half of 2022.

It should be noted that both in 2021 and in the first semester of 2022 wastes directly produced by TAP Italia have been non-hazardous wastes only, in particular mixed waste, plastic, paper and organic waste representing about 96 % of the total amount of waste produced.

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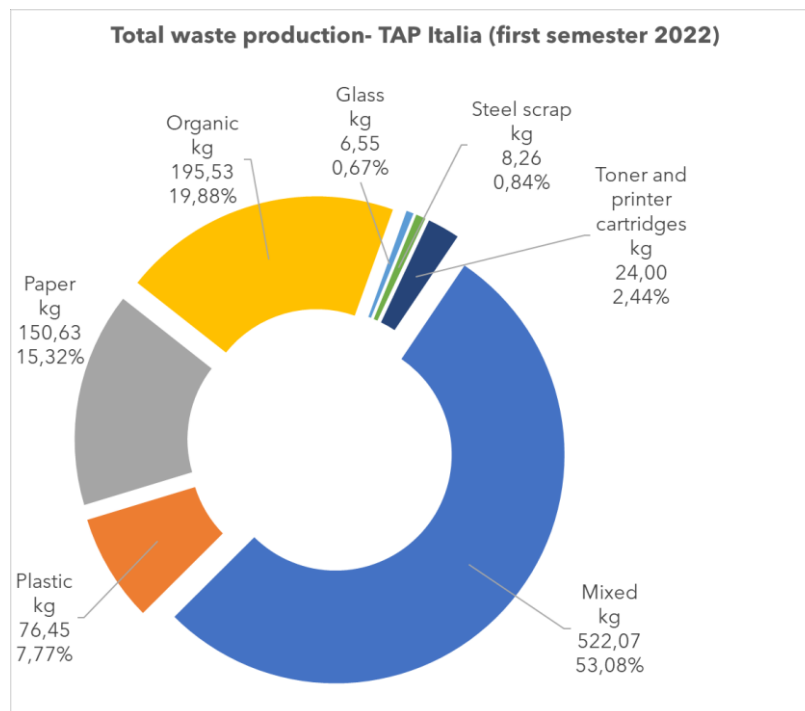
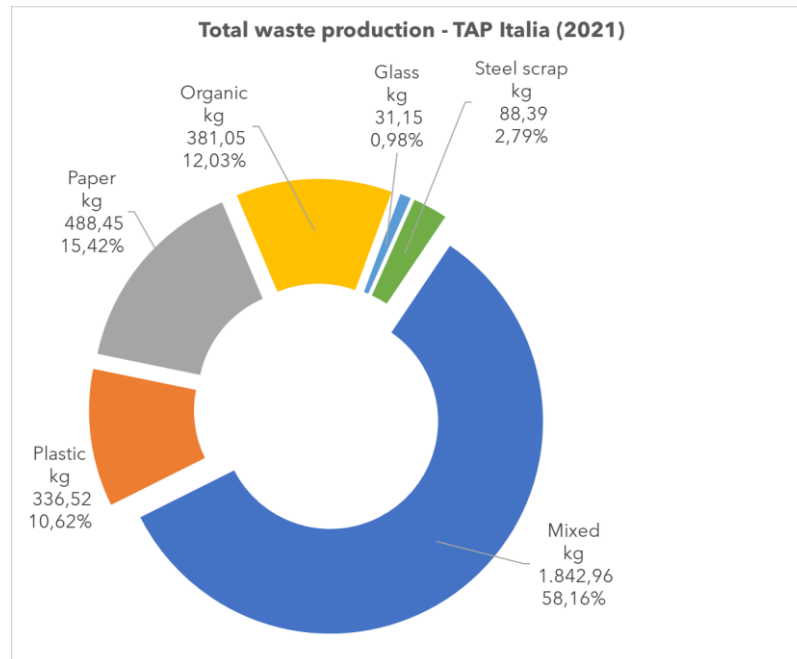


Figure 6.9: Type of wastes produced by TAP Italia (year 2021 and first semester of 2022)

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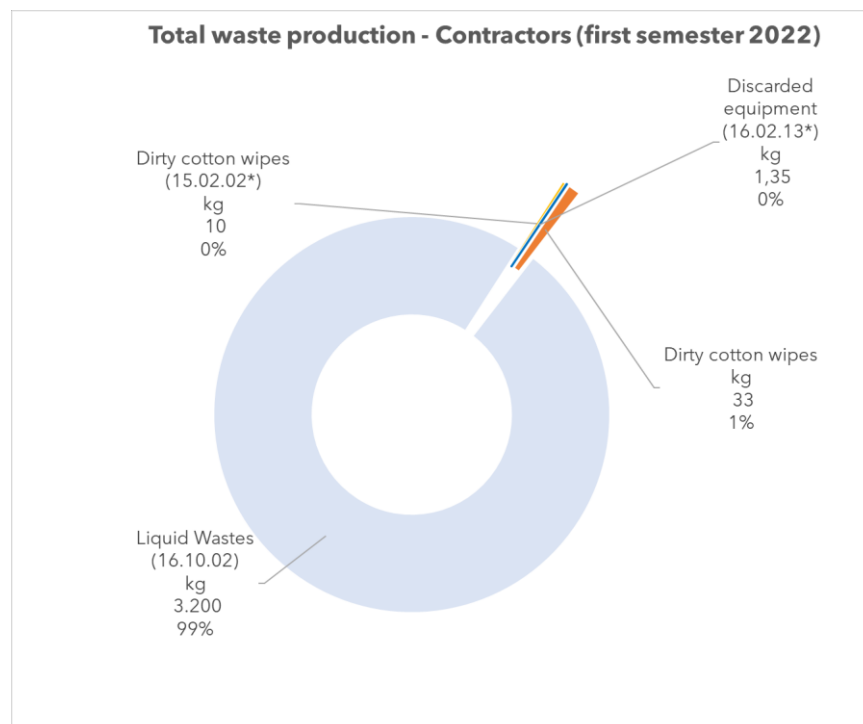
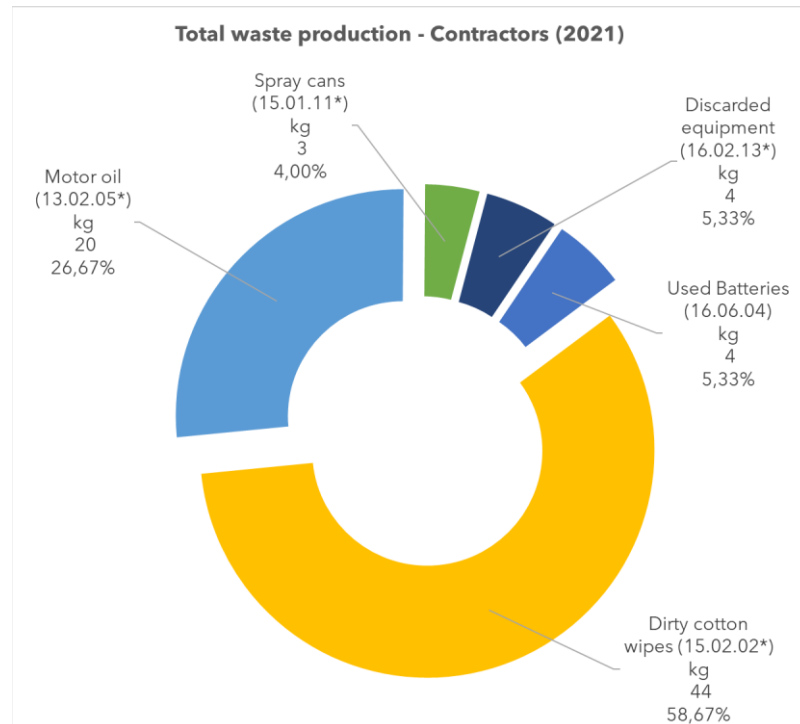


Figure 6.10: Type of wastes produced by TAP Italia's contractors (year 2021 and first semester of 2022)

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Data source	
Municipal waste (produced by TAP Italia)	Internal wastes production monitoring
Special waste (produced by TAP Italia's contractors)	Annual declaration (MUD) submitted by the contractor (year 2021) and contractor's load and unload register / FIR (first semester 2022)

6.6 WASTEWATER

Water discharged from the lamination basin at the PRT (see section 2.2.3) must comply with the limits set out in Legislative Decree 152/2006 and subsequent amendments, Part III, Annex 5, Table 4, to which reference should be made in full.

In the Single Authorization, as well as in the ESIA Decree and in the Environmental Monitoring Plan (VoC A.31), approved by the authorities, there is no requirement regarding the sampling frequency of the final discharge and relevant reporting nor does the national / regional legislation provide indications about. However, to ensure compliance with the discharge limits, TAP has set the sampling of the discharge system on a quarterly basis, in order to carry out a complete analysis of all the parameters referred to in Table 4, Annex 5, Part III of Legislative Decree 152/2006 and subsequent amendments.

It should be noted that the sampling and subsequent analyses, in order to be representative, must be carried out only in the presence of an active first and second flush rainwater discharge. Optimal sampling conditions were never found during the monitoring campaigns performed in 2021 and 2022, so the measurements were not considered representative of the state of the different sampling points. However, it should be noted that, even if in not optimal conditions, the legal thresholds were not exceeded in correspondence with the final delivery point as per provisions of Table 4, Annex 5, Part III of Legislative Decree 152/2006 and subsequent amendments.

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Figure 6.11: Wastewater sampling activities performed at the PRT

As regards the wastewater of the BSCC, in compliance with the provisions contained in the related Single Environmental Authorization Decree (AUA) no. 13 of 07/16/2019, TAP is authorised to:

- the discharge onto the ground of wastewater assimilated to domestic wastewater, effluents from the treatment systems consisting of the Imhoff pit and sub-irrigation system (see also the previous Par. 2.2.4) serving the BSCC;
- discharge into the surface layers of the subsoil, through a drainage basin, and reuse for watering the green areas of runoff rainwater from the waterproofed surfaces and roofs of the BSCC, after screening and sand removal treatment.

