IPTO SUSTAINABILITY REPORT 2023

ipto
INDEPENDENT POWER TRANSMISSION OPERATOR

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TRANSMISSION
OPERATOR

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Governance

Abbreviations

CIGRE	International Council on Large Electric Systems
DWDM	Dense Wavelength-Division Multiplexing
DWH	Data Warehouse
EAM	Enterprise Asset Management
ENTSO-E	European Network of Transmission System Operators for Electricity
ERP	Enterprise Resource Planning
ESG	Environment, Social, Governance
ETS	Emissions Trading System
FRR	Frequency Restoration Reserves
FTE	Full-time equivalent / Full-time Employee
GHG	Greenhouse Gases
GIS	Gas Insulated Switchgear
GIS	Gas Insulated Substation
GRI	Global Reporting Initiative
GSA	GeoSpatial Analysis
IoT	Internet of Things
IT	Information Technology
JAO	Joint Allocation Office
Med-TSO	Mediterranean Transmission System Operators
OT	Operational Technology
PMU's	Phasor Measurement Units
RSC	Regional Security Centre
SASB	Sustainability Accounting Standards Board
SDGs	Sustainable Development Goals
SEE CAO	Coordinated Auction Office in South East Europe
SEleNE CC	Southeast Electricity Network Coordination Center
SOC	Security Operations Center
VPN	Virtual Private Network
ZTA	Zero Trust Architecture

BoD	Board of Directors
ESGB	Environmental, Social and Corporate Governance Branch
FCO	Final Connection Offers
GC	Grid Code
GD AMM	General Division of Asset Management and Maintenance
GD HRLRA	General Division of Human Resources, Legal and Regulatory Affairs
HEDNO (DEDDIE)	Hellenic Electricity Distribution Network Operator
HEnEx	Hellenic Energy Exchange
HETS (ESMIE)	Hellenic Electricity Transmission System
HSB	Health & Safety Branch
HSMS	Health and Safety Management System
HVCs	High Voltage Centres
LRAD	Legal and Regulatory Affairs Department
NECP	National Energy and Climate Plan
NNGSO (DESFA)	National Natural Gas System Operator
NTPD	New Transmission Projects Department
PUs	Public Utilities
RES	Renewable Energy Sources
RESGOO (DAPEEP)	Renewable Energy Sources and Guarantees of Origin Operator
RTDD	Research, Technology and Development Department
S/S	Substation
SCD	Supply Chain Department
SI	Service Invoice
SOCD	System Operation and Control Department
SPAs	Special Protection Areas
TM	Transmission Lines
TSMD	Transmission System Maintenance Department
TYDP	Ten-Year Development Plan
WEWRA (RAAEY, former RAE)	Waste, Energy and Water Regulatory Authority (former Energy Regulatory Authority)

Message from the Chairman & CEO

Dear stakeholders,

We are pleased to present IPTO's fifth Sustainability Report for the year 2023, during which we were called to adapt to a constantly changing environment with multifaceted challenges.

The Electricity Transmission System was once again confronted with the climate crisis, marked by successive or simultaneous fires in Attica, Magnesia, Boeotia, Rhodes and Thrace, as well as unprecedented floods in Thessaly due to the Daniel and Elias storms, phenomena that caused serious damage to the network. However, IPTO, showing rapid reflexes, quickly restored them.

An important priority for the Operator is the adoption of appropriate measures for prevention and adaptation to climate change. Therefore, we continued taking a holistic approach to physically shielding the System. We proceeded with the implementation of the asset renewal programme totalling €200 million and carried out extensive inspections of transmission lines and pylons. We intensified works on fire prevention, fire and flood protection of substations and HVCs, and installed monitoring mechanisms for installations and critical parts of the System's circuits.

Furthermore, 2023 was a year that saw significant progress in the green energy transition as 57% of the electricity consumed came from renewable energy sources and hydroelectric plants, thus having a low carbon footprint. With regards to renewables, the share of wind and solar power generation increased to 48%, compared to 42% in the previous year, while production from fossil fuel plants decreased (by 19.2% in lignite plants and by 18.5% in gas plants).

The key to realising this "green leap" was also IPTO's successful response both in managing unpredictable and dispersed renewable generation and in the rapid integration of new RES into the electricity system. IPTO's role however is also critical regarding infrastructure. Through investments of up to €5.7 billion over the next decade, last year we rapidly and consistently advanced the development and modernisation of the electricity system.

The international and domestic interconnection projects being implemented or planned by the Operator not only contribute to the further penetration of renewable sources in the country's energy mix, but also promote a key objective of the national energy strategy: to make Greece an exporter of clean electricity to Central Europe and the wider region.

In this vein, we electrified the second interconnection with Bulgaria and completed the feasibility studies on the Greece-Italy enhancive interconnection. Additionally, we entered into a Shareholders' Agreement with Saudi Electricity Company's National Grid SA for the establishment of the Saudi Greek Interconnection SA joint venture aimed at developing a new interconnection in the Eastern Mediterranean and Middle East region between Greece and Saudi Arabia. Prominent in the international interconnection programme is the Greece-Cyprus-Israel interconnection, implemented by IPTO through its subsidiary Great Sea Interconnector, which was established in 2023.

Concerning domestic projects, our subsidiary Ariadne Interconnection completed one of the most important construction milestones of the Crete-Attica electrical interconnection: the laying and installation of all the 500kV Extra High Voltage submarine cables with direct current technology.

In Western Greece, we commissioned the new 400kV Megalopoli-Patras-Western Central Greece Transmission Line, which connects for the first time the Peloponnese with the High Voltage System in the rest of the country. We also "plugged in" the upgraded 150kV High Voltage interconnections between Aktio and Preveza and Kyllini-Zante.
In line with the national and European target for climate neutrality by 2050, we follow the strategic axes of the revised National Energy and Climate Plan and redesign the expansion of the System in the long term, creating electrical space not only for the needs until 2030, but also with a horizon until 2040 and 2050.

As part of its digital transformation, in 2023 IPTO completed the installation and operation of the System's first 70 telecommunications nodes throughout mainland and insular Greece. This project ensures reliable communication of our information systems and electrical infrastructure (substations and HVCs) with the Energy Control Centres, providing several other services, such as the collection of energy measurements that are essential to the electricity market.

We also paid special attention to the System's cybersecurity by adopting state-of-the-art technologies, holding staff trainings and implementing collaborations with other Operators and digital security experts.

At the heart of all these achievements lies the dedication and high-level expertise of our people working in the field, in our offices and at our facilities across the country. Another vehicle for enhancing our people's education and training is now IPTO's new Training Centre, which was launched in 2023. It aims at upgrading our employees' skills and passing on the knowledge accumulated by the Operator so that our human resources are able to respond optimally to the demanding projects envisaged in our investment programme.

As part of actively promoting an inclusive, fair and safe working environment, last year we implemented the Gender Equality and Diversity Inclusion Policy along with the Policy for the Prevention and Combating of Violence and Harassment in the Workplace, with the latter incorporating a complaints mechanism for reporting equality concerns, discrimination, violence and harassment in the workplace.

Furthermore, we remain committed to supporting local communities through actions and sponsorships. Among other things, we made donations to the General Hospitals of Thessaly to address the emergencies following the devastating floods caused by the Daniel and Elias storms, as well as donations for fire prevention and suppression in municipalities of Attica.

Our commitment to sustainable development remains an integral part of our vision and strategy. In an era where the climate crisis impacts are becoming all the more visible and with social and legislative pressure for transparency in business activity increasing, the need to integrate sustainability criteria into our modus operandi becomes imperative.

In response to this constantly changing landscape, and in cooperation with all stakeholders involved, we operate responsibly and respectfully towards people and the environment, creating value for shareholders, consumers and society as a whole.

Manos Manousakis
Chairman and CEO

At a Glance

13,671km

Total length of transmission lines and cables

12,053km
Overhead Transmission Lines
400kV 150kV 66kV

1,617km
Underground and Submarine Cable Lines
150kV 400kV 66kV

4,753km
Fibre optic network
Land and submarine

359
Substations with IPTO assets
150kv
20kV

22
High Voltage Centres (HVCs)
400kV
150kV

2,085
employees (IPTO Group) in 2023

€5.7 bil.
in investment until 2030

Partici-pation
in 17 European research programmes

€283 mil.
social product in 2023

18,907
training hours in 2023

37%
of women in positions of responsibility

€5.34 mil.
our social contribution in 2023

€6.7 mil.
for the renewal of the System's assets in 2023

48%
share of RES in the energy mix

16.8%
increase of newly installed capacity from RES in 2023

€0.7 mil.
expenditure for fire protection in 2023

Operation
of IPTO's new Training Centre

Map of the Hellenic Electricity Transmission System

Existing Transmission Line

Important projects to be constructed by 2027

Crete-Attica interconnection
South and West Cyclades interconnection
400kV System expansion in the Peloponnese
Reconstruction of the Koumoundourou HVC

Important projects planned by 2033

Dodecanese interconnection
Northeast Aegean interconnection
New 400kV TL Philippi – Nea Santa
Thesprotia HVC and connection to the 400kV System
New Greece – Albania interconnection
New Greece – Italy interconnecton
New Greece – Turkey interconnection

The IPTO Group

IPTO is in charge of the operation, control, maintenance and development of the HETS to ensure the country's electricity supply in an adequate, secure, efficient and reliable manner.

Our role as the Hellenic Electricity Transmission System Operator

According to the Greek legislation, IPTO (Independent Power Transmission System Operator SA) is the Operator of the Hellenic Electricity Transmission System (HETS). The Group, apart from the parent company, includes the subsidiaries ARIADNE INTERCONNECTION SA, GRID TELECOM SA and GREAT SEA INTERCONNECTOR SA, and is headquartered in Greece.

IPTO is in charge of the operation, control, maintenance and development of the HETS in order to ensure the country's electricity supply in an adequate, secure, efficient and reliable manner, as well as the operation of the Balancing Market and cross-border trade in accordance with the principles of transparency, equality and free competition. In addition, IPTO ensures the long-term ability of the System to meeting the needs for the transmission of electricity under economically viable conditions, taking also into account the protection of the environment.

In this context, and given IPTO's pivotal role as the Operator of the country's Electricity Transmission System, all necessary measures have been taken and all necessary procedures have been set up to safeguard its independence and strict observance to the principle of equal treatment for all System Users and Stakeholders in the Electricity Market. In addition, IPTO's operation is based on transparency and respect for the principle of confidentiality in regard with the information it manages, where required.

Operation of the Hellenic Electricity Transmission System

The mission of the HETS is the smooth, safe and uninterrupted transmission of electricity from power plants (conventional or RES) to the points of consumption (urban centres, industries, etc.).

As large-scale power plants are usually located far away from urban centres, and in order to transmit electricity in the most optimal and efficient way, the voltage is raised to 400kV and 150kV levels at the substations connecting the Power Plants so that energy is transmitted through high and ultra-high voltage transmission lines to:

1.

the high-voltage substations of the selected Customers or

2.

the substations connected to the Hellenic Electricity Distribution Network (HEDN) where voltage is decreased to medium (20kV) level. Distribution lines start from these substations and end at the distribution substations, where medium voltage is further reduced to low (220/380V), which is the voltage level used by most consumers.

International interconnections

The Hellenic System operates synchronously and in parallel with the interconnected European System under the ENTSO-E's overall coordination. The parallel operation of the Greek with the European System is achieved through interconnecting transmission lines (of mainly 400kV) with the Systems of Albania, Bulgaria, North Macedonia and Turkey. Moreover, the Greek System is connected asynchronously through a 400kV DC submarine link with Italy.

The Transmission System at the end of 2023 included, among others, 13,671km of transmission lines and 359 substations with an installed capacity from RES of 16,238* MW.

Table 1.1: The Hellenic Electricity Transmission System in numbers

Overhead Transmission Lines (km)	400kV, DC 400kV, 150kV & 66kV	12,053km
Underground and Submarine Cable Lines (km)	400kV, 150kV & 66kV	1,617km
Substations with IPTO assets	150kV/20kV	359
High Voltage Centres (HVCs)	400kV/150kV	22
Fibre optic network (km)	Land and Underwater	4,753km

IPTO carries out its role as the HETS Operator in line with the Grid Code, which defines the terms, procedures, specifications and requirements for the operation and management of the electricity transmission system.

* It refers to the installed capacity from RES, CHP, HEPs and THPs

More specifically, the HETS Grid Code typically regulates:

1. The technical specifications for the design, operation and maintenance of the System.
2. The planning procedure for the System's maintenance schedule.
3. The requirements for applying for access to the System, the necessary supporting documents and the minimum technical and functional specifications for access to the System.
4. The HETS electricity absorption obligations for adequate capacity assurance in the System and how these obligations are fulfilled.
5. The terms and procedure to be followed by the Transmission System Operator for the conclusion of contracts.
6. The type and minimum content of contracts on the connection of power stations to the System and any other relevant matter.
7. The procedures for the approval, inspection and delivery of projects concerning the connection of power stations to the System by licensed installation contractors.
8. The accounts to be maintained by the HETS Operator concerning costs arising from operating the HETS.
9. The out-of-court settlement procedure on disputes between Users and the HETS Operator.
10. The procedures applied and the transactions carried out by the HETS Operator for the estimation and allocation of long-term and short-term transmission capacity to Stakeholders at the borders between the bidding zones.
11. Any other necessary arrangement for the proper, safe and efficient operation of the System.

The Group's activities

Key information

The IPTO Group consists of the parent company ADMIE (IPTO) SA and subsidiaries ARIADNE INTERCONNECTION SA and GRID TELECOM SA, headquartered in Athens, at 89, Dyrrachiou Street and Kifissou Ave. The incorporation of the special-purpose vehicle GREAT SEA INTERCONNECTOR SA was completed in 2004 for the construction and financing of the PCI 2.6 project of the Greece-Cyprus-Israel electricity interconnection, included in the 6th list of Projects of Common Interest of Europe.

ARIADNE INTERCONNECTION SA

ARIADNE INTERCONNECTION SA is a special purpose vehicle that was incorporated in September 2018 by IPTO for the sole purpose of constructing and financing the Crete-Attica interconnection project (2x500MW) in accordance with the provisions of the Ten-Year Development Plan (TYDP) of the Hellenic Electricity Transmission System (HETS) for the period 2018-2027 and the decisions of the Regulatory Authority for Energy (RAEWW).

The project was contracted in June 2020 in Heraklion, Crete, between Ariadne Interconnection and contractors Prysmian, Nexans, NKT-Hellenic Cables and Siemens-TERNA and is scheduled for completion in 2024. It will be put to commercial operation in 2025.

ARIADNE INTERCONNECTION SA's most important achievements in 2023

Completion

of a large part of the submarine cable system for the Crete-Attica interconnection. This concerns both high voltage cables and the fibre optic cable system. More specifically, in 2023, the following progress was noted:

- Completion of the laying and protection of the western pole by the contractor of section A, total length 336km (Pachi, Megara-Korakia, Crete)
- Completion of the laying and protection of the eastern pole's second half by the section B contractor (Milos-Crete).
- Successful completion of the field test (after the installation) of the two energy poles.

Completion

of the construction of the basic buildings at the Koumoundourou Conversion Station (CS) and most of the basic buildings at Damasta Conversion Station. The installation of the transformer inverters at the Koumoundourou CS has been completed and the installation of the critical electromechanical conversion equipment (conversion valves) is underway.

Completion

of the production and factory testing of the basic GIS equipment at the Damasta CS and the factory testing of the CS protection and control system (FPT).

Beggining

Port works begin at the electrode station in Attica.

Progression

At the onshore cable sub-project in Attica, the construction of the underground route and installation of the underground cables from the Koumoundourou HVC to the landing point in Pachi has progressed significantly. Similarly, in Crete, significant progress has been made in road works and the installation of the first sections of underground cables has begun.

Further information on the Company's activities is available at its website: https://www.ariadne-interconnection.gr/

GRID TELECOM SA

Grid Telecom is IPTO's 100% subsidiary and active in the country's wholesale telecommunications market since 2019. Using the alternative extended optical network of the parent company and having additionally installed state-of-the-art DWDM equipment, Grid Telecom provides wholesale telecommunications services of very high quality and availability and in particular:

- ultra-high-capacity services over a modern DWDM network
- dark fibre leasing services for the deployment of proprietary telecommunications networks
- co-location services at IPTO's High Voltage Centres (HVDCs)
- Dedicated Internet Access services

IPTO's onshore optical network is installed on the grid's high-voltage pylons and follows a completely alternative route to conventional optical networks.

- The onshore and undersea fibre optic network managed by Grid Telecom throughout Greece currently exceeds 4,500km and is constantly expanding with the aim of more than doubling in the next five years.
- By creating metropolitan optical rings in the greater area of Attica and Thessaloniki, Grid Telecom has managed to interconnect its network with the largest Data Centres in the country.

Grid Telecom SA's most important achievements in 2023

Activation

of GRID TELECOM's presence in five new Data Centers (TI Sparkle in Metamorfosi and Chania, Synapecom in Athens and Thessaloniki and Lancom in Maroussi). Furthermore, new Grid Telecom points of presence (PoPs) were established in Megalopoli and Sklavouna in the Peloponnese and telecommunication cabins were installed in Argyroupoli, Keratsini, Pallini, Molaoi, Chania and Preveza.

Implementation

of corporate customers and providers' leased-circuit capacities over the DWDM Network exceeding 400 Gb/s and offering high-quality services with high availability.

Completion

of the DWDM Network expansion in the Peloponnese and Crete and the Attica urban ring expansion (Keratsini, Argyroupoli, Dyrrachiou, Pallini, LANCOM Marousi, TI Sparkle Metamorfosi & DC Synapsecom).

Planning

of the expansion of Company DWDM network to the Region of Eastern Macedonia and Thrace as well as to the urban ring of Thessaloniki, while increasing the capacity of the network to serve capacity leasing to new customers as well. The necessary preparatory actions have been taken so that the planned equipment can be installed within 2024.

Conclusion

of agreements with international partners to connect, through capacity, the national network to Sofia. Expansion of its presence in Milan with a footprint in Via Caldera Campus, setting the basis to achieve interconnection with the major data centres in Western Europe in Frankfurt, London, Amsterdam and Paris.

More detailed information on the Company's activities is available at its website: https://www.grid-telecom.com/.

GREAT SEA INTERCONNECTOR SA

The Greece - Cyprus - Israel electricity interconnection project is being designed and constructed by the IPTO Group's subsidiary Great Sea Interconnector. The world's longest (1208km) and deepest (3km maximum depth) subsea direct current electricity interconnection, with 1000MW of transport capacity, will end Cyprus' energy isolation, enhance Israel's energy security and accelerate the energy transition of Europe and the Eastern Mediterranean.

Website: https://www.great-sea-interconnector.com/en

Vision and values

Our vision

Our vision is to be one of the most efficient electricity transmission operators in Europe, providing added value to all stakeholders, in the context of sustainable development, respecting people alongside the environment, for the benefit of System Users and society as a whole.

We remain focused on our vision and values for a fair and uninterrupted supply of electricity to our country, with respect to the environment, for the benefit of System Users and society as a whole.

Our values

IPTO's operation relies upon the following values:

Commitment for uninterrupted energy supply of the country

Our main objective is to ensure uninterrupted power supply for the country, meeting all quality, safety and efficiency standards, which governs all our activities related to performing our duties as the HETS Operator.

Efficiency

We perform our System Operator duties in the most efficient way aiming at achieving optimal use of available resources, contributing to the country's growth taking into consideration the public benefit and creating value for all stakeholders.

Impartiality

We guarantee equal and non-discriminatory access to the System for all users.

Sustainability

We carry out our tasks according to the principles of sustainable development in respect with economic, social and environmental conditions by supporting research and development, technical training, and also by maximising the potential of our human resources.

Transparency

We implement fully transparent procedures in our operations and provide all necessary information to market players in order to stimulate healthy competition.

Equal Treatment & Inclusion

Ensuring equal treatment of workers and creating an inclusive environment that incorporates and promotes diversity in everyday working life.

System adequacy and stability, security and risk management

IPTO is responsible for the safe and uninterrupted supply of the HETS. Consequently, its role is to balance energy production and consumption at any given time. IPTO ensures this balance either by increasing production or by reducing it, as per the arising needs.

The penetration of RES makes IPTO's balancing task even more complex, as energy production from RES is volatile and stochastic. Moreover, their injection into the HETS changes depending on the time of day and weather conditions.

IPTO is responsible for the safe and uninterrupted supply of the HETS on a 24-hour basis, 365 days a year. Consequently, its role is to balance energy production and consumption at any given time.

To ensure the uninterrupted operation of the System, all factors that may affect it, such as weather conditions, specific constraints, data availability, etc. are considered. The System's operation is monitored in real time by the Energy Control Centres.
Determinants affecting the country's energy security are availability, reliability, affordability and sustainability. In more detail:

Availability

We are tasked to serve the country's demand and supply of electricity uninterruptedly and under any circumstances. We respond to the demand for electricity at all locations connected to the Transmission System, regardless of whether demand is limited or extremely high.

Affordability

The development of the HETS is realised so as to ensure the System's long-term ability to meet the reasonable needs for electricity transmission under economically viable conditions and to contribute to the reduction of Public Utilities (PUs) costs for all consumers.

Reliability

Our responsibility is to safeguard that the country's electricity supply is safe, efficient and reliable, anticipating future needs, ensuring that we implement maintenance and expansion projects on the HETS and responding immediately in case of failure with our crews.

Sustainability

An important parameter for the development of the System is the need to serve the high penetration of RES in fulfilling the national and European policy pursued that ultimately aims at having the energy sector contribute to the reversal of climate change. In this view, the development of the HETS is oriented towards its gradual transformation that will allow full coverage of the National Energy and Climate Plan (NECP) targets on the rapid penetration of RES by 2023 via integrating new transmission projects.

Parameters that determine system adequacy:

The preservation of production system adequacy to reliably serve demand (peak energy) is determined by the following parameters:

- Load variation (capacity and energy demand)
- Availability of production units
- Hydraulic conditions
- Capacity availability for net imports from interna tional interconnections
- The penetration level of RES units

Availability plays a key role in the adequacy of the production system, as units may be out of service, either due to planned maintenance or accidental failures. Accidental breakdowns can have an adverse effect on the adequacy of the System, as both their occurrence and their duration are unpredictable. For this reason, the effect of unpredictable unavailability of production units due to accidental failures is taken into account by performing a probabilistic simulation of their actual function.

With regard to the other parameters affecting the adequacy of the System, due to their stochastic nature, their impact is assessed through the analysis of alternative scenarios and assumptions. On this ground, guaranteeing that a power production system will be able to fully meet demand needs under any conditions is practically impossible. It is therefore necessary to determine the desired level of reliability that the power system should ensure so that the risk of not meeting demand is acceptable from both an economic and a social point of view.
Apart from ensuring the above parameters, it is also important to ensure independence, strict observance to the principle of equal treatment for all System Users and Participants in the Electricity Market, operational transparency and compliance with the principle of confidentiality of the information handled by IPTO. To this end, all necessary measures have been taken and all necessary procedures have been set up.

In order to safeguard the adequacy of the country's electricity production system, IPTO conducts, on a rotation basis, a detailed Electricity Generation Adequacy Report, the purpose of which is to identify potential future risks related to the ability of electricity generation to adequately meet the projected evolution of demand over the following years. In addition, this study allows us to determine the requirements for new installed generation capacity so that demand needs can be safely met during the period under consideration.

Transmission System Resilience

In 2023 the average system outage duration was set at 4.2 minutes/year, while the average system outage frequency was set at 0.13. Indicators were estimated after assessing the relevant events recorded in detail in the Isolation and Handling Reports, which are collected and maintained by IPTO. Possible incidents related to outages of System equipment include circuits and autotransformers, as well as equipment that does not belong to the System, such as 150kV/20kV transformers that belong to the Network.

The values for the average system outage duration, as well as the average system outage frequency, for the last three years respectively, are presented in the following table.

Table 1.2: Transmission system resilience indicators

Transmission System resilience indicators	2021	2022	2023
System Average Interruption Duration Index (SAIDI) (minutes/ year)	13	15	4.2
System Average Interruption Frequency Index (SAIFI)	0.26	0.32	0.13

The average outage duration of the Transmission System was estimated by taking into account the total duration of an outage for the average customer during the year. In particular, according to the 2023 data, the network consists of 853 user connections and the number of incidents recorded was estimated at 1,222.