As reported in the AUA, which identifies, inter alia, the coordinates of the aforementioned authorized discharge points, it should be noted that:

- the collection, treatment and final disposal systems of runoff rainwater and wastewater assimilated to domestic wastewater comply with the principles established by Regional Regulation no. 26/2013 and subsequent amendments and by the Regional Regulation 12 December 2011, n. 26, as amended by the Regional Regulation 26 May 2016, n. 7;
- for wastewater, assimilated to domestic wastewater, pursuant to art. 3 of the Regional Regulation 26 May 2016, n. 7, coming from settlements with a size of up to about 50 Equivalent Inhabitants, no discharge limits are required to be respected, without prejudice to verification of compliance with the minimum sizing requirements and compliance with the obligations for the discharge owner;

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- on an annual basis, groundwater monitoring is carried out in no. 2 wells located one upstream and one downstream of the area affected by the discharge of wastewater assimilated to domestic wastewater. The results of the monitoring must be transmitted every four years (immediately in the case of ascertaining a state of pollution) to Service 4 Environment and Ecology of the Province of Brindisi, through the SUAP of the Municipality of Brindisi. The test reports must contain the results of the chemical-bacteriological analyses (parameters: pH, Total Nitrogen, Ammoniacal Nitrogen, Total Phosphorus, Total Surfactants, Escherichia Coli), the identification data of the monitored well, as well as the depth at which the sampling related to the analyses has been performed.

6.7 LAND USE

The areas used by TAP include:

- areas occupied by buildings, streets and facilities at PRT site and areas that are nature oriented, which include internal green areas, areas involved by environmental mitigation and external agricultural areas that are managed by TAP, as per following figure and table.



Figure 6.12: Mapping of land use in the PRT area (Source TAP Archive)

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Table 6.9: Land use type of areas at PRT site, including green external environmental mitigation areas and external agricultural areas managed by TAP

Land use		
PRT	2021	2022*
Buildings sqm	4.239,22	4.239,22
Paved areas sqm	4.672,97	4.672,97
Asphalt roads sqm	5.149,16	5.149,16
Albino asphalt roads sqm	10.900,32	10.900,32
Gravel areas sqm	73.170,63	73.170,63
Unpaved streets sqm	5.654,28	5.654,28
Rural architecture preserved sqm	152,41	152,41
Green internal areas sqm	6.995,45	6.995,45
Green external areas (environmental mitigation) sqm	76.398,35	76.398,35
External agricultural area sqm	444.012,96	444.012,96

(*) Data referred to the first semester of 2022, that did not change compared to 2021

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- areas occupied by buildings, paved areas and streets at Brindisi site, as per following figure and table.



Figure 6.13: Mapping of land use in the BSCC area (Source TAP Archive)

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Table 6.10: Land use type of areas at BSCC site

Land use		
BSCC	2021	2022*
Buildings sqm	294,86	294,86
Paved areas sqm	261,14	261,14
Asphalt roads sqm	1.279,38	1.279,38
Green internal areas sqm	809,24	809,24

(*) Data referred to the first semester of 2022, that did not change compared to 2021

-  area occupied by buildings, paved areas and streets at BVS site, as per following figure and table.



Figure 6.14: Mapping of land use in the BVS area (Source TAP Archive)

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Table 6.11: Land use type of areas at BVS site, including green external environmental mitigation areas

Land use		
BVS	2021	2022*
Gravel areas sqm	122,43	122,43
Paved areas sqm	29,01	29,01
Green external areas (environmental mitigation) sqm	160,75	160,75
Gravel street sqm	213,64	213,64

(*) Data referred to the first semester of 2022, that did not change compared to 2021

Regarding the core indicators:

-  the total sealed areas correspond to the sum of buildings areas, paved areas, asphalt roads and albino asphalts roads (roads that are sealed but of a clear colour to mitigate the environmental impacts of the road);
-  the total nature-oriented area on site correspond to the green internal areas, while the total nature-oriented area off site correspond to sum of the areas for environmental mitigation and the external agricultural area.
-  the remaining areas used by TAP are unpaved streets, rural architecture preserved (corresponding to typical dry-stone walls) and gravel areas.

The total land used by TAP has not changed from 2021 to 2022, but the values of the core indicators about land use change because of the change in figure B between year 2021 and the first semester of 2022.

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Table 6.12: Total land use per year (in terms of soil occupation) associated with TAP AG Italy, Branch

Land use		
	2021	2022*
Buildings sqm	4.534	4.534
Paved areas sqm	4.963	4.963
Asphalt roads sqm	6.428	6.428
Albino asphalt roads sqm	10.900	10.900
Gravel areas sqm	73.507	73.507
Unpaved streets sqm	5.654	5.654
Rural architecture preserved sqm	152	152
Green internal areas sqm	7.805	7.805
Green external areas (environmental mitigation) sqm	76.559	76.559
External agricultural area sqm	444.013	444.013
Total use of land (A) sqm	634.516	634.516
Total sealed area (A) sqm	26.826	26.826

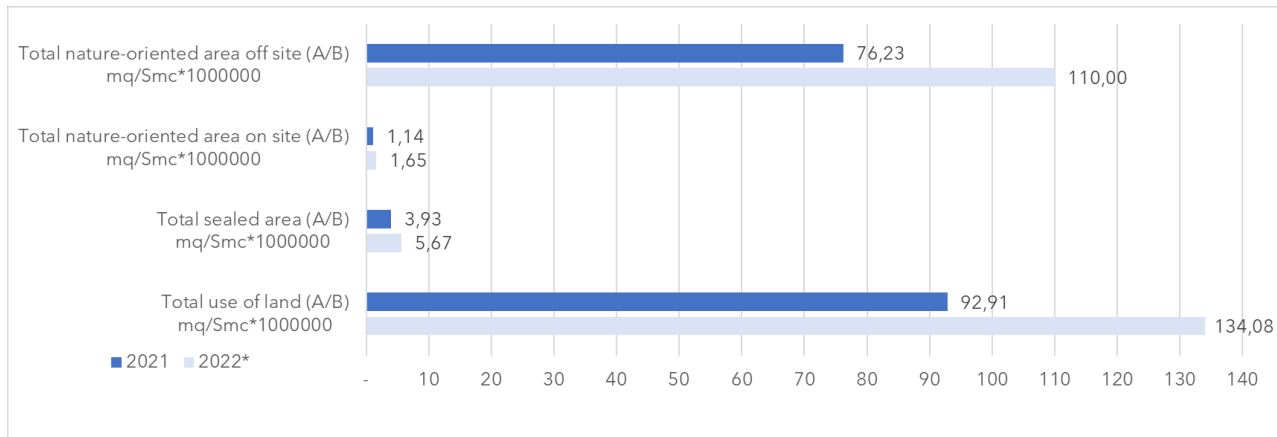
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Land use

	2021	2022*
Total nature-oriented area on site (A) sqm	7.805	7.805
Total nature-oriented area off site (A) sqm	520.572	520.572
Gas processed (B) Smc	6.829.121.013	4.732.258.425
Total use of land (A/B) sqm/Smc*1000000	92,91	134,08
Total sealed area (A/B) sqm /Smc*1000000	3,93	5,67
Total nature-oriented area on site (A/B) sqm/Smc*1000000	1,14	1,65
Total nature-oriented area off site (A/B) sqm/Smc*1000000	76,23	110,00

(*) Data referred to the first semester of 2022, that did not change compared to 2021. Indicators about land use change because of the change in figure B (gas processed) between year 2021 and the first semester of 2022.

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(*) Data referred to the first semester of 2022, that did not change compared to 2021. Indicators about land use change because of the change in figure B (gas processed) between year 2021 and the first semester of 2022.

Figure 6.15: Environmental indicators for Land Use

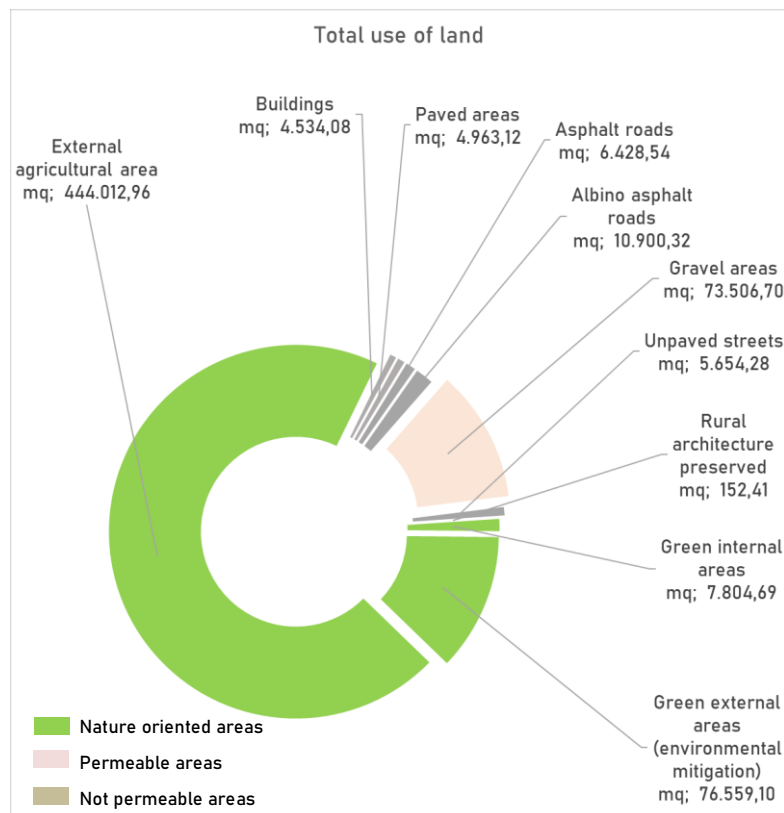


Figure 6.16: Repartition of Land Use between nature-oriented and non-nature oriented (permeable / non-permeable) areas

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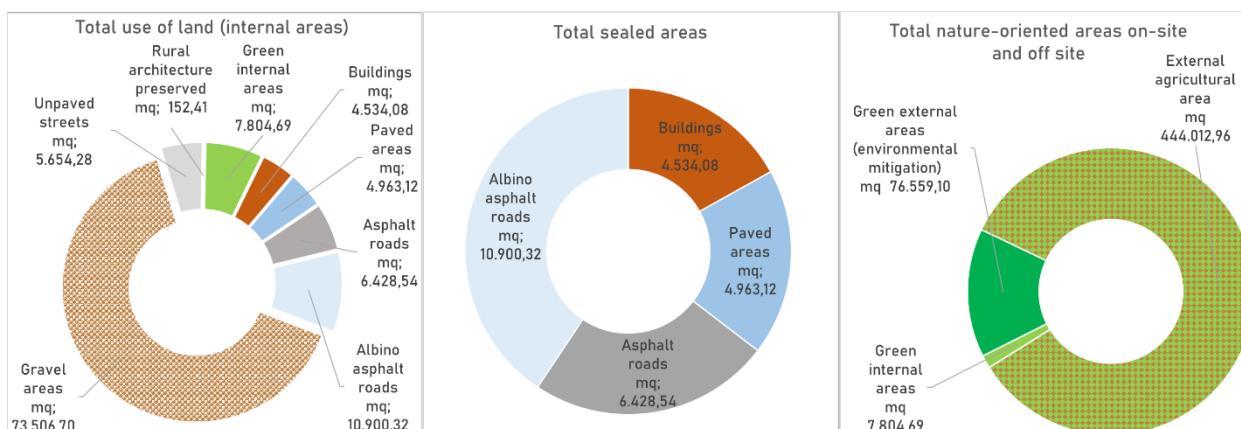


Figure 6.17: Classification of land use types (total internal areas, total sealed areas and total nature-oriented areas)

Data source

Land use

Measurement of areas used by TAP Italia through the corporate mapping system developed with GIS platform

6.8 EMISSIONS

The emissions associated to TAP facilities in Italy are:

Table 6.13: Type of emissions associated to TAP AG Italy, Branch facilities

Direct emissions	
1. Direct emissions deriving from stationary combustion	emissions of CO ₂ , NO _x and dust deriving from diesel generators, one of which is auxiliary due to a programmed lack of electricity of 1,000 kVA and two for emergency in the event of a blackout of 125 kVA each (emission points E5, E6 and E7)
	emissions of CO ₂ and NO _x deriving from the two 3,5 kW gas boilers fired by natural gas (emission points E1 and E2)
2. Direct emissions deriving from mobile combustion	emissions of CO ₂ , NO _x and dust from vehicle fleet

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3. Convoyed emission	emissions of CH ₄ deriving from the cold vents system, installed inside the PRT; emissions of CH ₄ deriving from maintenance activities
4. fugitive emissions	potential fugitive emissions of CH ₄ spread by the distribution network potential emissions of F-GAS from equipment containing it
Indirect emissions	
1. Imported electricity	Emissions deriving from the electricity consumption of TAP Italia

TAP conducted an inventory of greenhouse gases for 2021, based on calculation of the consumption of fuels used as a source of energy and on measurement of CH₄ emitted (Ref. 20).

Based on report's results it was possible to calculate the core indicator of total direct annual emission of greenhouse gases; on the contrary, it was not possible to report on total annual emissions of NO_x and PM, considering that only one monitoring conducted in May 2021 is available for gas heating boilers emissions, which has been carried out in accordance with the provisions of "Environmental Monitoring Project Italy" (Ref. 14) that meets the requirements of prescription A.31 of the EIA Decree (no monitoring has been carried out for 2022 so far, because the gas heating boilers have not been put in operation).

The GHG report will be updated in 2022, so the indicator is referring to year 2021 only since no partial data is available at the moment for 2022.

The table also shows an indicator relating to CO₂ equivalent emissions avoided, currently not quantified, which will be assessed in subsequent updates in relation to the emission reduction targets envisaged (see Par. 7.5 below).

Table 6.14: Yearly Green House Gases (GHG) emissions associated to TAP Italia facilities

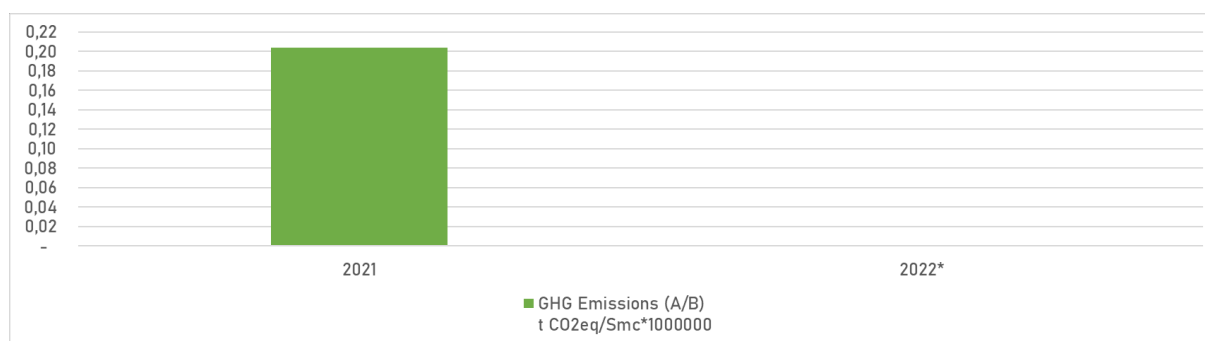
Emissions		
	2021	2022*
Vents t CO₂eq	846,02	NA
Fugitive emissions t CO₂eq	500,96	NA
Structure t CO₂eq	40,85	NA

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Emissions

	2021	2022*
Vehicles t CO₂eq	3,29	NA
GHG Emissions (A₁) t CO₂eq	1.391	-
Avoided CO₂ equivalent emissions (A₂) t CO₂eq	-	-
Gas processed (B) Smc	6.829.121.013	4.732.258.425
GHG Emissions (A₁/B) t CO₂eq/Smc*1000000	0,20	-
Avoided CO₂ equivalent emissions (A₂/B) t CO₂eq/Smc*1000000	-	-

(*) Data not available for the first semester of 2022, since the overall determination of the values is on annual basis.



(*) Data not available for the first semester of 2022

Figure 6.18: Environmental indicator on GHG emissions

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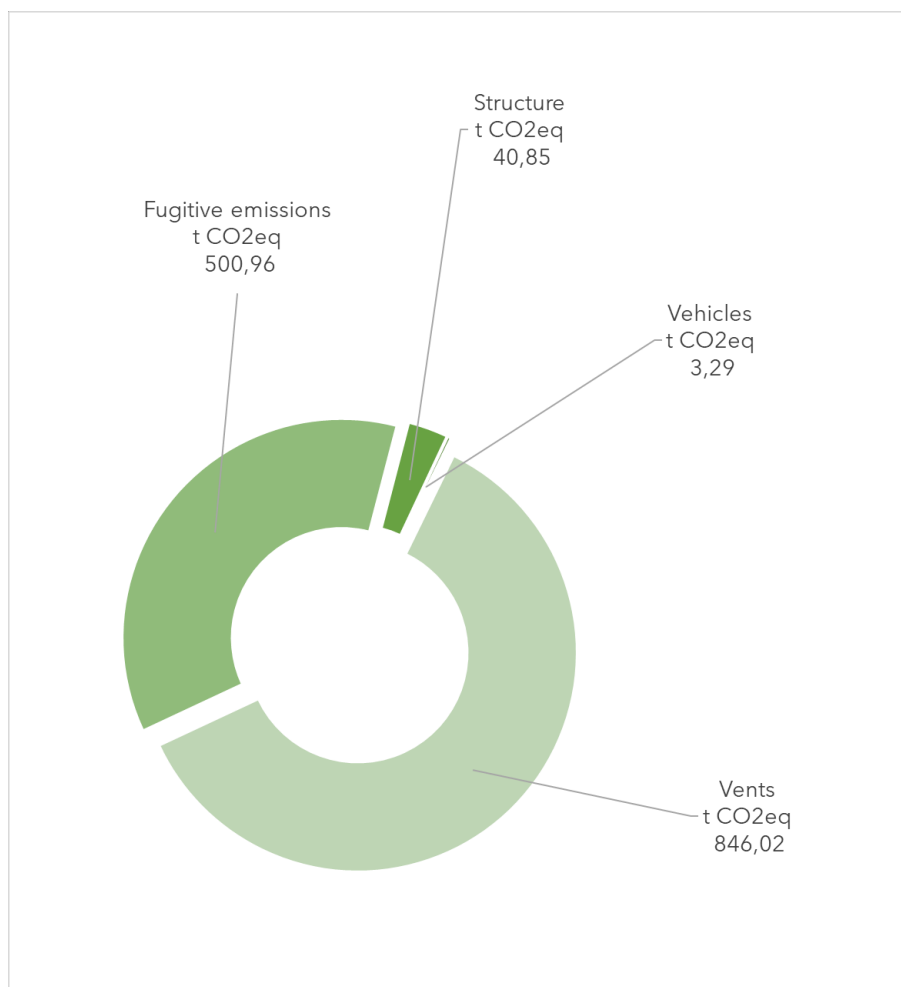


Figure 6.19: GHG emissions (expressed in CO2eq) associated with TAP Italia activities (year 2021)

Data source	
Emissions	“Report sulle emissioni di gas serra per il 2021”, 20-04-2022 For F-GAS: F-GAS equipment verification communications.

6.9 SPECIFIC ENVIRONMENTAL PERFORMANCE INDICATORS

Since 2015, TAP has been regularly monitoring the environmental conditions of the territory and the marine environment interested by the initiative, to ensure the timely assessment of any element of attention both in the onshore and offshore sections.

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The environmental components have been monitored both in the ante-operam and during the construction phases and a monitoring plan is in place also for the operational phase, in compliance with the approved Environmental Monitoring Plan in agreement with the supervisory bodies.

The Environmental Monitoring Plan in the operational phase began in 2021 and includes:

 Off-shore monitoring:

- water and sediments monitoring
- biocenosis monitoring
- bioconstructions monitoring
- fish fauna monitoring

 On-shore monitoring:

- surface waters and water level of the Cassano swamp monitoring
- underground waters monitoring
- avifauna monitoring
- herpetofauna and amphibians monitoring
- olive trees, flora and spontaneous vegetation monitoring
- landscape and soil quality monitoring
- atmosphere and air quality monitoring
- noise monitoring

In the following paragraph a synthesis of the results of the environmental monitoring plan is reported.

Data source	
Environmental performance indicators	Reports on Environmental Monitoring Plan Results submitted to public authority

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6.9.1. Water and sediments monitoring

Water and sediments monitoring consists in monitoring every 3 years the quality of water and sediments near the pipeline route, with specific reference to the quality of organic matter, phytoplankton, microbiology and nutrients, the presence of pesticides, hydrocarbons, metals and other chemical compounds.

The results obtained in occasion of the first post-operam campaign (April 2021 and October 2021) suggest that environmental conditions have not been affected by anthropogenic activities and the absence of bioaccumulation in organisms exposed to sediments of most stations was highlighted.



Figure 6.20: Off-shore water sediments and monitoring

6.9.2. Biocenosis monitoring

Biocenosis monitoring consists in mapping of the biocenosis in the dredging areas and adjacent areas: video and photographic survey along the trench areas, sampling of marine sediments.

The plan also is aimed at the recovery of Posidonia Alga.

Environmental Monitoring Plan includes one monitoring campaign of biocenosis safter construction, and after 1 and 3 years since the end of construction.