Also, to estimate the average outage frequency of the System, IPTO takes into account the duration of such incidents, including damage restoration time, as well as the total number of customers who experienced such incidents.

Response to emergency situations

As part of ensuring preparedness to respond to emergency situations, IPTO reviews and assesses the risks that could potentially breach one or more operational security limits.

In this context, the Regulatory Authority for Energy, Waste and Water (RAEWW) carried out a study, in cooperation with IPTO, to investigate the conditions that may affect power supply security at the country's interconnected System for the years 2021-2024. The Hellenic Electricity Distribution Network Operator (HEDNO), the National Natural Gas System Operator (DESFA), the Natural Gas Distribution Network Operators, electricity producers, suppliers of natural gas and the Renewable Energy Sources and Guarantees of Origin Operator (RESGO/DAPEEP), also participated in the survey, providing important information in respect with their area of responsibility and activity, in order to identify and analyse the potential risks for the period under consideration. These risks are summarised below:

IPTO assesses the risks that could disrupt its smooth operation and violate one or more operational security boundaries, ensuring its preparedness against emergency situations.

Rare & Extreme Natural Hazards

Risks from extreme weather or natural phenomena, pandemics, etc.

Accident hazards exceeding the N-1 criterion for extremely exceptional circumstances

Technical risks, breakdowns, etc.

Social - Geopolitical Hazards

Malicious actions, strikes, lack/ limitation of fuel supply from other countries, etc.

Financial - Market Hazards

Insufficient investment, price volatility, sudden increase in demand, etc.

Ownership of Infrastructure

Not considered in this study.

Source: Study for the Identification of National Electricity Crisis Scenarios, RAE, 2022

Based on the results of the study, the analysis of national and regional conditions, the results of the ENTSO-E Study on the Identification of Regional Crisis Scenarios and in accordance with Article 5 of Regulation (EU) 2019/941, a total of 16 crisis scenarios were identified, examined and simulated.

The crisis scenarios were classified into clusters for the best possible prevention and response measures and are as follows:

1. Malicious attacks
Cyber-attacks on critical infrastructure and systems of an energy entity connected to the System, as well as cyber-attack events on critical subsystems of the Hellenic Energy Exchange (HEnEx). Further information on malicious attacks is presented in the Governance chapter, under section xxx.

2. Natural hazards
Potential floods, forest fires and earthquakes that may cause extensive damage to the System.
Further information on natural hazards is presented in the Environment chapter, under section "xxx".

3. Pandemic/Human error
Risks related to the whole supply chain, from potential incidents that may affect the whole country (and/ or the world), such as a pandemic wave, as well as incidents due to human error in the implementation of procedures. Also, incidents of untimely System risk assessment and improper handling of fault recovery, resulting in large discrepancies between forecast and actual load demand and significant imbalances that cannot be covered by the reserves.

4. Fossil fuel shortage
Retirement of all lignite units, as part of the implementation of the policy for the reduction of the carbon footprint on power generation, concurrently with other events resulting in the delay of the integration of new units into the System. Hence, this poses the risk of power adequacy, the inability to ensure the planned reserves, overloads on transmission lines due to new system topology also leading to a consequent increase in the probability of faults and the activation of emergency measures (e.g., rotational load shedding).

5. Electricity System Failures
This scenario results from a combination of different events. More specifically, possible failures from different causes that affect the safe operation of the System in a specific geographical area. Possible failures may involve uncontrolled switching of circuit breakers, overloading of transmission lines, exceeding of thermal limits, loss of generating units and other events.

6. Measures for prevention, response preparedness and mitigation of power crisis impacts
In order to increase the reliability of the electricity system, a number of preventive measures are implemented to ensure the maintenance of power quality and the rapid restoration of the operation of the System after disturbances. In this context, IPTO implements a series of measures to prevent and respond to electricity crises and additional measures specifically for each set of the national crisis scenarios. In fact, IPTO aims to ensure safe operation from the planning phase, as well as the safe operation of the entire System within predefined operational safety limits, even after the occurrence of a disturbance, by implementing a predefined action plan. Furthermore, through a series of actions, such as reliable measurements, periodic simulations and regional monitoring, IPTO aims to ensure the safe operation of the System, both in the control area and in the neighbouring Systems.

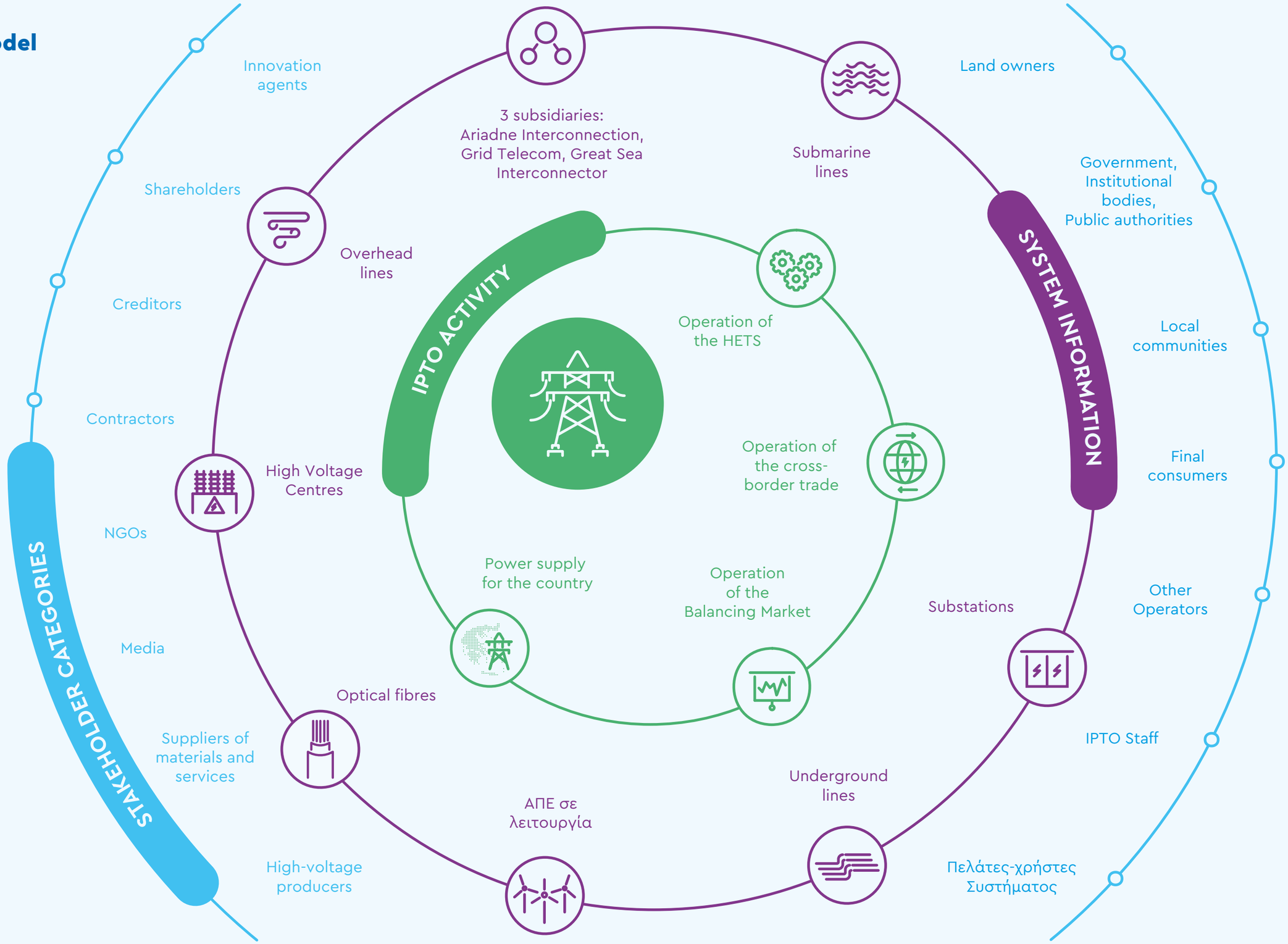
IPTO's response and adaptation to the new climate conditions

The IPTO Group is increasingly confronted with weather phenomena that threaten the resilience of the System. To this end, the IPTO Group is making significant efforts to respond and adapt to the new data and the new climate conditions.
A typical example is the Daniel storm which hit Thessaly, causing unprecedented flooding. As a result of the bad weather, serious damage was caused by the fall of 2 400 and 150 kV pylons, the collapse of a road with underground high-voltage cables and flooding of substations. Despite the intensity of the phenomenon and the magnitude of the disaster, IPTO's infrastructure showed resilience and the damages occurred were repaired in a short period of time.
The IPTO Group, aiming at its immediate adaptation to these new climate conditions, when siting new infrastructure considers the extent of the extreme event risk, the areas that are most vulnerable to such risks and potential ways of shielding the critical components of its equipment.

Business Model

	Main Resources		Results
Financial capital	**€407,3 mil.** Total revenue in 2023	**€5,7 mil.** Investment until 2033	**€123,9 mil.** Social product in 2023
Infrastructure capital	**HETS** Infrastructure **Fibre optic** Network	**13,671** Total length of Transmission Lines **22** High Voltage Centres **4,735km** Fibre optic network **359** Substations	
Human capital	**€15,539** total costs for Health and Safety training	**2,085** employees	**18,907** Total hours of training **14** Accidents /injuries
Intellectual capital	**Grid Code** of the HETS	**IPTO Analytics,** Power System live data	
Social capital	**€54.9 mil.** Total salaries and allowances in 2023	**€5.4 mil.** Επενδύσεις	**€0,59 mil.** Taxes paid

Business Model



Strategic pillars

IPTO constantly adapts to a changing environment full of challenges. At the end of 2023, it presented its renewed strategy and key priorities.

This new strategy focuses on the further modernisation and growth of the Company and is based on five pillars:

1 Safe operation of the electricity system under high RES-penetration conditions

Target: Increase the share of electricity from renewable energy sources to 80% by 2030

IPTO's network is designed to serve the transmission of electricity generated primarily from conventional fossil fuel plants. Now, the electricity system has to operate according to the dispersed and stochastic production of hundreds of RES plants, without any storage units built yet, which poses great risks to the stability of the electricity system. For the safe operation of the System under conditions of high penetration of RES, the upgrade of IPTO's information systems and the installation of new infrastructure that will allow optimal control of RES plants and management of production in real time are necessary. To this end, a programme of energy transition projects has been launched.

2 A new System maintenance model, creating Digital Maintenance Control Centres

Target: Establish System Maintenance Control Centres by 2027

IPTO is switching to a new maintenance model: remote, real-time, digitised, proactive and predictive. System Maintenance Control Centres will be developed similarly with operation-related Energy Control Centres. Maintenance Control Centres will be collecting data from sensors, cameras, drones and other digital monitoring tools, which will be used to plan equipment maintenance. Part of this is the Online Condition Monitoring system for monitoring and evaluating the condition of the assets and the Asset Performance Management System, which are under development.

IPTO's role in promoting sustainable development at national level is crucial: through its activities, it contributes to the country's energy transition and the improvement of energy security and infrastructure resilience.

3 Strengthening of electricity System Resilience

Target: Adapt IPTO's operation in a climate-crisis environment

Climate change, among other things, has implications that require enhancing Transmission System resilience. The extreme weather events that are occurring more and more frequently, such as major fires and the Daniel storm in 2023, make it necessary to adapt IPTO's operation to a climate-crisis regime. When siting and designing our projects, we must always consider the degree of extreme event risk and explore ways of shielding critical equipment components.

For example, IPTO proposed a law that has now come into force on the opening of firebreaks on transmission lines, in cooperation with the Fire Brigade and the Ministry of Climate Change and Civil Protection. When planning the expansion of the System, we have to think in the long term on the basis of the over-development of RES, the achievement of climate neutrality and the transformation of Greece into a self-sufficient and energy exporting country.

4 IPTO's Green Footprint

Target: Incorporate measurable ESG objectives in the business strategy

In 2021, IPTO incorporated sustainable development as a horizontal dimension in its strategy, which concerns all levels and actions of the company and is summarised in the triptych of environmental (E) protection, responsibility towards society (S) and effective corporate governance (G). To this end, in the projects we implement priority is given to environmental protection, our initiatives have a strong social dimension, such as the IPTO Training Centre and we adopt policies that serve good governance, such as the policies on equality and inclusion in the workplace and on preventing and combating harassment and violence. We move forward by setting measurable targets that highlight the greening of the organisation at the operational and procedural level.

5 IPTO's Internationalisation

Target: Strengthen Europe's energy independence and ensure stable electricity systems

As the European electricity market becomes more and more integrated and the green system needs to be stable and secure, IPTO enters into major international interconnections aiming to contribute to the national objective of making Greece an exporter of green energy. These interconnections are the new trend for TSOs in Europe. A typical example is the implementation of the Greece-Cyprus-Israel electricity interconnection through the Group's subsidiary Great Sea Interconnector. Moreover, IPTO develops or participates in other major cross-border interconnection direct current projects (HVDC) between Greece and the Middle East, North Africa and Central Europe.

Main achievements in 2023

1. We took control of the Greece-Cyprus-Israel electricity interconnection, and created the special purpose vehicle Great Sea Interconnector to develop it. We have succeeded in transferring the European subsidy of €657 million from the previous implementing entity to IPTO and we have entered the construction phase of the Crete-Cyprus interconnection cable.

2. We implemented the second Greece-Bulgaria line, significantly increasing the electricity transport capacity between the two countries, upgrading the potential for cross-border trade and energy security.

3. We completed the Megalopoli-Patra-Acheloos high-voltage transmission line, a critical infrastructure for the security of energy supply.

4. We invested in new Substations, High Voltage Centres, Transmission Lines and extensions of existing facilities, aiming to connect even more RES plants.

5. We cooperated with the Ministry of the Environment and Energy and HEREMA (Hellenic Hydrocarbons and Energy Resources Management Company) and managed to secure 2GW of electrical space for the installation of offshore wind farms.

6. We ensured the stability of the System by protecting or immediately restoring infrastructure against climate threats (fires, floods, etc.).

7. We received the first loan granted to Greece by the Recovery Fund for the fourth phase of the construction of the Cyclades interconnection. We concluded the contract for the construction project of the Corinth HVC - Koumoundourou HVC Transmission Line, which completes the Eastern Corridor of the Peloponnese and will reach the Koumoundourou HVC which is being upgraded.

8. We completed the first cycle of the major island interconnections of the Cyclades and Crete and we have started the second cycle, which includes the interconnections of the Dodecanese and the islands of the North-Eastern Aegean. During 2023, there was a significant maturation of these projects, including the timely completion of tenders and the signing of contracts for seabed surveys, as well as the submission of the Environmental Impact Study for approval to the Ministry of the Environment and Energy for the interconnection of the Dodecanese islands.

9. We made investments in the digital shielding of the electricity system and in real-time cyber defence and prepared detailed Business Continuity Plans.

10. We developed the ENORASI project in collaboration with the National Technical University of Athens and other institutions, using cutting-edge technologies for monitoring key electrical infrastructure. It is a robotic vehicle that moves autonomously and performs inspection of substation and HVC critical equipment using optical and thermal cameras.

11. Grid Telecom has completed the second phase of its DWDM telecommunications network, providing capacity services with ultra-high speeds of up to 100G to major mobile operators.

12. We opened the new IPTO Training Centre in September 2023 successfully completing the first training programme for Transmission Line Technicians, Substation and HVC Technicians and Operator-Supervisors.

13. We completed the revision of the Weighted Average Cost of Capital for the period 2022-2025 through a recommendation to RAEWW that led to an increase of the Allowed Revenue by approximately €130 million for this period. This is a minimal charge for consumers, but particularly critical for the continued development of the System.

14. We moved and operate most of IPTO's critical corporate operations to the SAP business platform.

15. We adopted a Gender Equality and Diversity Inclusion Policy and a Policy on Preventing and Combating Violence and Harassment at Work. We have also established a mechanism to manage internal complaints relating to the above issues.

16. We completed the laying and installation of the two submarine cables and carried out the planned tests for the electricity interconnection between Crete and Attica. We started the installation of the basic electromechanical equipment of the Conversion Stations in Attica and Crete and completed 90% of the underground cable sections in Attica and approximately 40% in Crete. The Crete-Attica interconnection is so far IPTO's largest domestic project, implemented by its subsidiary Ariadne Interconnection. We are at the "final stage" of the project, which is expected to enter into trial operation at the end of 2024 and full commercial operation in the summer of 2025.

For another year, the IPTO Group implemented significant investments to upgrade its infrastructure, as part of the country's safe, fair and sustainable energy transition.

2023: A multi-record year for green energy

The year 2023 was for us a year in which multiple green energy records were achieved. More specifically:

- **57%** — of the domestic energy mix was generated by Renewable Energy Sources (wind - solar) and hydroelectric plants, exceeding 25 TWh
- **2.25 TWh** — RES generation in August 2023 reached 2.25 TWh, the highest monthly value so far.
- **22%** — The share of wind energy in the energy mix reached 22%, while the European average was 18%.
- **40%** — RES generation exceeded demand by 40%, with the excess exported through our international interconnectors for 10 consecutive days in September 2023.
- **19%** — In 2023, the share of solar energy in the energy mix reached 19%, putting Greece in first place.
- **84%** — In July 2023, the use of lignite was avoided for 87 consecutive hours and 84% of electricity generation was based on renewables.

Goals for 2024

Aiming at shaping a secure, equitable and affordable low-carbon energy future, the IPTO Group sets short and long-term goals. More specifically, the following targets have been set for the year 2024:

Achieve

the trial operation of the Crete-Attica interconnection.

Mature

international interconnections, making Greece an energy exporter.

Tender

for the cable sections of the Dodecanese and North-Eastern Aegean interconnections.

Become

more efficient in managing a system that is increasingly based on renewables.

Accelerate

the integration of new RES plants into the system.

Start

implementing systems and procedures for monitoring and predictive maintenance of equipment.

At the IPTO Group, we continuously set short- and long-term goals, which are part of our commitment to sustainable development.

Strengthen

the shielding of the System in the most vulnerable areas.

Establish

the IPTO Training Centre and attract students.

Reduce

the company's environmental footprint by creating a single waste management system, and the monitoring of energy performance indicators in facilities

Prepare

for our participation in new European electricity market platforms.

Increase

Grid Telecom's national and international presence by developing the fibre optic network and providing telecommunications services abroad

Contribute

to the creation of a Regulatory Framework that will facilitate and accelerate the implementation of our major new and innovative projects, which are fundamental to the energy transition.

Contribution to the Sustainable Development Goals (SDGs)

The United Nations Sustainable Development Goals (SDGs) provide a holistic and integrated framework for addressing the world's most important sustainability challenges and creating a better future for all. IPTO's contribution to the achievement of the United Nations Sustainable Development Goals (SDGs) for 2030, as expressed by the 17 SDGs and the 169 corresponding targets, is presented below.

Through its operations, IPTO makes a significant contribution to the UN Sustainable Development Goals.

Table 1.3: IPTO's contribution to the SDGs in 2023

Sustainable Development Goals (SDG)	Sub-goals to which we contribute	IPTO's contribution to SDGs in 2023
1 NO POVERTY	**1.2** We contribute to reducing the rate of men, women and children living under the threshold of poverty in all its forms. **1.3** We implement appropriate social protection systems and measures to achieve substantial coverage of the vulnerable population. **1.5** We contribute to eliminating exposure of the vulnerable population to events related to the economy, society and the environment.	• Provision of employment to 2,085 employees. • Ensuring the supply of electricity to all citizens in an adequate and secure manner, through the development of the System. • We plan and implement new interconnections that enable the country's green electrification and reduce costs of energy, making it more affordable for all. Additionally, PUs costs are reduced for all, including the most vulnerable social groups.
3 GOOD HEALTH AND WELL-BEING	**3.9** We contribute to reducing the number of deaths from hazardous chemicals and air, water and soil pollution and contamination.	• We contribute to increasing the integration of RES by implementing new interconnections, leading to a reduction in carbon intensity, which adds to air pollution, at local and national level. • We apply strict measures to keep electromagnetic radiation within the limits set by the World Health Organization.
5 GENDER EQUALITY	**5.1** We contribute to ending all forms of discrimination against women.	• Implementation of Gender Equality and Diversity Inclusion Policy • We implement a Policy on Preventing and Combating Violence and Harassment at Work. • We have created an inclusive, equal opportunity, non-discriminatory working environment.
17 PARTNERSHIPS FOR THE GOALS	**7.1** We ensure universal access to affordable, reliable and modern energy services. **7.2** We contribute to increasing the share of RES in the global energy mix. **7.3** We contribute to improving energy efficiency. **7.a** We support research on clean energy technologies, including renewable energy sources, energy efficiency and cleaner fossil-fuel technologies, promoting also investments in energy infrastructure and new technologies. **7.b** We expand our infrastructure to provide sustainable energy services to the country's islands.	• We interconnect the Greek islands with the Mainland System, allowing the connection of a higher rate of RES to the System, addressing the energy isolation of the islands and increasing the reliability of supply. • New installed capacity from RES in the System in 2023: 1,080MW in the HETS and 1,185MW in the Grid. • 16,238 MW of total installed capacity from RES.
8 DECENT WORK AND ECONOMIC GROWTH	**8.1** We contribute to the country's economic growth per capita. **8.4** We contribute to improving efficient use of resources by decoupling economic growth from environmental degradation, promoting a framework of sustainable production and consumption. **8.5** We contribute to full and productive employment and decent work for all women and men and for young people. **8.8** We protect labour rights and promote safe working conditions for all employees without discrimination.	• Full-time contracts and collective labour agreements for all permanent Group employees. • €15,539 total expenditure for Health & Safety training in 2023. • €283,437€ the Group's social product for 2023.
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	**9.1** We develop sustainable, resilient and inclusive infrastructure. **9.2** We promote inclusive and sustainable industrialisation. **9.5** We contribute to stimulating scientific research and upgrading the technological capabilities of the industrial sectors.	• Implementation of an investment programme of up to €5.7 billion by 2033. • We are implementing an extensive asset renewal programme of €200 million to increase the resilience of the System. Expansion of the network to provide energy to businesses and households across the country. • Development of international interconnections. • We actively participate in 17 European Research Programmes.
10 REDUCED INEQUALITIES	**10.2** We contribute to promoting the economic inclusion of all, regardless of age, gender, disability, race, ethnicity, nationality, origin, religion or economic or other status. **10.3** We ensure equal opportunities and reduce inequalities, by eliminating discriminatory laws, policies and practices, among other things. **10.4** We adopt policies to promote equality.	• Adopting a Policy and Action Plan for equality and inclusion • Implementation of Gender Equality and Diversity Inclusion Policy • Implementation of a Policy to Combat Violence and Harassment in the Workplace, including a Complaints Mechanism.

11 SUSTAINABLE CITIES AND COMMUNITIES	**11.1** We contribute to the enhancement of local infrastructure. **11.4** We contribute to the efforts for protecting and safeguarding cultural and natural heritage.	• Extension of the fibre optic network to 4,500 km. • Expenditure for cleaning, vegetation removal, tree pruning/cutting and maintenance/recharging of portable fire extinguishers to prevent or directly address fires that threaten the country's natural heritage. • Collaboration with archaeological organisations aspiring to showcase and protect cultural heritage in the areas where IPTO's network extends. • Submission and approval of a proposal to the European Institute of Innovation and Technology (EIT) entitled: "Greening and beautifying the centre of Kozani" with the installation of flower beds made of recyclable/reusable materials and their care by shopkeepers and students.
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	**12.4** We contribute to the sound management of all waste in accordance with agreed international frameworks and legislation. **12.5** We contribute towards reducing the generation of waste through prevention, reduction, recycling and reuse.	• We manage generated waste in line with applicable legislation and regulations. • Restoration and reuse of insulating oils, through a regeneration system. • Significant reduction of paper, plastic and toner consumption by digitising internal communication.
13 CLIMATE ACTION	**13.1** We enhance the resilience and adaptive capacity of our activities to climate change-associated hazards. **13.2** We contribute to the integration of climate change response measures into national policies, strategies and their planning.	• We are implementing an Asset Renewal Programme aiming to have replaced by 2026 all System assets older than 24 years (corresponding to approximately 60% of the existing System assets) with state-of-the-art equipment. • We helped shape the regulatory framework for energy storage and offshore wind farms.
14 LIFE BELOW WATER	**14.1** We contribute to the prevention of all forms of marine pollution and the protection of the marine environment.	• We ensure protection of the marine environment and minimise the environmental impact of our activities through the measures we implement. • We conduct underwater surveys and extend protection measures to a minimum depth of 100 metres.
15 LIFE ON LAND	**15.1** We contribute to the protection of natural habitats and the prevention of loss of biodiversity.	• We take appropriate measures to protect the environment and biodiversity (flora and fauna) during both the planning phase and the construction of our projects. • Preparation of Special Ecological Assessment Studies, where necessary. • Preparation of relevant environmental studies to identify, describe and assess the potential impacts arising from IPTO's projects.
17 PARTNERSHIPS FOR THE GOALS	**17.17** We aim at building partnerships with national and European institutions, public authorities, local communities and civil society organisations	• We are in close cooperation with the competent authorities, such as Ministries, Regions, Forest and Archaeological Authorities, always taking into account the concerns of local communities regarding our activities. • We actively participate in a number of bodies and organisations at both national and European level to promote cooperation and sustainable development.