On the basis of the monitoring conducted in the period June-July 2021, the state of the coastal biocenosis in the entire survey area was good, without substantial changes compared to what was detected in the phases monitoring ante-operam and during construction.

The next monitoring campaign will be conducted in September / October 2022.

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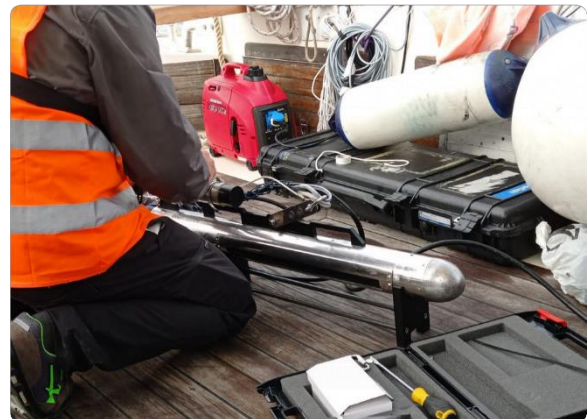


Figure 6.21: Off-shore Biocenosis monitoring

6.9.3. Bioconstructions monitoring

Bioconstructions monitoring consists in:

-  Geophysical survey to confirm the state of the bioconstructions after the laying of the pipeline;
-  Monitoring of the evolution of transplanted bioconstructions and comparison with adjacent ones;
-  For bioconstructions subject to cleaning: monitoring of the state of the nuclei after cleaning and identification of potential new accumulations of fishing gear or other waste.

Environmental Monitoring Plan includes a whole monitoring campaign of bioconstruction after construction, and then an annual monitoring campaign on the transplanted and interfered bioconstructions during the first 10 years from the start of operations.

In the period June-July 2021 monitoring campaigns with Side Scan Sonar, Multibeam and ROV surveys of the areas characterized by the presence of bioconstructions have been carried out and, in September and October 2021, a series of underwater surveys on the state of sea bottoms at depths of less than 40 meters.

The monitoring was aimed at evaluating the following specific parameters:

-  assessment of the state of health of bioconstructions of particular ecological importance;
-  quantitative and qualitative evaluation of the nuclei of bio-constructions transplanted on the surface of the pipeline;
-  assessment of the state of health of the bio-constructions adjacent to the pipeline route and of those subject to cleaning from anthropogenic waste or fishing gear.

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The investigations highlighted the good state of health of the bioconstructions subject to cleaning and those transplanted, as well as of all the coralligenous outcrops of particular ecological importance, also highlighting that, along the areas crossed by the pipeline, the hard bottom habitats show signs of positive evolution.

The next monitoring campaign will be conducted in September / October 2022.



Figure 6.22: Off-shore bioconstructions monitoring

6.9.4. Fish fauna monitoring

Fish fauna monitoring consists in visual censuses and fishing activities in order to determine the biodiversity of the fish species present, number, size, sex and sexual maturity as well as the status of the environmental mitigations putted in place by TAP like the installation of anti-trawling bollards.

The Environmental Monitoring Plan includes 3 surveys (spring, summer, autumn) annually for 2 years and 1 hard bottoms survey in spring annually for 2 years after construction.

During June and October 2021 monitoring campaigns, as already happened in the ante-operam phase, samplings were carried out on the most significant habitats present in the area (sand with Cymodocea, patches of Posidonia and movable bottoms surrounding the coralligenous outcrops).

The underwater visual census (UVC), on the other hand, consisted in the execution of dives during which, through visual estimates, data relating to the study target species were recorded.

In the post-operam monitoring campaign of 2021, the high presence of adult specimens of the Sparisoma cretense wrasse was observed, commonly known as parrotfish, a species typical of the warmer waters of the southern Mediterranean basin, rising towards the northern Mediterranean.

During the sampling of visual census in diving in 2017 a small and scarcely heterogeneous fish population was noted with species belonging to the Pomacentridae (Chromis chromis), Serranidae

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(*Serranus cabrilla*) and Sparidae (*Diplodus vulgaris*) families. The sighted fishes were of Medium / Small size and were single individuals.

During the 2021 sampling, however, the fish population was more heterogeneous from a specific point of view. In fact, eight species of fish belonging to the families of Serranids (*Serranus scriba*, *Serranus crabrilla*, *Anthias anthias*), Sparids (*Diplodus sargus*), Blennids (*Parablennius rouxi*) and Pomacentridae (*Chromis chromis*) have been distinguished. Both from the point of view of numerical abundance and biomass, the values of the surveys in 2021 were higher than in 2017.

The next monitoring campaign will be conducted in September / October 2022.



Figure 6.23: Off-shore fish fauna monitoring

6.9.5. Surface waters and water level of the Cassano swamp

The monitoring of surface water quality is carried out in line with the provisions of Legislative Decree 152/2006 and the guidelines prepared by ISPRA.

The chemical-physical and bacteriological parameters are analysed, as required by the Italian and international technical regulations (IRSA-CNR standard and EPA standard).

Environmental Monitoring Plan includes quarterly monitoring of surface waters for the first 2 years after the end of construction activities and monthly monitoring of the Cassano swamp for the first 3 years.

The results of the monitoring campaign reveal that no excesses have ever been found in surface waters except for some values due to the low water level during the summer periods or to the total absence of water such as to make sampling infeasible or invalidate the results with particular reference to the Ph or to the presence of suspended solids and coliforms (also due to the proximity to Melendugno's Phyto-Depuration Plant).

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Figure 6.24: On-shore surface water monitoring

6.9.6. Underground waters

The monitoring aims to characterize the quality of groundwater and aquifer by sampling piezometers and wells located near the project areas.

Groundwater quality monitoring activity is carried out under the supervision of the Control Bodies and any deviation is promptly reported and managed in consultation with the Competent Authorities.

For the operational phase, the Environmental Monitoring Plan for underground waters includes:

-  for the microtunnel, quarterly monitoring of piezometer levels and of chemical-physical and quality parameters for the first 2 years from the end of construction / start of operational phase;
-  at PRT area, annual monitoring of chemical-physical and quality parameters, throughout the entire PRT lifecycle at well 'PZ2' and for the first 2 years of operation in correspondence of other wells (PZ1, PZ3N, PZ10N and PZ5N).

The results of the monitoring campaigns conducted both during the pre-construction / construction phases and for the first two years of operation revealed some localized exceedances of threshold concentrations (CSC of Table 2 Annex 5 to Title V of Legislative Decree 152/2006), mainly for some metals such as iron, nickel, manganese and arsenic. These exceedances have been managed, as required by the law, through notification to the Control Bodies (ex art. 244, 245 and subsequent amendments of Legislative Decree 152/06) and the institution of a Technical Commission by Authorities.

The exceedances detected during pre-construction / construction phases appeared to be related to the presence of a natural / anthropic background not attributable to TAP Project construction activities.

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For the first two years of operation, the analytical results of onshore underground waters monitoring activities carried out at the piezometers indicated in the figure below were consistent with the data from previous monitoring carried out during the pre-construction / construction phases. Even if such exceedances in metals have demonstrated the consistency with the natural background of the project's areas, the monitoring have demonstrated the absence of an impact to groundwater quality attributable to the operation of TAP Project.

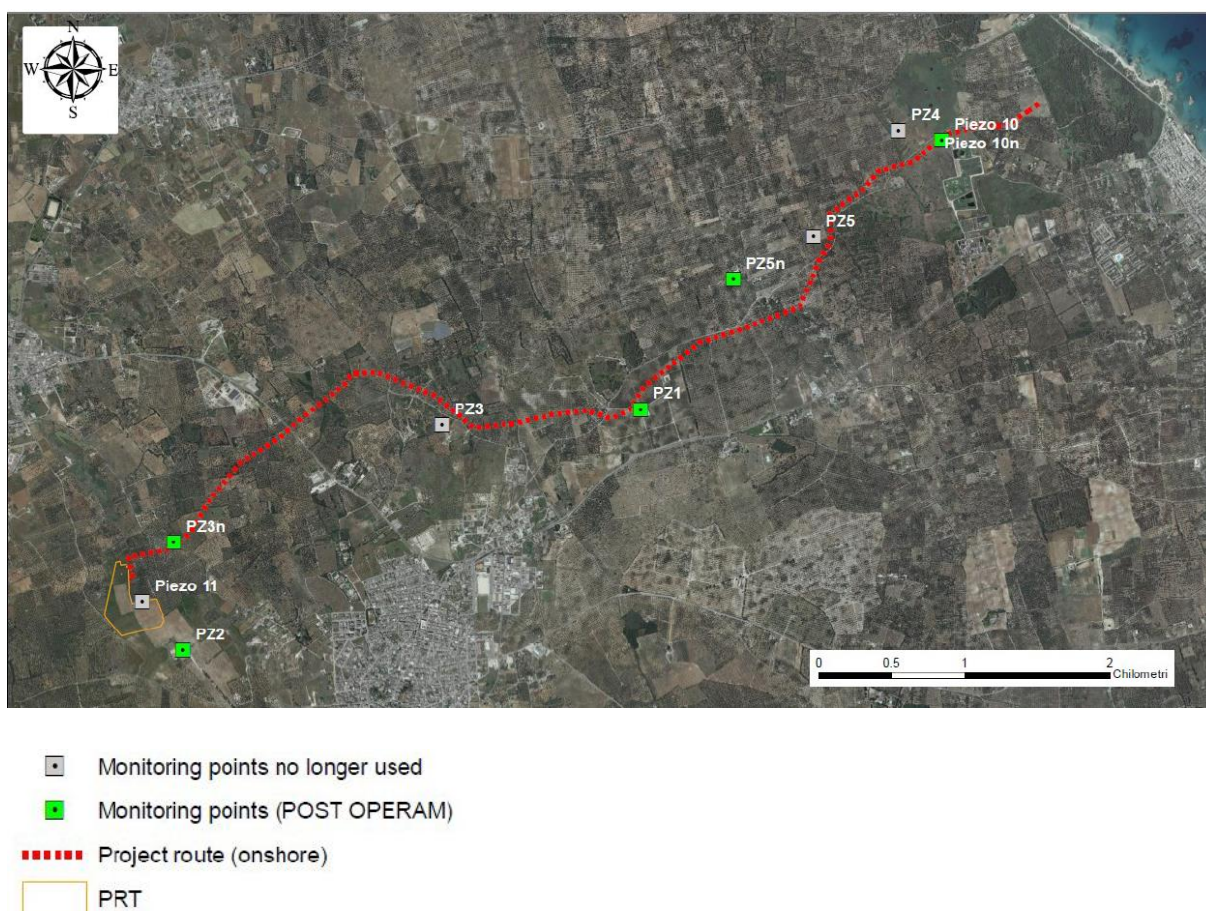


Figure 6.25: On-shore underground water monitoring points

6.9.7. Avifauna

Birdlife monitoring is performed throughout the year and includes monitoring of nesting and sedentary birds, as well as monitoring of migratory birds and wintering birds at the Cassano Marsh and at Melendugno's Phyto-Depuration Plant.