Communication with stakeholders

Our role as the HETS Operator requires us to be in constant and two-way communication with our stakeholders at institutional, local and market level. We recognise as stakeholders all groups that affect or are affected by our operations.

During 2023, the Group continued to actively participate in the communication and consultation processes with its stakeholders through various ways and channels of communication. The communication channels, frequency and the main priorities and issues of interest to each of the Group's stakeholder groups are presented in the table below.

Table 1.4: Communication with stakeholders

Stakeholders	Key priorities and issues of interest	Communication channels	Communication frequency
IPTO Staff	• Growth and development • Protection of occupational Health and Safety Benefits and insurance coverage • Opportunities for development within the Group • Equal opportunities and respect for diversity	• Staff satisfaction survey • Regular communication between management and workforce • Internal meetings • Intranet • Internal updates via e-mail • Notice boards in assembly areas • Social media • Company events • Employee evaluation process and training	Weekly
Shareholders	• Interest in the fulfilment of the Company's purpose, growth and development, as well as its performance with regard to social and environmental issues • Safeguarding the Company's sustainability • Application of international standards and principles of corporate governance	• Constant updates via announcements, press releases and presentations, the website and the media, as well as annually through our Sustainability Report • Constant communication with the Investor Relations Department of ADMIE (IPTO) Holding.	Monthly
Creditors (banking institutions & other capital providers)	• Timely updates on financial results and new investments • Safeguarding the Company's sustainability and application of international standards and corporate governance principles • Implementation of the Company's investment plan	• Constant updates through announcements, press releases and presentations, the website and the media, as well as through our Financial Statements and the Sustainability Report on an annual basis • Meetings with the Company's Management and Financial Division, as the need arises	Monthly

Financial analysts and rating agencies	• Sustainability • Liquidity • Strategic planning • Performance on ESG criteria	• Constant updates through announcements, press releases and presentations, the website and the media, as well as through the Financial Statements, the Annual Report and the Sustainability Report on an annual basis • Communication (by phone, electronic or in person) with representatives of the Company	Monthly/Annual
Government, Institutions, Public authorities, Decision-making centres	• Maintaining the country's uninterrupted and secure energy supply • Achieving the objectives of the 10-year development plan and the investment plan for infrastructure projects (e.g., island interconnections) • Compliance with laws and regulations • Assuming legislative initiatives • Environmental, labour and social issues • Contribution to the energy transition at national level	• Regular communication at • institutional level • Participation of the company in Associations and Chambers • Meetings with organisations / authorities / legislative and institutional bodies • Legislative interventions to be included in the Ministry of the Environment and Energy's legislative initiative • Workshops and conferences • Company website • Financial Statements (annual and half-yearly) and annual Sustainable Development Report	Daily
Other Operators	• Energy security • Innovation • Cooperation to promote industry affairs at European level • Implementation of international interconnections	• Continuous communication with the other European operators through ENTSO-E in which we participate • Active dialogue and development of partnerships through participation in joint projects • Participation in industry seminars • Financial Statements (annual and half-yearly) and annual Sustainable Development Report	Daily
Local communities & NGOs	• Stimulating the local economy through spending on local suppliers and project contractors • The Company's responsiveness to local community issues (e.g., strengthening initiatives) • Minimisation of visual disturbance and electromagnetic radiation	• Constant communication with the local government, local organisations and associations • Participation of the Company's representatives in public consultations on projects • Publication of the Sustainability Report	On an annual basis or more frequently according to the programming of projects
Land owners	• Expropriation of private land and compensation issues • Local disturbance due to new projects and the operation of the Transmission System	• Notice to land owners prior to the start of the project and also while underway and during its operation	According to the programming of projects
Media	• Informing the public regarding the Company's activity • Report on economic, environmental and social data	• Company Press Office • Communication with media representatives whenever necessary • Press releases, publications and announcements • Company website • Social Media • Financial Statements (annual and half-yearly) and annual Sustainable Development Report	Daily
End-consumers (through energy suppliers)	• Security of services • Reduction of energy costs • Innovation	• Intensive communication campaigns with nationwide coverage throughout the year • Communication via the website • Press releases • Daily communication via social media and answers to consumer questions • Financial Statements (annual and half-yearly) and annual Sustainable Development Report • Ipto analytics	Daily, monthly or as the need arises.
Suppliers of materials and services	• Impartial/objective evaluation • Profitable and long-term partnerships with the Group • Strengthening local suppliers	• Communication with the Supply Chain Division per procurement category • Communication via the accounting department on financial matters • Presence at supplier exhibitions and events	Daily
Contractors	• Consistent, profitable and long-term cooperation with the Company • Working in safe conditions • Cooperation issues with local communities	• Direct communication via Site Managers for each activity on an ongoing basis and as needed	Daily
Customers-System users	• High quality services • Execution of projects according to the set timetable and work programme • Policies and procedures for prompt service • Information about the services • Data protection	• Physical and telephone communication, e-mail • Monthly Energy Bulletin • Company website and media	Daily
High-voltage producers	• High-quality service provision • Proper functioning of the electricity market	• Constant communication with the relevant Company Divisions • Monthly Energy Bulletin	Daily
Innovation drivers (educational institutions, research centres, etc.)	• Linking academic research with applied practices • Cooperation on research and innovation • Student internships	• Participation in conferences • Cooperation with the Research, Technology and Development Division • Company website	Weekly

We shape our business strategy, always taking into account the expectations, concerns and priorities of our stakeholders.

Consultation with stakeholders

Our activity and the development and maintenance projects of the HETS cover the entire Greek territory and are particularly important, as they offer multiple benefits to consumers, society, the economy and the environment. They contribute to the country's energy security, facilitate the energy transition, reduce electricity costs for consumers and pave the way for the gradual decoupling from polluting power plants.

However, the realisation of new projects and the implementation of interconnections has resulted in incidents of local disturbances, however mainly of a transient nature. IPTO takes all necessary measures to minimise the impacts generated by its activities through systematic dialogue and consultation, to respond to the expectations and concerns of its stakeholders by undertaking specific actions that aim to contribute to shaping a sustainable future for local communities.

More specifically, in tackling impacts that may result from our activities, we follow the general principles below:

- We engage in systematic dialogue with the local communities in which we operate, so that there is mutual understanding and effective communication concerning the benefits brought about by our projects.
- We develop alternatives for the routing of transmission lines during the design phase of all projects, seeking to ensure consensual solutions and minimal disruption during the construction of our projects.
- We inform land owners, where land expropriation is required, on the procedure to collect compensation.
- We undertake continuous actions and initiatives to support local communities after an open dialogue with them and sometimes implement projects for the public benefit.
- We strictly comply with the limits set by the World Health Organization and the Greek legislation on electromagnetic fields, both for the general public and for our employees.
- We study and assess in detail the potential impacts of our projects on protected species and habitats.
- We take measures to eliminate, prevent or reduce to a negligible level the potential impacts of a project. These measures include changes to the size, location and design (e.g., use of reduced-noise transformers to address noise pollution) or may be temporary adjustments during construction and operation phases (e.g., avoiding construction activities during bird migration season).
- We consider alternatives where the impacts of the planned project continue to be significant, even after mitigation measures (e.g., different siting or undergrounding of the project, change in scale or development plans).

Reducing the impacts resulting from our operations

At IPTO, we are in constant communication with local communities during the implementation of a project and we make the necessary technical improvements, ensuring the reduction of impacts and nuisances that may arise at the local level. In this context, meetings or informative events are held with the relevant institutions of the local communities.

Also, the Company's policy for the wider acceptance of its projects includes potential agreements with local communities to implement projects of public benefit.

IPTO makes every effort to function with respect to the natural environment and local communities in the areas where it operates, taking care to reduce visual or electromagnetic pollution.

Care for the reduction of visual nuisance

The reduction of visual nuisance is always implemented after considering the technical features of the project under planning and the optimal cost-benefit balance for both local communities and society as a whole. The solution to visual nuisance is the undergrounding of transmission lines, which however raises several technical issues on power quality and entails increased costs compared to overhead lines that are passed on to citizens through charges on their electricity bills. Therefore, the choice of the appropriate means of transporting electricity should be based not only on reducing visual disturbance but also on a balanced consideration of technical, economic and social aspects, including respective increases in electricity bills.

Practices applied to achieve lowest possible visual nuisances:

- All new overhead transmission lines are routed away from residential areas, even from individual farmhouses or warehouses.
- Transmission lines near or within residential areas run underground rather than overhead.
- When transmission lines are close to settlements, tubular poles (masts) are used instead of lattice towers (pylons).
- The area and volume occupied by a mast is much less than the area occupied by a pylon.
- The construction of a substation and a high-voltage centre within cities or areas with special natural characteristics, such as the Cyclades islands, is of a closed GIS (Gas-Insulated Switchgear) type.

Actions for the reduction of electromagnetic radiation

With regard to electromagnetic radiation, IPTO strictly applies the limits set by the non-profit scientific International Commission on Non-Ionising Radiation Protection (ICNIRP) operating under the auspices of the WHO. In fact, routine measurements throughout our activities demonstrate that the observed electric fields are well below the limit set by the relevant Joint Ministerial Decision of 2002, (Electric field strength E ≤ 5,000V/m), and magnetic fields are often 50 to 100 times below the set limit (magnetic induction B ≤ 100μT).

Contribution to the dialogue for the improvement of the regulatory framework

In accordance with the provisions of Law 4001/2011 and the System Grid Code (SGC), as well as within the framework of its responsibilities, IPTO prepares and publishes the Ten-Year Development Plan (TYDP) for the country's Transmission System, issued every year, on a rotating basis. After its preparation, the Preliminary Draft of the TYDP is subjected by IPTO to public consultation, in accordance with the provisions of Article 229 of the HETS SGC, inviting stakeholders to submit their views to IPTO by email. These tasks also include the improvement of the country's regulatory framework, to which the contribution of our Legal and Regulatory Affairs Division is crucial. Our Legal and Regulatory Affairs Division:

- Monitors developments and amendments to Greek, European and international legislation and case law regarding the regulatory framework.
- Monitors international regulatory practices and trends, developing its strategic approach, tackling regulatory issues and coordinating communication with the relevant institutions and bodies.

For instance, IPTO's contribution is important both for the dialogue on the regulatory framework for offshore wind farms and the approvals for the integration of energy storage systems into the energy mix under favourable pricing terms.

The proper shaping of the country's legal and regulatory framework and the regulation of issues related to new technologies in the energy sector are important in order to maintain the momentum towards the transition to a low-carbon economy and safeguard the country's energy security.

Materiality analysis

In 2023, the IPTO Group conducted for the first time a Double Materiality Assessment, following the European Sustainability Reporting Standards (ESRS) and the international GRI Sustainability Reporting Standards (GRI 2021).

The Double Materiality Assessment was conducted in four phases:

Phase 1: Understanding the operating framework of the IPTO Group

- Review of the Group's activities and operating framework.
- Overview of the business model.
- Overview of the main stakeholder groups and the value chain.
- Overview of the Group's external environment (e.g. foreign Energy Operators).

Phase 2: Identifying Impacts, Risks and Opportunities

2α. Impact identification (impact materiality)

- Identification of the IPTO Group's positive and negative (current and potential) impacts on the economy, the environment and society, including impacts on human rights and grouping them into Sustainable Development issues.

2β. Identification of risks and opportunities (financial materiality)

- Identification of the IPTO Group's financial risks and opportunities due to environmental, social or governance issues, taking into account the identified positive and negative (existing and potential) impacts and grouping them into Sustainability topics.

Phase 3: Impact, Risk and Opportunity

- A survey was conducted involving the Senior Management, employees and external stakeholders on the assessment of environmental, social and economic impacts, including impacts on human rights and targeted meetings with experts were held on the assessment of financial risks and opportunities related to the IPTO Group's operation.

Positive impact (current and potential) assessment criteria:

- Scale: how beneficial the specific impact is or could be
- Scope: how widespread the impact in question is
- Probability: how probable is the occurrence of the impact

Negative impact (current and potential) assessment criteria:

- Scale: how serious the specific impact is
- Scope: how widespread impact in question is
- Remediability (irremediable character): how difficult is to manage or repair the damage caused
- Probability: how probable is the occurrence of the impact

Financial risk and opportunity assessment criteria:

- Probability of occurrence
- Potential magnitude of the economic impact

Phase 4: Material topic prioritisation

- Analysis of the survey results and prioritisation of material topics
- Setting a materiality threshold: The threshold under which Sustainable Development issues qualify as material topics has been set.
- Group Management validation of the list of material topics.

The double materiality assessment process identified 22 impacts (positive or negative, existing or potential) from the Group to the environment, society and the economy, including impacts on human rights (inside-out). In addition, 11 risks and 7 opportunities from the environment and society to the Group (outside-in) were identified.

The results are presented in more detail below:

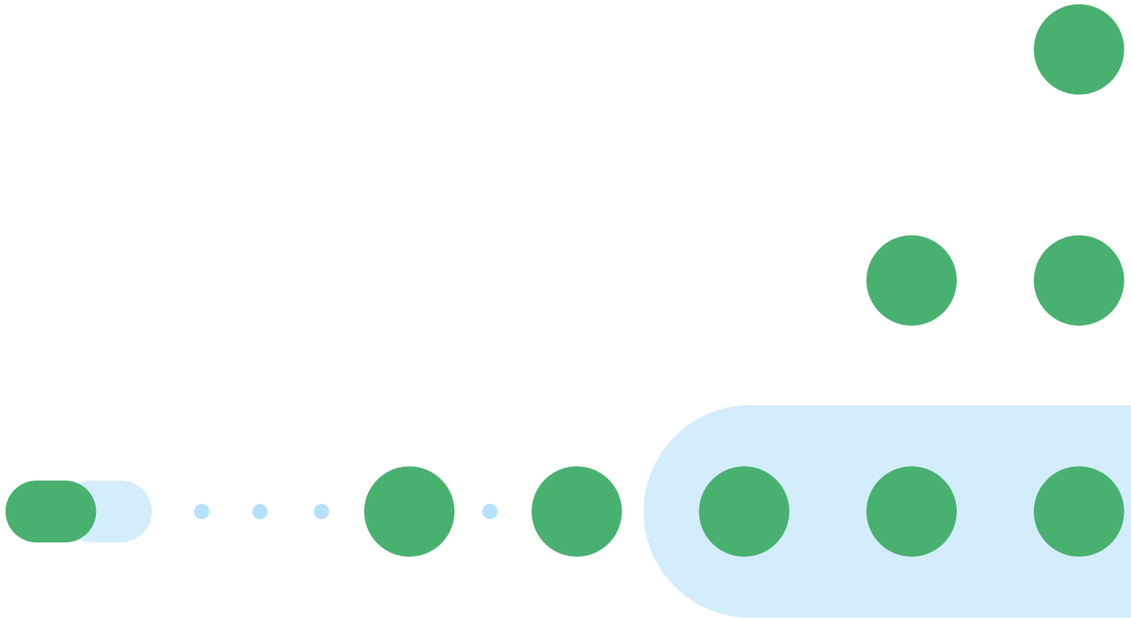
Table 1.5: Positive/negative & current/potential impact of IPTO Group

ESG pillar	Material topic:	Type of impact	Positive/negative impacts
E	System development and energy transition	+ ●	Increasing the country's energy security through the new interconnections and the integration of RES in the Hellenic Electricity Transmission System (HETS). Facilitate the gradual decarbonisation of the country's energy mix (e.g. through the interconnection of mainland and island countries). Contributing to the achievement of emission reduction targets at national and European level in the framework of the EU Green Deal (2030/2050).
	GHG emissions and energy efficiency	+ ●	Reducing energy losses and consumption costs, increasing the resilience of the Electricity Transmission System and IPTO's building infrastructure.
		− ●	Energy losses of the Electricity Transmission System and corresponding GHG emissions, as well as emissions due to the other company operations (e.g. heating, cooling, electricity consumption, etc.).
	Waste management	+ ●	Reducing waste generation and promoting the circular economy, with an emphasis on prevention, recovery and reuse where feasible. (e.g. regeneration of insulating oils)
		− ●	Limited implementation of recycling and waste recovery practices by the Company and/or subcontractors. Potential environmental risks from improper management of hazardous waste.
	Ecosystem protection and environmental management	+ ●	Pilot project for the installation of buoys on transport lines to protect birds, horticultural restoration, tree planting.
		− ●	Effects on biodiversity at the local level on existing operations and new projects.
S	Workforce Health & Safety	+ ●	Creating a safe working environment that promotes the health and well-being of employees.
		− ●	Accidents during work.
	Training and development	+ ●	Providing opportunities for personal and professional development and training for employees.
	Equal opportunities and diversity	+ ●	Creating a working environment of equal opportunities for all and supporting diversity through equality policies, inclusion and combating violence and harassment at work, as well as through training and raising-awareness actions.
		− ●	Lack of information on issues related to creating and supporting an equal and inclusive working environment. Inability to deal with incidents of discrimination and/or harassment and violence in the workplace.
	Social impacts on the value chain	+ ●	Providing equal opportunities and upgrading employee skills throughout the supply chain.
		− ●	Possible negative impact on corporate reputation due to relationship with suppliers/contractors for whom there are documented incidents of non-compliance (e.g. labour/ environmental violations, industrial accidents).
	Cooperation and consultation with stakeholders and local communities	+ ●	Contributing to the well-being of local communities through projects to upgrade or expand the Electricity Transmission System.
		− ●	Impacts on the local communities where the Company operates, such as visual nuisance and electromagnetic radiation.
G	Network adequacy, security, stability, reliability and risk management	+ ●	Improving over time the adequacy, security, stability and reliability of the System, energy availability, through various actions, including the asset renewal program and the cyber-attack protection of the System.
		− ●	Possible incident of electricity supply unavailability, due to extreme weather events, material failure or other factors.
	Innovation, research & development, and digital transformation	+ ●	Adoption of modern technologies to optimise monitoring and maintenance of the Transmission System, access to open data for transparency, stakeholder information and research.
		− ●	Lack of innovation and research leads to the obsolescence of technologies and processes with a potential impact on the effectiveness of the organisation to adapt to new conditions (climatic, technological, social).
	Compliance and governance practices	+ ●	Seamless operation of the Company and creation of value for the society through compliance with the applicable framework and regulations.
		− ●	Possible negative impacts for IPTO due to potential incidents of poor compliance with laws and regulations.

Impact type: Positive impact **+** Negative impact **−** Current impact ● Potential impact ●

Table 1.6: **Risks and opportunities for IPTO Group**

Material topic	Risks	Opportunities
System development and energy transition	Untimely implementation of the interconnection plan and deviation from strategic objectives.	Implementation of the country's interconnection plan as a result of the need for energy transition.
GHG emissions and energy efficiency	Risks arising from reduced energy efficiency and increased greenhouse gas emissions (regulatory change, reputational risk).	Opportunities arising from adapting to market demands for energy efficiency and reduction of greenhouse gas emissions (e.g. corporate reputation, cost reduction due to energy savings).
Waste management	Likelihood for fines and negative impact on the Group's reputation due to the implementation of improper waste management practices.	Reduction in procurement costs due to the implementation of circular economy practices (e.g. regeneration of insulating oils) and proceeds from divestments.
Ecosystem protection and environmental management	Possibility of fines and negative impact on the Group's reputation due to its activities.	-
Workforce Health & Safety	Risks arising from the likelihood of occupational health and safety incidents (e.g., accident penalties, reputational impact).	-
Training and development	-	Employee training and skill and know-how development on issues related to IPTO's activity that lead to increased efficiency.
Equal opportunities and diversity	Risks and impacts on IPTO's reputation due to possible failure to manage incidents of discrimination and/or harassment and violence at work (e.g. employee departures).	Improved employee performance due to an improved climate of tolerance and equity.
Social impacts on the value chain	Impacts on IPTO's reputation due to the possible incidents of non-compliance in the value chain (e.g. risk of irresponsible practices in the value chain).	-
Cooperation and consultation with stakeholders and local communities	Dissatisfaction of local communities due to disturbances caused by the Group's activity, with repercussions on the implementation of projects (e.g. delays, increased costs).	-
Network adequacy, security, stability, reliability and risk management	Possible incident of electricity supply unavailability, due to extreme weather events, chronic stress, material failure or other factors (e.g. cyber-attacks), with consequent financial or reputational impacts for IPTO.	Reduced damage restoration costs through the planning and timely implementation of the asset replacement programme.
Innovation, research & development, and digital transformation	Lack of innovation and research leads to the obsolescence of technologies and processes with a potential impact on the effectiveness of the organisation to adapt to new conditions (climatic, technological, social).	Reduced operating costs, improved System monitoring, increased quality of services.
Compliance and governance practices	Possibility of untimely or incomplete adaptation to legislation and regulations. Possible fines or incidents of corruption.	-



Subsequently, based on the results of the double materiality analysis, material topics were prioritised as follows.

Table 1.7: **Ranking of material issues – Positive impact**

ESG Category	Material topic	Sustainable Development Goals
G	Network adequacy, security, stability, reliability and risk management	17 PARTNERSHIPS FOR THE GOALS, 13 CLIMATE ACTION
E	System development and energy transition	1 NO POVERTY, 3 GOOD HEALTH AND WELL-BEING, 17 PARTNERSHIPS FOR THE GOALS, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE, 11 SUSTAINABLE CITIES AND COMMUNITIES
E	GHG emissions and energy efficiency	3 GOOD HEALTH AND WELL-BEING, 17 PARTNERSHIPS FOR THE GOALS, 8 DECENT WORK AND ECONOMIC GROWTH, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION, 13 CLIMATE ACTION, 14 LIFE BELOW WATER, 15 LIFE ON LAND
S	Cooperation and consultation with stakeholders and local communities	17 PARTNERSHIPS FOR THE GOALS
S	Workforce Health & Safety	3 GOOD HEALTH AND WELL-BEING, 8 DECENT WORK AND ECONOMIC GROWTH
G	Innovation, research & development, and digital transformation	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
G	Compliance and governance practices	8 DECENT WORK AND ECONOMIC GROWTH
E	Waste management	3 GOOD HEALTH AND WELL-BEING, 11 SUSTAINABLE CITIES AND COMMUNITIES, 15 LIFE ON LAND
S	Training and development	8 DECENT WORK AND ECONOMIC GROWTH, 13 CLIMATE ACTION
E	Ecosystem protection and environmental management	3 GOOD HEALTH AND WELL-BEING, 11 SUSTAINABLE CITIES AND COMMUNITIES
S	Equal opportunities and diversity	5 GENDER EQUALITY, 8 DECENT WORK AND ECONOMIC GROWTH, 10 REDUCED INEQUALITIES
S	Social impacts on the value chain	8 DECENT WORK AND ECONOMIC GROWTH, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Table 1.8: **Ranking of material issues – Negative impact**

ESG Category	Material topic
E	GHG emissions and energy efficiency
E	Waste management
S	Health and safety at work
G	Innovation, research & development, and digital transformation
G	Network adequacy, security, stability, reliability and risk management
E	Ecosystem protection and environmental management
G	Compliance and governance practices
S	Equal opportunities and diversity
S	Cooperation and consultation with stakeholders and local communities
S	Social impacts on the value chain