The monitoring involved carrying out surveys for the observation and identification of the species and number of specimens of wintering avifauna, nesting birds and migratory birds.

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The investigations carried out in 2021 and in the first semester of 2022 show that the construction site activities of previous years, as well as the start of the operational phase, did not have negative impacts on the avifauna.



Figure 6.26: On-shore avifauna monitoring

6.9.8. Herpetofauna and amphibians

The monitoring of the herpetofauna consists in surveying and mapping the species with the method of linear transects, set by favouring, where possible, monitoring along the dry-stone walls.

The monitoring of amphibians is carried out instead in all the humid environments present in the survey area, with particular reference to the Cassano Marsh and the Melendugno constructed wetland plant.

The investigations carried out in 2021 and in the first semester of 2022 show that the construction site activities of previous years, as well as the start of the operational phase, did not have negative impacts on the herpetofauna and amphibians.

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Figure 6.27: On-shore herpetofauna monitoring

6.9.9. Olive trees, flora and spontaneous vegetation

Monitoring of olive trees aims to verify the effectiveness of the operations of replanting the removed plants and the degree of recolonization of the spontaneous vegetation present in the replanted olive groves. The monitoring parameters include the investigation of health conditions, the inspection of the foliage, the trunk, the flowers and of the fruits with the estimate of the quantity of olives produced and the annual growth rate of the aerial part. The presence of parasitic agents (eg *Xylella fastidiosa*, insects, pathogenic fungi), vegetative regrowth and any post-implantation mortality rate are also checked.

Flora monitoring is carried out in places that have been subject to the removal of humus and in areas of particular floristic importance.

As part of the monitoring of the spontaneous vegetation crossed by the pipeline route, the effectiveness of the compensation measures and ecological indicators for autochthonous arboreal / shrub vegetation are verified, with particular reference to habitats of community interest such as pseudo-steppe and forests of holm oaks (*Quercus ilex* and *Quercus rotundifolia*).

The monitoring was carried out in spring and autumn 2021 and spring 2022 highlighted a positive trend in the general health of the olive trees which, from a phase of vegetative stasis, began to produce new biomass and fruits. Most of the replanted plants started showing signs of post-transplant engraftment.

Spontaneous vegetation, in the same way, resulted in a marked improvement, following the replacement of the failures, as well as the positive effects of the winter rains on the general rooting.

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Figure 6.28: On-shore olive trees, flora and spontaneous vegetation monitoring

6.9.10. Landscape and soil quality

Landscape monitoring aims to establish a visual comparison between the state of the post-construction landscape with respect to the results of the investigations conducted in the pre-construction phase, with particular reference the planting of the transplanted olive trees, the morphological restoration of the work areas, the restoration of dry-stone walls and the quality and effectiveness of environmental mitigation characterized by green areas in the area around the PRT.

Soil quality monitoring is aimed at comparing the chemical-physical properties of the soils recorded in the pre-construction phase and those detected at the end of the construction and restoration phases.

Similarly, humus monitoring has the purpose of determining the maintenance of the pedological characteristics of the soils during the restoration phase, in order to identify (if necessary) any corrective action such as fertilization, harrowing, ploughing, etc.

Sampling in 2021 confirmed the absence of potential soil contamination relating to both the construction phases and the current operating phase.

The next monitoring campaign will be conducted in 2024.

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Figure 6.29: On-shore soil quality monitoring

6.9.11. Atmosphere and air quality

The monitoring of air quality in the PRT area is carried out by comparing the data relating to the atmosphere in the operational phase with those recorded ante-operam, in order to identify and report any exceedance according to the current legislation and manage it, if necessary, in agreement with the supervisory bodies.

The air quality monitoring is conducted both throughout continuous monitoring and discontinuous monitoring.

The continuous monitoring consists in the continuous analysis of air quality component through a mobile laboratory installed at a location name 'AQ8n' (see picture) for the determination of the concentration of:

-  Particulate matter (PM10 and PM2.5), with collection of daily data;
-  Carbon monoxide (CO), with collection of hourly data;
-  Nitrogen dioxide (NO2), with collection of hourly data;
-  Sulphur dioxide (SO2), with collection of hourly data;
-  Ozone (O3), with collection of hourly data.

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Figure 6.30: On-shore continuous air quality monitoring sites (Ref. 21)

The average of the daily concentrations measured in each monitoring campaign of 2021 and in the first semester of 2022 is reported here below. The average concentrations are always lower than the legal limit established by the Legislative Decree 155/2010.

Table 6.15: Results of continuous air quality monitoring campaigns carried out in 2021 and in the first semester of 2022

Air Quality – CONTINUOUS MONITORING

	Limit Value	03-2021	04-2021	05-2021	06-2021	07-2021	09-2021	10-2021	11-2021	03-2022	06-2022
Particulate matter PM10 µg/mc	40	19,70	17,90	21,60	39,10	30,40	22,60	16,30	19,60	27,40	32,20
Particulate matter PM2,5 µg/mc	25	16,00	13,70	12,80	22,00	19,70	12,40	10,10	12,30	19,50	14,70
Carbon monoxide (CO) mg/mc	10	0,36	0,30	0,35	0,37	0,30	0,68	1,00	1,58	0,23	0,37
Nitrogen dioxide (NO2) µg/mc	40	21,40	32,40	15,60	17,70	23,60	5,40	5,00	4,30	6,40	5,30
Sulphur dioxide (SO2) µg/mc	20	3,70	4,10	5,10	3,90	3,90	4,50	4,50	6,60	0,20	<0,05

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Air Quality – CONTINUOUS MONITORING

	Limit Value	03-2021	04-2021	05-2021	06-2021	07-2021	09-2021	10-2021	11-2021	03-2022	06-2022
Ozone (O₃) µg/mc	120	75,00	79,10	83,20	85,00	85,80	67,00	53,70	49,90	70,50	76,00

The discontinuous monitoring activities of the air quality component is performed using passive samplers at monitoring point AQ5n, AQ6n, for the determination of the concentration of:

-  NO₂ concentration, though monthly passive sampling using the Radiello® sampler
-  PM₁₀ (as atmospheric dusts) concentration, though monthly passive sampling by means of a depo-bulk type deposimeter;
-  carbon monoxide (CO) instant measurements of the concentration, at the start, at the middle and at the end of the measurement campaign.



Figure 6.31: On-shore discontinuous air quality monitoring sites (Ref. 21)

The concentrations measured in each monitoring campaign of 2021 and in the first semester of 2022 are reported here below. The concentrations are always lower than the legal limit established by the

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Legislative Decree 155/2010. About dust, according to the classification of Law 615/66, (5 classes for 30-day sampling), the dust monitored on site is very low, falling into class I, that means a condition of “practically absent dust” (less than 100 µg/m³).

Table 6.16: Results of discontinuous air quality monitoring campaigns carried out in 2021 and in the first semester of 2022

Air Quality – DISCONTINUOUS MONITORING

	Limit value	Sampling point	Post operam quarters			
			II-2021	III – 2021	IV – 2021	V – 2022
Nitrogen dioxide (NO₂) µg/mc	40	AQ5n	7,70	6,00	4,40	3,60
		AQ6n	4,90	4,00	4,10	3,90
Deposited Atmospheric dust µg/mc		AQ5n	19,00	21,00	22,00	4,90
		AQ6n	21,00	22,00	15,00	23,00
Deposited Carbon monoxide (CO) mg/mc	10	AQ5n	N.D.	<1,6	<2,3	<2,3
		AQ6n	N.D.	<1,6	<2,3	<2,3

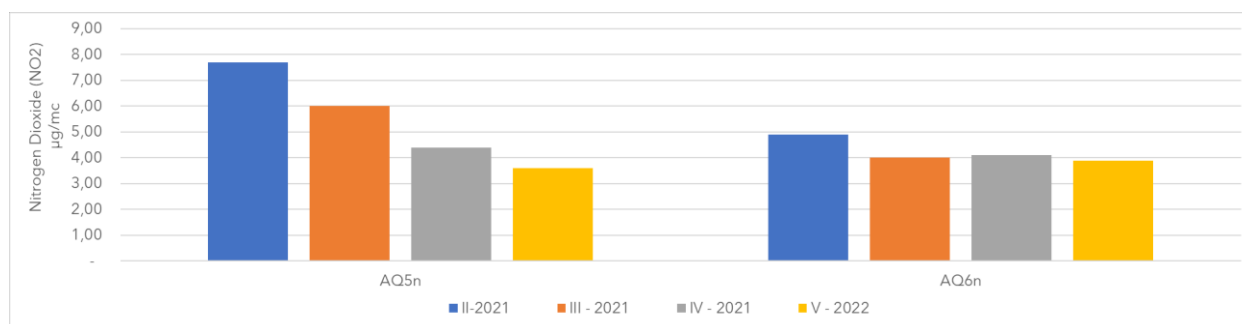


Figure 6.32: Results of the discontinuous monitoring campaigns of Nitrogen Dioxide carried out in 2021 and in the first semester of 2022

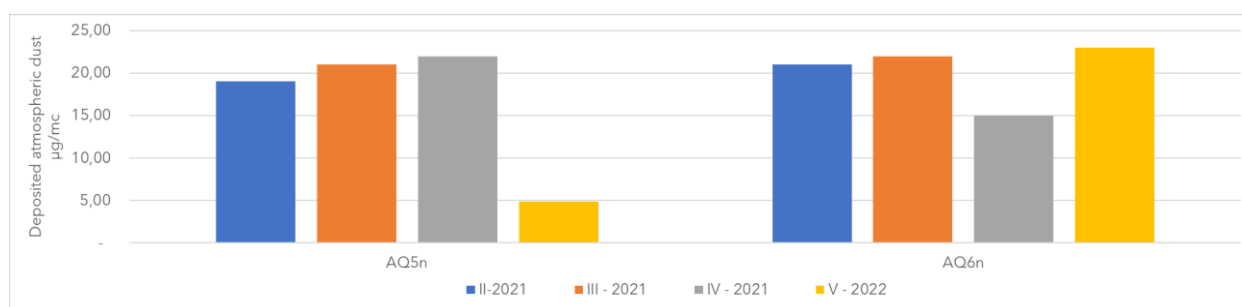


Figure 6.33: Results of the discontinuous monitoring campaigns of deposited atmospheric dust carried out in 2021 and in the first semester of 2022

For a comparison with ante-operam conditions, the table below reports the outcome of continuous monitoring activities performed by TAP in 2017 in correspondence of two mobile stations located at

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sampling points MS and AQ8 as per Figure 6.34 below and monitoring PM10, PM2,5 CO, NO2 and Benzene.

Figure 6.34 shows also the location of passive samplers monitoring sites (points from AQ3 to AQ7). The outcomes of ante-operam discontinuous air quality monitoring activities with passive samplers are not reported in the table below and can be found in the “Ante Operam air quality monitoring Reports” (Ref. 22).

Table 6.17: Results of Ante-Operam continuous air quality monitoring performed in 2017

Air Quality – ANTE OPERAM

		Limit value	Sampling point	01-2017	02-2017	03-2017	04-2017
Particulate matter PM10 µg/mc	Polveri sottili PM10 µg/mc	40	MS	18.00	27.00	17.00	22.00
			AQ8	16.00	16.00	13.00	12.00
Particulate matter PM2,5 µg/mc	Polveri sottili PM2,5 µg/mc	25	MS	11.00	15.00	11.00	12.00
			AQ8	9.00	9.00	8.00	8.00
Carbon monoxide (CO) mg/mc	Monossido di carbonio (CO) mg/mc	10	MS	1.20	1.60	2.10	2.97
			AQ8	1.20	1.40	0.80	0.45
Nitrogen dioxide (NO2) µg/mc	Biossido di azoto (NO2) µg/mc	40	MS	6.70	2.90	2.10	1.10
			AQ8	9.00	7.20	5.10	2.90
Benzene µg/mc	Benzene µg/mc	5	MS	0.90	0.80	0.90	0.70
			AQ8	0.90	0.90	0.80	1.10

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Figure 6.34: Location of mobile stations (MS, AQ8) for ante-operam continuous air quality monitoring activities (Ref. 22)

The comparison between ante-operam and post-operam air quality data show that the air quality in the PRT area does not seem to be affected both by Project (construction activities) and by the operation of TAP facilities (PRT in particular). In particular, the following figures show the comparison between the AO monitoring data recorded at the AQ8 monitoring location and the PO data recorded at the AQ8n monitoring location. On the other hand, the MS monitoring point was not considered, as it is representative of the microtunnel construction area, not subject to air quality monitoring in the PO.

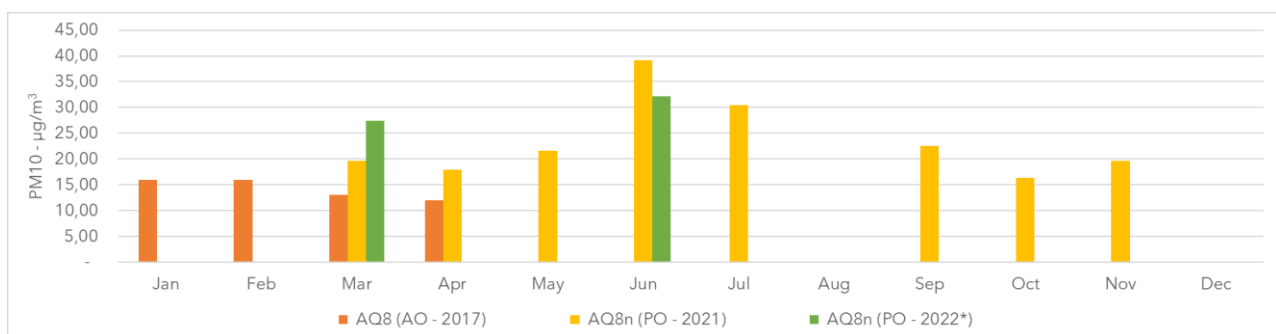


Figure 6.35: Comparison between PM10 Ante Operam (AO) and Post Operam (PO) monitoring at continuous monitoring points

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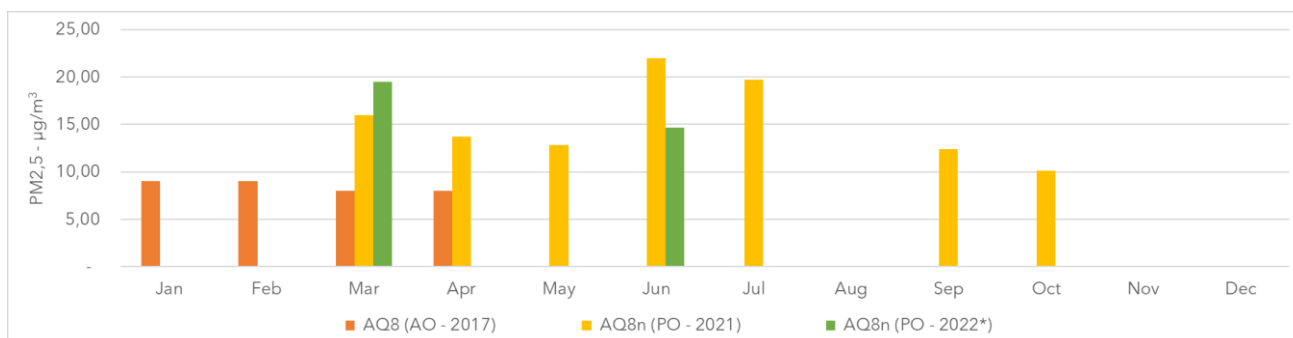


Figure 6.36: Comparison between PM2.5 Ante Operam (AO) and Post Operam (PO) monitoring at continuous monitoring points

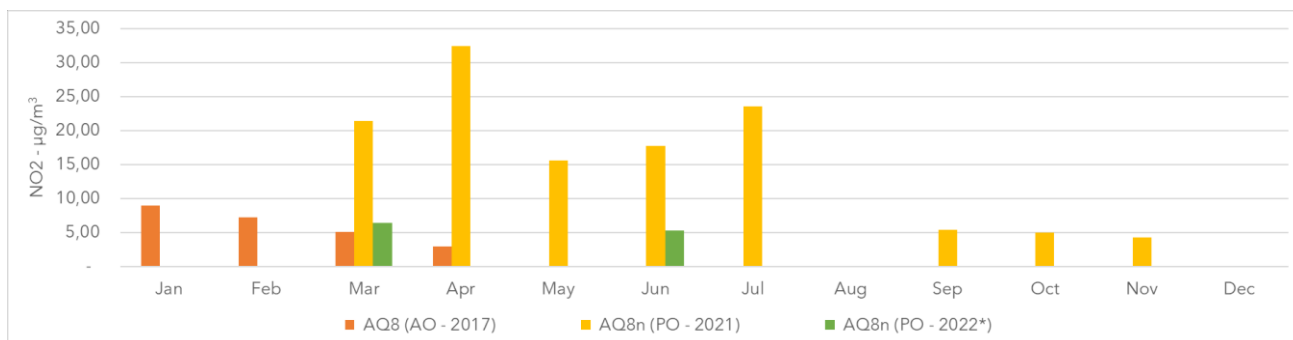


Figure 6.37: Comparison between NO2 Ante Operam (AO) and Post Operam (PO) monitoring at continuous monitoring points

6.9.12. Noise

Noise emissions expected during PRT's operation are connected to the continuous operation, both during day and night, of the various process units and in particular of the following components:

-  measuring stations;
-  shut-off valves;
-  control valves;
-  filters;
-  heat exchangers;
-  generators.

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The acoustic climate is monitored though:

-  1 continuous monitoring station (N3n) in correspondence with the receptor closest to the PRT (Masseria Capitano, about 470 m away), potentially subject to the highest levels of noise during PRT's operation;
-  4 discontinuous monitoring point (N2n, N1, N11n, N12n).

The structures located at the Brindisi site (BSCC) are not subject to specific requirements on the monitoring and management of noise and the acoustic climate.

The results of the continuous noise monitoring are reported here below, and in particular the equivalent sound pressure level (LeqA) during day-time (06:00-22:00) and night-time (22:00-06:00).

The data collected show compliance with the regulatory limits applicable for both temporalities.

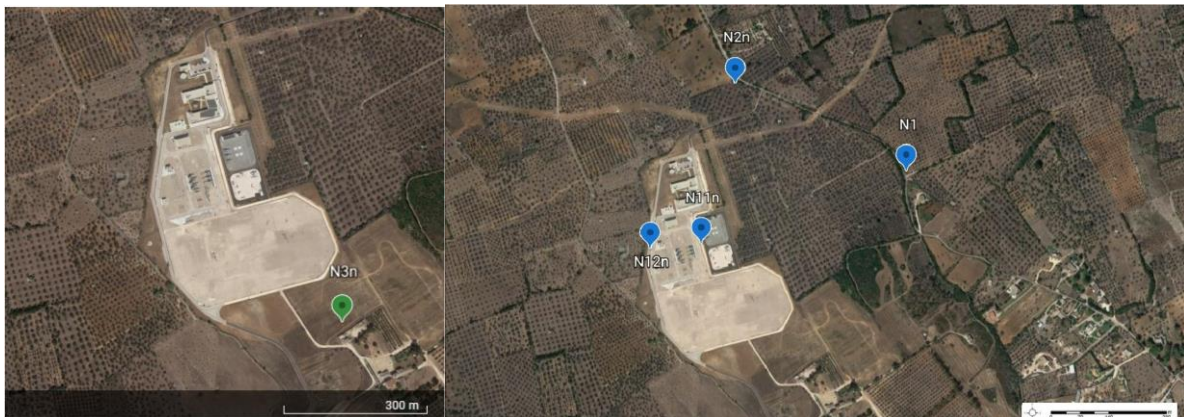


Figure 6.38: Location of continuous (left) and discontinuous (right) noise monitoring points

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Table 6.18: Results of continuous noise monitoring (point N3n) carried out in 2021 and in the first semester of 2022

Noise – CONTINUOUS MONITORING

	Night	Day
Limit value	60	70
01-2021	55,5	46,5
02-2021	59,5	43,0
03-2021	51,0	41,0
04-2021	44,5	34,5
05-2021	46,5	33,0
06-2021	47,5	42,0
07-2021	47,0	53,5
08-2021	46,1	51,8
09-2021	47,0	49,0
10-2021	44,0	47,0
11-2021	43,0	52,0
12-2021	40,0	43,5
01-2022	41,0	51,0
02-2022	42,6	46,5
03-2022	37,5	42,0
04-2022	37,0	45,5
05-2022	35,5	46,5
06-2022	39,5	47,0

(*) Given the absence of an Acoustic Zoning Plan in the Municipalities of Melendugno and Vernole, the noise limits in force are those established by the DPCM 01/03/91.