● Material Topics ● Other Topics

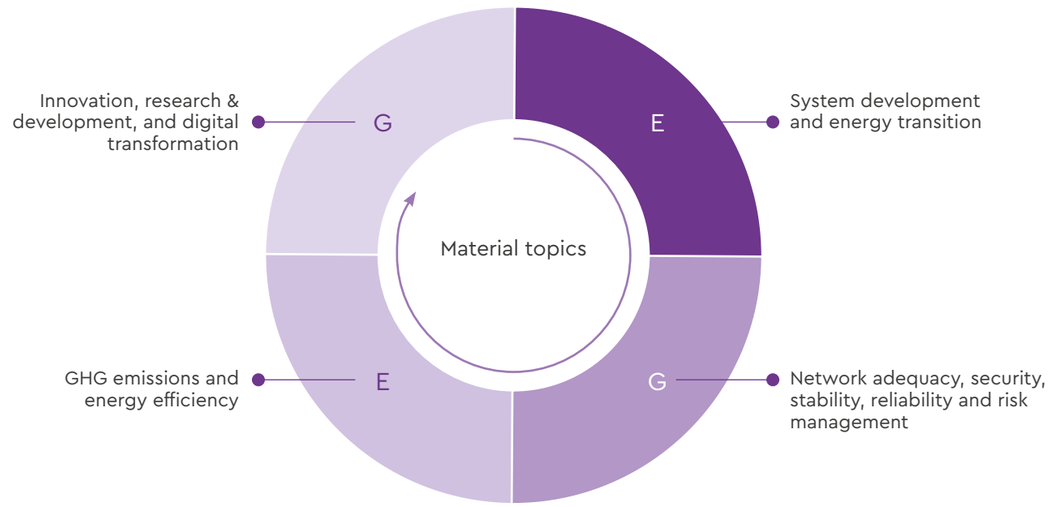
Table 1.9: **Ranking of material issues – Risks & Opportunities**

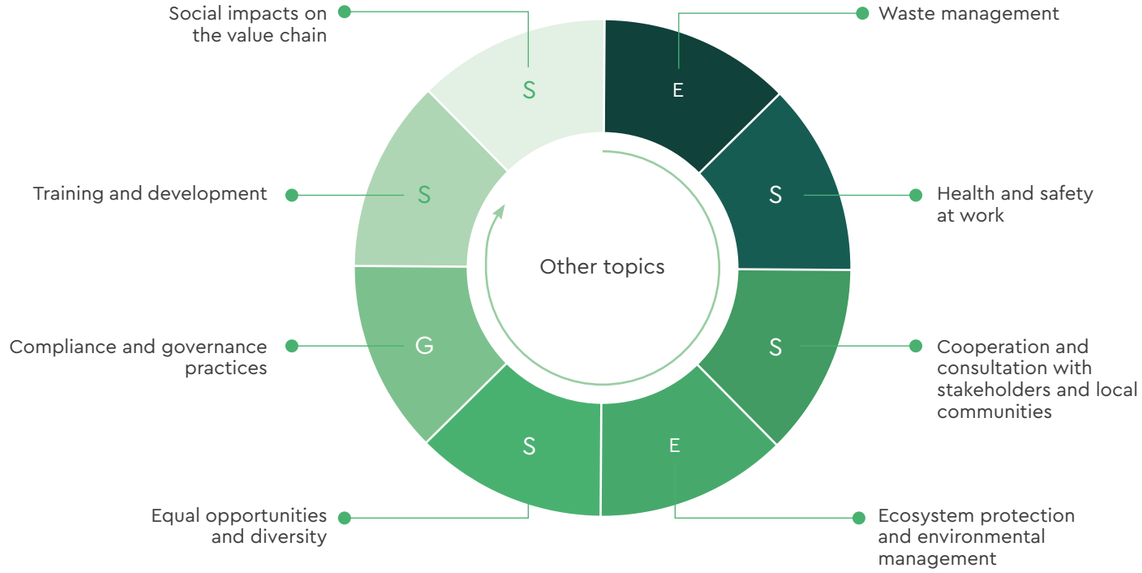
ESG Category	Material topic
E	System development and energy transition
G	Network adequacy, security, stability, reliability and risk management
G	Innovation, research & development, and digital transformation
E	GHG emissions and energy efficiency
S	Equal opportunities and diversity
E	Waste management
S	Cooperation and consultation with stakeholders and local communities
G	Compliance and governance practices
S	Training and development
E	Ecosystem protection and environmental management
S	Social impacts on the value chain
S	Health and safety at work

Material topics

A threshold was then established under which Sustainable Development issues were designated as material topics and the material topics were approved by the Senior Management.

Table 1.10: **Material issues**





Participation in organisations and bodies

The Group participates in a number of national and European organisations and bodies aiming at making a substantial contribution to the energy sector. The organisations and entities in which the IPTO Group participated in 2023:

- Association of Chief Executive Officers (EASE)
- Athens Chamber of Commerce & Industry (EVEA)
- Technical Chamber of Greece (TEE)
- Union of Hellenic Chambers of Commerce (KEEE) on the annual fee for retaining a GEMI (General Commercial Registry) record.
- General Electronic Commercial Registry (GEMI)
- Hellenic Federation of Enterprises (SEV)
- Hellenic Network for Corporate Social Responsibility (CSR HELLAS)
- Institute of Energy for South-East Europe (IENE)
- International Council on Large Electric Systems (Hellenic & International) (CIGRE)
- The Institute of Asset Management (IAM)
- European Network of Transmission System Operators for Electricity (ENTSO-E)
- Mediterranean Transmission System Operators (Med-TSO)
- Hellenic Association for Energy Economics (HAEE)
- Institute of Internal Auditors of Greece (EIEE)

Furthermore, IPTO holds shares in the following organisations:

- Joint Allocation Office (JAO)
- Coordinated Auction Office in South East Europe (SEE CAO)
- Southeast Electricity Network Coordination Center (SEleNe CC)
- Hellenic Energy Exchange SA (HEnEx)

ENTSO-E

ENTSO-E, the European Network of Transmission System Operators for Electricity, is the European Association for the cooperation of Transmission System Operators for Electricity. The 40 member Operators, representing 35 countries, have as their primary mission to ensure the safe and reliable operation of the pan-European interconnected electricity system. It is the common platform for the dissemination of Operators' know-how and technical cooperation, dynamically and actively supporting the integration and optimal operation of the coupled electricity markets, the energy transition linked with the ever-increasing penetration of RES in electricity generation to achieve the climate goals and the well-being of citizens.

IPTO, as an ENTSO-E member, has a significant presence in the whole range of its activities and its legally prescribed tasks, with active participation both in the General Assembly meetings and in the work and actions of the Committees and the respective Working Groups. These include the design and implementation of grid standards and codes, the design of pan-European Ten-Year Network Development Plans (TYNDP), the preparation of studies to assess the adequacy of the System, coordination in research projects to promote Research and Innovation, cybersecurity by developing platforms for transparent data exchange with market participants and technical support for the Operators' operating systems. In addition, it closely monitors their legal and regulatory obligations through various committees, such as the Market Committee, System Development Committee, System Operations Committee, Research and Development Committee, Information & Communication Technologies Committee, and the Legal and Regulatory Group.
Finally, IPTO has enhanced representation in the association's decisions, as the Director of European and Regional Relations was elected as a member of the ENTSO-E Board of Directors in June 2023.

SEleNE CC

The commercial operation of the Regional Security Center (Regional Security Center-RSC), namely the Southeast Electricity Network Coordination Center (SEleNe CC) in Thessaloniki, established in the summer of 2020 by the System Operators of Greece, Bulgaria, Italy and Romania, has started since 2021.

As of 1 July 2022, SEleNe CC, in accordance with the provisions of the 4th Clean Energy Package (CEP), has become a Regional Coordination Center (RCC) providing advisory services to its Shareholder Operators with the aim of coordinating and harmoniously operating the Transmission Systems of the region.

SEleNe CC is one of the six Regional Coordination Centres currently operating on the European continent and has been providing all the services foreseen since its first day of commercial operation.

These services include:

- the development of a common network model,
- coordination for the operational security of the network,
- the coordinated estimation of interconnection capacity,
- coordination of the maintenance planning,
- the assessment of the short-term adequacy of SE Europe's Transmission System.
- participation in the management of critical operational situations, coordinating the actions of the Operators of the region.

SEleNe CC will enhance the efficiency of the operation of the electricity market in the region and contribute to its faster and more efficient integration at European and regional level. It also represents an important step towards aligning the SE European region with the 4th EU Clean Energy Package.

System development and energy transition

1,080MW
New installed capacity from RES in HETS during 2023

48%
RES contribution in the country's energy mix

Electrification
and commercial use of the second interconnection between Greece and Bulgaria

€5.7 bil.
investments within a decade

€6.73 mil.
for equipment replacement

IPTO
became operational in the European platform International Grid Control Cooperation

IPTO's role is crucial for the country's adaptation and mitigation of climate change, as well as for the transition to a low carbon emissions economy.

Contribution to the energy transition

IPTO's role is crucial for the country's climate change adaptation, through its maintenance and assets renewal plan, as well as the improvement of the Transmission System's resilience. It plays an equally important role in climate change mitigation, being the implementing agency of the country's major interconnections, as through the increased integration of RES into the System, it contributes to accelerating the energy transition to a low-carbon economy.

IPTO operates under the European administrative and regulatory framework governing the operation of the electricity market. This framework is based on three main sub-frameworks:

1 The European Green Deal

The European Green Deal is at the heart of the EU's climate actions through a package of measures aimed at reducing greenhouse gas emissions. More specifically, it includes the European Climate Law, which incorporates the objective of climate neutrality into European legislation. In this context, the EU is taking a number of initiatives to stimulate citizen engagement in the energy transition and to shield the continent against the impacts of climate change.

2 The Fit for 55 Package

The Fit for 55 Package includes the legislative tools to make the European Green Deal a reality and to achieve the respective objectives of the European Climate Law. The initiative's proposals include implementing the Emissions Trading System in new sectors and adding more stringent requirements to the existing Emissions Trading System (ETS), increasing the use of RES, greater energy efficiency, etc., to avoid carbon emissions and create new tools to maintain and enhance carbon avoidance and absorption technologies.

3 The Clean Energy for All Package

According to this initiative, the European Energy Policy aims to make the energy transition from conventional fuels to cleaner forms of energy and to reduce greenhouse gas emissions in order to meet the Paris Agreement commitments. As to the design of the electricity market's operation, this Package aims to establish a modern design of the European electricity market, giving priority to those organisations that rely more on market mechanisms and focus on integrating a higher share of RES. Each EU member state is also required to prepare and adopt a 10-year National Energy and Climate Plan for the period 2021-2030. IPTO complies with the National Energy and Climate Plan and contributes decisively to the achievement of the transition to a climate neutral economy by 2050, responding to the urgent need for a drastic reduction of greenhouse gas emissions.

The Ten-Year Development Plan (TYDP)

The Company's activity is largely determined by the implementation of the Ten-Year Development Plan (TYDP) for the System, as it affects both the investments it is required to make and its future revenues from the use of the Transmission System. In accordance with the provisions of Law 4001/2011 and the System Grid Code (SGC), IPTO prepares and publishes the Ten-Year Development Plan (TYDP) of the country's Transmission System annually, on a rotating basis.

The TYDP includes System development projects for each period of reference, as well as the necessary infrastructure for the penetration of RES, the timetables and estimated financial flows for their implementation. The TYPD is publicly accessible on IPTO's website. (https://www.admie.gr/en/grid/development/ten-year-development-plan).

Increased RES integration

IPTO's Ten-Year Development Plan promotes the increased integration of RES (onshore and offshore) and strengthens infrastructure resilience against the climate-crisis conditions, supporting Greece's national objective to become an exporter of green energy and the European policy to achieve climate neutrality by 2050.