The results of discontinuous noise monitoring are reported here below, and in particular the equivalent sound pressure level (LeqA) during day-time (06:00-22:00) and night-time (22:00-06:00).

The data collected are always compliant with the applicable regulatory limits.

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Table 6.19: Results of discontinuous noise monitoring carried out in 2021 and in the first semester of 2022

Noise – DISCONTINUOUS MONITORING

	Point	Limit value	02-2021	03-2021	05-2021	09-2021	05-2022
Day	N1	70	39,8	50,5	41,0	45,5	48,0
Night		60	26,5	46,0	34,5	43,0	41,0
Day	N2n	70	41,4	40,5	47,5	51,5	41,0
Night		60	31,8	31,5	32,5	30,0	43,5
Day	N11n	70	75,3	46,5	47,5	49,0	49,5
Night		60	41,7	38,5	42,5	44,5	43,0
Day	N12n	70	44,9	44,0	44,0	53,5	44,5
Night		60	38,4	43,0	40,0	52,0	42,5



Figure 6.39: Noise monitoring station

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7. ENVIRONMENTAL OBJECTIVES

7.1 GHG EMISSIONS REDUCTION

Although TAP has already implemented several emission reduction initiatives during the design and construction phases, it has committed, as part of the Environmental Monitoring Project, to implement an annual monitoring plan for Methane Fugitive Emission and Green House Gases as well as TAP has to develop a 2022-2025 Carbon Management Plan in 2022 as part of a broader Short to Medium Energy Transition Roadmap that will implement the following actions:

-  reduction of direct CO₂ emissions with various initiatives focused on energy efficiency;
-  reduction of methane emissions through the Methane Emissions Reduction Plan, where interventions are identified to combat fugitive emissions, vents or incomplete combustion;
-  optimization of electricity consumption and promotion of the use of renewable energies;
-  interventions to reach the OGMP2.0 gold standard.

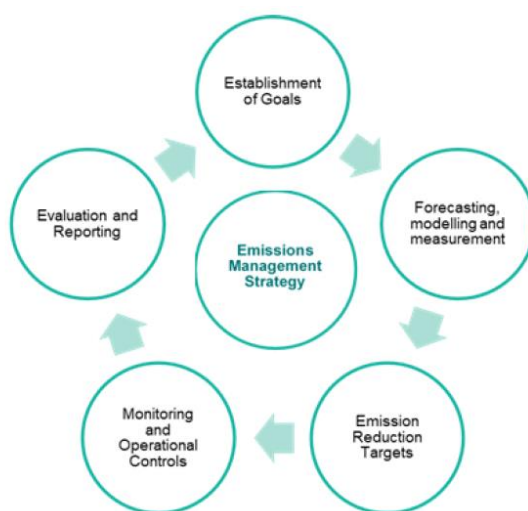


Figure 7.1: Emissions Management Strategy

In particular, the **fugitive emissions management process** will develop in three phases:

-  **Year 1** – Detailed Fugitive Emissions Survey and Target Setting;
-  **Year 2** – Target Setting and Testing and Emissions Reductions Opportunities
-  **Year 3** and later – Monitoring of Agreed Targets.

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A detailed survey on fugitive emissions has been conducted in 2021 (document n. AL00-C37145-601-Y-TRY-0001, called “*HLDAR Campaign 2021 results report (measurement and quantification of fugitive emissions) in TAP facilities (Italy) for Enagas Services Solutions, S.L.U.*”), which involved direct measurements at PRT and BVS sites.

A total of n. 59 components (58 after 1 parallel repair) with associated fugitive emissions were identified at the PRT. No leaks were found at the BVS instead. Total fugitive emissions for the 2021 campaign have been quantified at about 17,9 tCH₄ / year (~37% of total greenhouse direct gas emissions for the same year).

At the time being, n. 53 of the above-mentioned leaks have already been addressed (52 by performing dedicated repairs with complete elimination of the fugitive emission, 1 confirmed to be part of PRT normal process conditions).

The remaining fugitive emissions will require the following type of actions planned to be addressed in October 2022:

-  Complete or Partial Shutdown of the interested system;
-  Depressurisation of the interested system;
-  Complete replacement of the leaking valve.

The three steps approach identified above allowed to set the following targets in terms of fugitive emissions reduction for TAP Italia.



Figure 7.2: TAP Italia – Methane Fugitive Emissions Reduction Target

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The following table summarizes the improvement objectives, with an indication of the related planned actions, the budget and the hours required with regard to:

-  The reduction of methane gas emissions discussed above;
-  The overall reduction of greenhouse gas emissions, expressed in terms of CO2 equivalent (within a range of no less than 5% in the three-year period 2022-2024).

All the above-mentioned objectives are aligned with TAP AG Energy Transition Strategy, which sets up the pathway toward transformation of the global energy sector from fossil-based to zero-carbon emissions, having at its heart the need to reduce energy-related CO2 emissions to limit climate change (Ref. 25).

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Table 7.1: TAP Italia's improvement objectives to reduce greenhouse gas emissions (three-year period 2022-2024)

ENVIRONMENTAL ASPECT	OBJECTIVE	MONITORING PARAMETER	REFERENCE YEAR (2021)	2022	2023	2024	PLANNED ACTIONS TO BE IMPLEMENTED (*)	RESPONSIBLE	Budget/Man Hours required (*)
GHG EMISSIONS	Methane Emissions Reduction	Amount of methane fugitive emissions (expressed in t CH ₄)	17,89 tCH ₄ (in 2021)	-50% (vs 2021)	-28% (vs 2022)	-8% (vs 2023)	- Optimize testing control and scheduling to minimize related emissions. - Design features to reduce methane emissions, such as the use of low-emission flange joints and control valve gland. - Operational measures such as a proactive repair, maintenance and replacement program. - Leak Detection And Repair (LDAR) Program of fugitive emissions. - Use of portable recompressor unit to reduce/avoid methane from vents operations during maintenance activities in order to reduce/avoid methane emissions from planned blowdown in 2022 in PRT (short-terms) and for any venting activity planned at transmission network of	Operation Department (O&M Manager, O&M Engineers) QHSE Department	230K Budget planned: - Use of portable recompressor unit to reduce/avoid methane venting from planned blowdown in 2022 in PRT (short-terms): 180k - Leak detection (LDAR) and reporting of fugitive emissions and GHG emissions: 30K - Maintenance and operational activities for emission reducing: 20K 1500 Man/hours forecasted (e.g. analysis, monitoring and maintenance)

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ENVIRONMENTAL ASPECT	OBJECTIVE	MONITORING PARAMETER	REFERENCE YEAR (2021)	2022	2023	2024	PLANNED ACTIONS TO BE IMPLEMENTED (*)	RESPONSIBLE	Budget/Man Hours required (*)
GHG EMISSIONS	CO2 Emissions Reduction	Amount of CO2 emissions (Scope 1 + Scope 2) expressed in t CO2eq)	1.963,61 tCO2eq (in 2021)	Improving of the performance on a not less range of 5% (vs 2021)			compressor stations (long-terms). - monitoring and reporting of greenhouse gas (GHG) emissions to support energy efficiency performance improvements. - Perform a Gap Analysis and implement relevant Action Plan for achieving OGMP Level 2 (2022), Level 3 (2023) and Level 4 (2024) - analysis and implementation (if applicable) of the substitution of diesel car fleet for electrical/natural gas vehicles and evaluate installation of charging points at the stations and TAP facilities.	Operation Department (O&M Manager, O&M Engineers) QHSE Department	230K Budget planned: - Use of portable recompressor unit to reduce/avoid methane venting from planned blowdown in 2022 in PRT (short-terms): 180k - Leak detection (LDAR) and reporting of fugitive emissions and GHG emissions: 30K - Maintenance and operational activities for emission reducing: 20K 1500 Man/hours forecasted (e.g. analysis, monitoring and maintenance)

(*) The planned actions and the required budget/man hours are common for the identified improvement objectives.

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7.2 ELECTRICITY CONSUMPTION REDUCTION

The following table shows TAP Italia's improvement objective, with an indication of the related planned actions, the budget and the hours required in order to achieve a performance maintenance/ improvement objective over a range of 10% of annual electricity consumption.

Table 7.2: TAP Italia's improvement objective to contain electricity consumption (three-year period 2022-2024)

ENVIRONMENTAL ASPECT	OBJECTIVE	MONITORING PARAMETER	REFERENCE YEAR (2021)	2022	2023	2024	PLANNED ACTIONS TO BE IMPLEMENTED	RESPONSIBLE	Budget/Man Hours required
ELECTRIC ENERGY CONSUMPTION	Electric energy consumption reduction	Annual consumption of electric energy (kWh)	1.888.368,10 kWh	Maintaining/improving of the performance on a range of +/- 10% (vs 2021)			- Perform Energy Audit in compressor stations and pipeline receiving terminal according to EU Energy Efficiency Directive with the purpose of obtaining adequate knowledge of the existing energy consumption profile and identifying and quantifying cost-effective energy savings opportunities. - Analysis of implementation of ISO 50001 - Awareness campaign to all employees to switching off all electrical equipment (including it equipment, air conditioning, coffee machines, etc.) and lighting wherever premises and equipment is not in use (e.g., when leaving the office for lunch or attending	Operation Department (O&M Engineers) QHSE Department (QHSE Officer) Security Department (Security Services CTR)	102K Budget forecasted: - substitution of current bulbs with more efficient ones (LED): 80K - disabling further changes to thermostat controls: 2K - Define and implement (if practicable) the possibility to use the backup line to provide cold water: 20K 400 Man/hours forecasted (e.g. audit, analysis, monitoring and awareness campaign)

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ENVIRONMENTAL ASPECT	OBJECTIVE	MONITORING PARAMETER	REFERENCE YEAR (2021)	2022	2023	2024	PLANNED ACTIONS TO BE IMPLEMENTED	RESPONSIBLE	Budget/Man Hours required
							meetings, end of shifts and during leave and public holidays); - awareness campaign to security guards to walk through the premises at the end of working days to ensure non-essential lighting is switched off; - setting temperature limits (19/20 degrees for winter period and 25/26 degrees for summer period) and disabling further changes to thermostat controls where heating/cooling in individual premises can be controlled by a thermostat; - Define and implement (if practicable) the possibility to use the backup line located in the Boiler House building in PRT to provide cold water instead of the heating pumps during the hot season to the Administration, workshop and security buildings, cooling down the water using the process gas; - implement a plan for substitution of current bulbs with more efficient ones (LED); - Mandating that all new replacement lighting is energy efficient. "		

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7.3 WATER CONSUMPTION REDUCTION

The table below shows TAP Italia's improvement objective, with an indication of the related planned actions, the budget and the hours required in order to achieve a performance maintenance/improvement objective over a range of 5% of annual water consumption.

Table 7.3: TAP Italia's improvement objective to contain water consumption (three-year period 2022-2024)

ENVIRONMENTAL ASPECT	OBJECTIVE	MONITORING PARAMETER	REFERENCE YEAR (2021)	2022	2023	2024	PLANNED ACTIONS TO BE IMPLEMENTED	RESPONSIBLE	Budget/Man Hours required
WATER CONSUMPTION	Water consumption reduction	Annual water consumption (mc)	2.907 mc	Maintaining/improving of the performance on a not less range of +/- 5% (vs 2021)			- Perform a Gap Analysis and implement relevant Action Plan (if applicable) in order to identify the measures to reduce the water consumption in TAP facilities with reference to the irrigation sources of the grass areas, the fire fighting system refilling as well as any possible recovery of the rainwater from roofs of buildings. - Awareness campaign to all employees on water saving (eg. do not let water flow from the tap unnecessarily, use dishwashers only when fully loaded, optimize the use of running water and use, where possible, recycled water, placing reminder stickers to switch taps off). - Implement operational measures such as check that there are no leaks in the systems and implement a proactive repair, maintenance and replacement program	Operation Department (O&M Manager, O&M Engineers) QHSE Department (QHSE Officer)	250 Man/hours forecasted (e.g. analysis, monitoring and awareness campaign, maintenance)

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7.4 WASTE REDUCTION

The following table shows TAP Italia's improvement objective, with an indication of the related planned actions, the budget and the hours required in order to achieve a performance maintenance/improvement objective over a range of 5% of annual waste production.

Table 7.4: TAP Italia's improvement objective to contain waste production (three-year period 2022-2024)

ENVIRONMENTAL ASPECT	OBJECTIVE	MONITORING PARAMETER	REFERENCE YEAR (2021)	2022	2023	2024	PLANNED ACTIONS TO BE IMPLEMENTED	RESPONSIBLE	Budget/Man Hours required
WASTE PRODUCTION	Waste production minimization / reduction	Amount of total and hazardous waste produced (kg)	3.244 kg TOT. (71 kg hazardous)	Maintaining/improving of the performance on a not less range of +/- 5% (vs 2021)			- Awareness campaign to discouraging employees from printing documents; - Applying double-sided printing mode on network and individual printers and scanners; - Offsite refill of empty cartridges; - Provision of durable ceramic or plastic cup/mugs and glasses to reduce the use of disposable cups in order to discontinue the use and the procurement of disposable tableware and food containers, and provision of reusable alternatives; - Provision of drinking water in dispensers as opposed to plastic bottles; - Reuse of wooden and cardboard packaging on site or segregating for offsite recycling; - Provision of dispensers for hand soap, sanitisers, detergents and disinfectants as opposed to small disposable plastic containers	QHSE Department (QHSE Officer)	5K Budget forecasted 100 Man/hours forecasted (e.g. awareness campaign)

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7.5 AIR EMISSIONS (INDIRECT) REDUCTION

The following table shows TAP Italia's improvement objectives, with an indication of the related planned actions, the budget and the hours required in order to achieve a performance maintenance/improvement objective over a range of 5% of atmospheric emissions through indirect measures.

Table 7.5: TAP Italia's improvement objectives to contain atmospheric emissions through the adoption of indirect measures (three-year period 2022-2024)

ENVIRONMENTAL ASPECT	OBJECTIVE	MONITORING PARAMETER	REFERENCE YEAR (2021)	2022	2023	2024	PLANNED ACTIONS TO BE IMPLEMENTED	RESPONSIBLE	Budget/Man Hours required
AIR EMISSIONS (indirect)	Air emissions reduction from vehicles	CO ₂ eq emissions avoided using electric vehicles (t)	NA	Maintaining/improving of the performance on a not less range of +/- 5% (vs 2021)			- Perform a Gap Analysis and implement relevant Action Plan (if applicable) for the provision of photovoltaic charging point in parking areas, in order to incentivize the use of electric vehicles for displacements; - Mandating that all site vehicles and equipment are subject to preventive periodic maintenance.	Operation Department (O&M Manager, O&M Engineers) QHSE Department (QHSE Officer)	50K Budget forecasted 200 Man/hours forecasted (e.g. awareness campaign)
	Air emissions reduction from defective / malfunctioning equipment	Number of defective / malfunctioning equipment reports addressed	NA	Maintaining/improving of the performance on a not less range of +/- 5% (vs 2021)			- Awareness campaign of the personnel to report defective and malfunctioning equipment to QHSE officer or designated O&M Contractor person	QHSE Department (QHSE Officer)	50 Man/hours forecasted (e.g. awareness campaign)

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7.6 MONITORING OF NEW INDICATORS

Periodic monitoring of the following environmental aspects will be introduced, in order to quantify and verify the trend over time of key indicators currently not available for environmental declaration purposes and for a better analysis of the environmental performance of some of the direct environmental aspects managed by TAP.

Table 7.6: TAP Italia's improvement objectives relating to the monitoring of new indicators (three-year period 2022-2024)

ENVIRONMENTAL ASPECT	OBJECTIVE	MONITORING PARAMETER	REFERENCE YEAR (2021)	2022	2023	2024	PLANNED ACTIONS TO BE IMPLEMENTED	RESPONSIBLE	Budget/Man Hours required
NEW INDICATORS MONITORING	Monitoring of the following parameters:	Amount of water taken from the water network (mc)	NA	Maintaining/improving of the performance on a not less range of +/- 5% (vs 2021)			Monitor the amount of water taken from the water network with a monthly frequency	QHSE Department (QHSE Officer)	120 Man/hours forecasted (e.g. awareness campaign)
		Amount of water discharged at PRT site (mc)	NA	Maintaining/improving of the performance on a not less range of +/- 5% (vs 2021)			Monitor the quantity of civil waste water discharged on annual basis	QHSE Department (QHSE Officer)	40 Man/hours forecasted (e.g. awareness campaign)
		Amount of material consumed grouped by category (oil, grease, chemicals, spare parts, office material)	NA	Maintaining/improving of the performance on a not less range of +/- 5% (vs 2021)			Implement a system to monitor on an annual basis the main material consumed will be implemented. The materials will be grouped by category (oil, grease, chemicals, spare part, office material)	QHSE Department (QHSE Officer)	200 Man/hours forecasted (e.g. awareness campaign)
		Amount of energy produced / consumed by the PV plant at the PRT (kWh)	NA	Maintaining/improving of the performance on a not less range of +/- 5% (vs 2021)			Implement a system to monitor the quantity of energy produced and consumed by the photovoltaic plant at the PRT	QHSE Department (QHSE Officer)	150 Man/hours forecasted (e.g. awareness campaign)

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8. REFERENCES

<u>Ref. No.</u>	<u>Document Title / Source</u>	<u>Document Number</u>
1	Modello di Organizzazione Gestione e Controllo 231	IAL00-TAP-COL-X-TVO-0001, Rev. 2 – Appendix 1
2	TAP website: https://www.tap-ag.com/about-tap	-
3	TAP website: https://www.tap-ag.com/infrastructure-operation/how-tap-operates	-
4	TAP website: https://www.tap-ag.com/about-tap/taps-regulatory-compliance-programme	-
5	Environmental Review Report	IAL00-TAP-QHSE-Y-TRF-0001
6	QHSE Environmental Management System Manual	CAL00-TAP-QHSE-X-TMQ-0002
7	TAP website: https://www.tap-ag.com/sustainability/quality-health-safety-environment/integrated-qhse-management-system	-
8	Environmental and Social Management Manual	CAL00-TAP-QHSE-Y-TMT-0001
9	Quality, Health, Safety and Environmental (QHSE) Policy	CAL00-TAP-QHSE-X-TVO-0001
10	HSE Hazard – Impact and Risk Assessment Procedure	CAL00-TAP-QHSE-X-TPA-0016
11	TAP Italy Environmental and Social Impact Assessment	IAL00-ERM-643-Y-TAE-1011
12	ESIA Commitments Register	IAL00-PMT-601-Y-TLX-0001, Rev. 1
13	TAP Operations Environmental Standards Manual	CAL00-TAP-QHSE-Y-TMT-0002
14	Environmental Monitoring Project Italy	IAL00-ERM-643-Y-TAE-1028

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<u>Ref. No.</u>	<u>Document Title / Source</u>	<u>Document Number</u>
15	Nuovo Centro Elaborazione Dati con annessi Uffici e Servizi – Relazione Tecnico Descrittiva, Rev. 1	-
16	License to Operate (LTO) Level 2 Compliance Register Italy	IAL00-TAP-AMA-X-TLX-0001
17	License to Operate (LTO) Level 3 Compliance Register Italy	IAL00-TAP-AMA-X-TLX-0002
18	TAP Context Analysis – Risk Opportunities and Action Report	CAL00-TAP-QHSE-X-TRF-0005
19	HSE Legal Compliance Procedure	CAL00-TAP-QHSE-X-TPA-0020
20	Report sulle emissioni di gas serra per il 2021”, 20-04-2022	-
21	Post Operam Monitoring Reports of the “atmosphere” component	IAL00-C37052-601-Y-TRX- (+ Sequential Number of quarterly reports)
22	Ante Operam air quality monitoring Reports in compliance with prescription A.31) of D.M. No. 223 of 11/09/2014	IAL00-C5577-601-Y-TRS- (+ Sequential Number of quarterly reports)
23	QHSE – Communication Procedure	CAL00-TAP-QHSE-X-TPA-0014
24	QHSE Training Procedure	CAL00-TAP-QHSE-XTPA- 0006
25	TAP Carbon Management Plan 2022 - 2025	CAL00-TAP-QHSE-Y-TTA-0001
26	2022 QHSE Activity Plan and Programs and KPI's	CAL00-TAP-QHSE-X-TTA-0005
27	Pollution Prevention Procedure	CAL00-TAP-QHSE-Y-TPA-0001 – Appendix 2
28	(Hazardous Material Inventory)	CAL00-TAP-QHSE-Y-TPA-0007 - Appendix 5