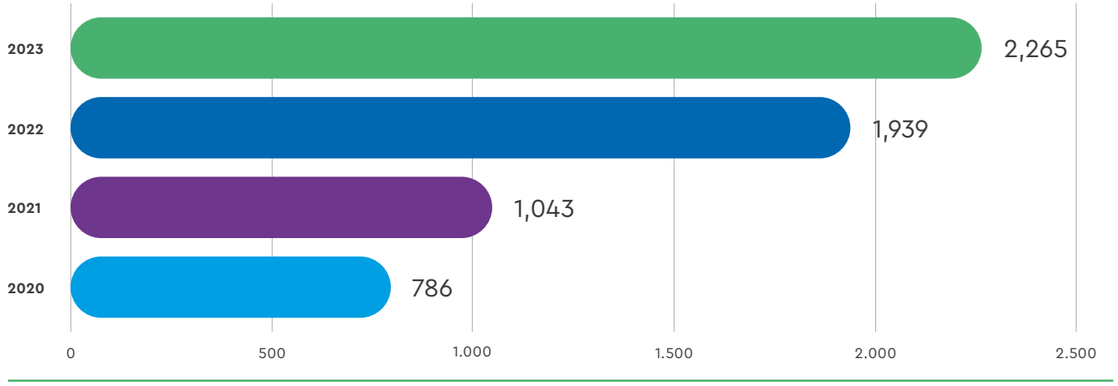
As the entity implementing the country's major interconnections, IPTO is paving the way for green investments and the increase in the integration of RES in the HETS, offering many significant benefits for society, the environment and the economy.

In particular, through interconnections and the increased integration of RES, we achieve:

- Reduction of carbon intensity (decarbonization)
- Reduction of energy production costs
- Improvement of the country's energy security
- Reduction of air pollution, locally and more broadly, by reducing air emissions from fossil fuel combustion

In 2023, the new installed RES capacity in the Interconnected System, which includes the Transmission System (1,080MW) and the Distribution Network (1,185MW), amounted to 2,265MW.

Graph 2.1: New installed RES capacity (MW) in the Interconnected System



The revised National Energy and Climate Plan (NECP) that was published in August 2024 presents and analyses priorities and policy measures across a wide range of development and economic activities for the benefit of Greek society and develops the long-term strategy for the year 2050. This strategy is a guide on climate and energy issues, in the context of the country's participation in the collective European objective for a sustainable and successful transition to a climate-neutral economy by 2050, at European Union level. The mid-term strategy has 2030 as its reference year and assumes the achievement of the relevant NECP targets.

According to the revised NECP 2024, the course of Greece towards reaching the goal for climate neutrality in the year 2050 consists of three key energy transition periods, each focusing consecutively on a different key parameter:

Period A (2025-2030) – Rapid RES penetration into power generation and construction of electrification infrastructure for end use energy consumption
Period B (2030-2040) – Rapid electrification of end use energy consumption
Period C (2040-2050) – Rapid development of green hydrogen and synthetic fuel production

IPTO substantially contributes to the penetration of RES in the energy mix, but also to the export of the green energy surplus produced to Central Europe. Restructuring the country's energy mix by 2030 and increasing the participation of renewables will help reduce carbon emissions, increase the country's energy security and reduce the cost of energy production.

The IPTO Group, due to its critical contribution to the energy transition, is in line with the strategic lines of the NECP.

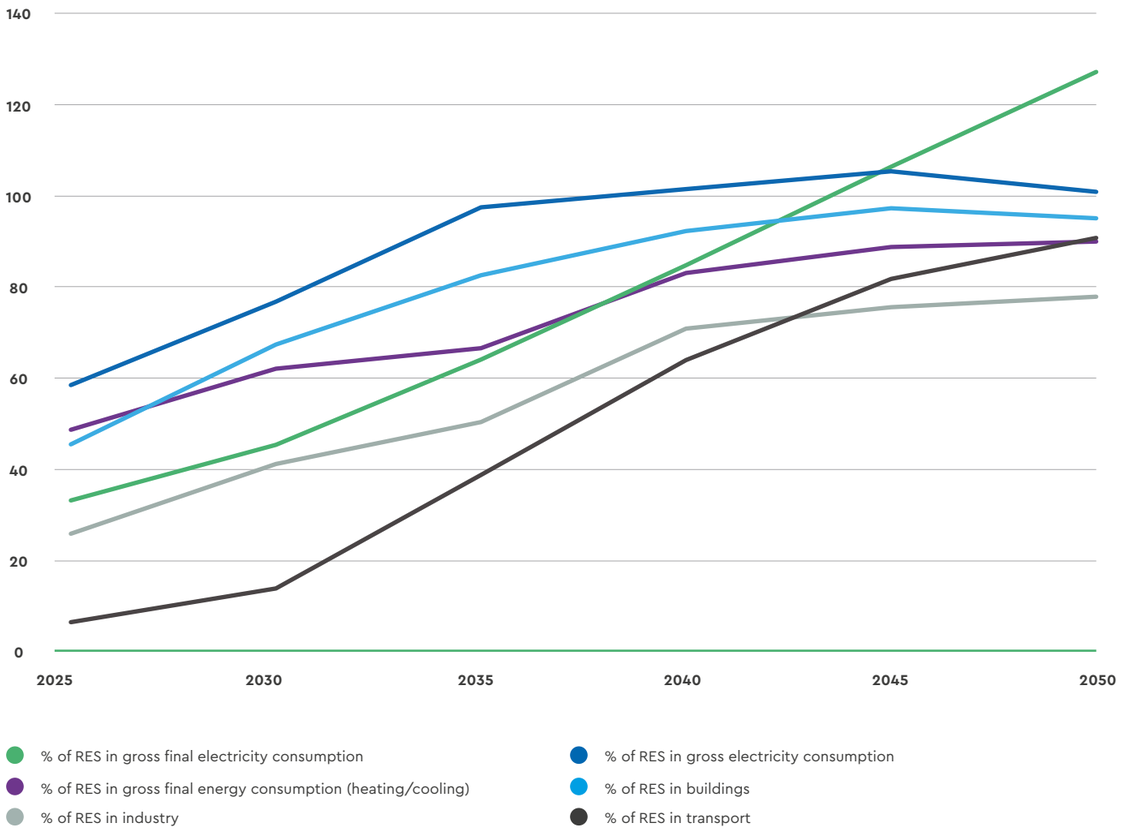
Main components of the new NECP

Rapid growth of RES	Development of photovoltaic and wind plants (including offshore wind parks), adding more than 12GW -to the already about 12.5GW capacity existing today- by 2030 and exploiting at the same time the country's remaining hydraulic potential.
Energy storage	Development of the required storage (mainly accumulator and pumped storage technology) to time-shift excess RES; to provide balancing/flexibility and stabilisation services concerning the System; and to contribute to capacity adequacy and network decongestion services.
Energy efficiency	Energy upgrades in buildings, smart energy consumption management systems and behavioural change towards reducing the required energy or the demand profile.
Digitisation, strengthening or resilience and optimal use of electrical networks	Use of new investments to redesign and digitise electrical networks, aiming at improving their resilience, optimal reception of increased RES penetration, as well as engagement of flexible demand loads.
Adaptation to climate change	Development of a new energy system with increased adaptive capacity and high resilience to climate change
Electrification of road transport	Implementation of electromobility in passenger and light/medium vehicles, along with the development of charging infrastructure and systems interacting with the grid.
Climate-neutral alternative fuels	Support to the development of domestic industrial production of climate-neutral alternative fuels for transport sectors that are not technically and/or economically feasible to be electrified (e.g. shipping, aviation).
Fuel gas system	Preservation of the gas transport and distribution system in the country and expansion to areas or sectors not supplied, aiming at gradual and targeted use of renewable gases so the gas mix distributed soon becomes low-carbon.
Bio-economy	Investments and leveraging for the development of national industrial and agricultural production of advanced biofuels and biogas, which will be transformed into biomethane and injected into the gas grid.
Creation of a green hydrogen economy	Gradual development of infrastructure and production of hydrogen from RES, giving priority to its use either as a clean gas fuel or as a synthetic liquid fuel in aviation, shipping and heavy goods vehicle transport.
Innovation and systemic solutions in carbon capture and storage (CCUS)	It concerns the energy transition of the country's industry (mainly cement production, oil refining). It includes investments for CO_2 capture from industrial processes, its use in the production of synthetic fuel and in parallel the development of geological CO_2 storage infrastructure.
Support to new industries and business activities that develop a domestic value chain for green energy transition technologies	The aim is to maximise the benefits for domestic growth and employment from green transition investments and support industries in reducing their carbon footprint and energy costs.

Furthermore, the strengthening of Transmission System infrastructure will increase availability for connecting new RES plants. As part of the NECP objectives, a new branch of the GRID Telecom subsidiary is planned, which will develop charging infrastructure for electromobility.

As shown in the figure below, the contribution of RES as a share of gross final energy consumption is 45% for 2030, before rising to 127% in 2050. Similarly, the share of RES in gross electricity consumption in the year 2030 is expected to be 77%, rising significantly compared to the year 2025 (59%), while in the year 2050 it is estimated to be as high as 101%.

Figure 2.2: Shares of RES in the domestic energy system based on the methodology of the European Union – RES Contribution



The progress of the installed capacity of RES shows their dynamic integration into the country's energy mix and in the electricity System specifically. Both the release of grid electricity space from RES projects and the development of energy storage projects make the vision of meeting national needs from RES and moving to a climate-neutral economy by 2050 increasingly feasible.

An analysis of the targets for installed capacity and electricity generation from RES based on the updated NECP for the year 2030 is presented below:

Table 2.3: NECP Targets

NECP Targets for 2030	
Onshore wind and photovoltaic parks	22.4 GW
Offshore wind farms	1.9 GW
Hydroelectric	3,1 GW (4,5GW by 2050)
Geothermal fields	0.1 GW
Pumped storage systems	1.7 GW (5.5 GW by 2050)
Battery storage systems	4.3 GW

In addition, a key strategic option of the NECP is the gradual reduction of the carbon footprint of gaseous fuels. This objective can be achieved via: the penetration of RES in electricity generation; the substitution of natural gas by electricity in the heating sectors (buildings and industry); the transformation of the traded natural gas into a mixture with renewable gases. In conclusion, natural gas consumption in Greece is expected to decrease from 51.2TWh (2022) to 44.1TWh in 2030 and to 16.2TWh by 2050. In contrast, the total production of biomethane (renewable gas) is expected to rise to 2.1TWh in 2030, 3.6TWh in 2040 and 4.6TWh in 2050. Finally, around 2.5% of net domestic electricity consumption in 2030 and 23.4% in 2050 is projected to be due to the need for green hydrogen production.

The interconnection of the Aegean islands with the High Voltage Interconnected System of the mainland is also considered an important priority in the framework of the Ten-Year Development Programme. These interconnections will help to lift the electrical isolation of the islands, by increasing the reliability of supply, reducing the cost of the energy produced and consequently the cost of Public Utility Services (PSUs). In addition, through these interconnections environmental protection is achieved along with the exploitation of the potential of RES, further contributing to the national green transition. At the same time, the end of the electrical isolation of the Aegean islands increases the size of the domestic electricity market.

Affordable energy for all

The implementation of the electricity interconnections carried out by IPTO, both within the country and internationally with neighbouring countries, has resulted in a reduction in energy costs, compared to the energy costs that consumers would have paid without these interconnections. IPTO's aim is to ensure reliable, efficient and green electricity supply in the country, promoting the development of free competition in the Greek electricity market.
Through IPTO's activities and the new interconnection projects, as well as the growth of free competition, among other things, energy costs are reduced, making energy not only affordable but also clean.

Setting the energy mix

Electricity transmission from producers to consumers requires the smooth cooperation between power grids of different voltage levels. This is achieved by using appropriate grid control and operation tools, as well as market mechanisms that have a regulatory impact on the System. The operation and control of the System are carried out according to solutions extracted from the electricity market and are based on technical and financial offers. Subsequently, they are implemented in real time mainly by the National Energy Control Centre, as well as by the Regional Energy Control Centres.

The main factors affecting the country's electricity demand in the medium- to long-term are summarised below:

- The country's economic conditions, with GDP being the key indicator.
- Changes in consumption habits (air conditioning, use of electricity in transport, computers, LED lamps, etc.) due to improved living standards, yet also improvement in the living conditions of specific population groups (e.g., economic migrants).
- The general situation in the energy sector and the electricity market (energy price level, natural gas competition, etc.).
- Specific circumstances (e.g., the development and implementation of financial mechanisms).
- Population growth.
- The implementation of governmental policies, concerning for instance energy savings, energy efficiency improvements in buildings, etc.

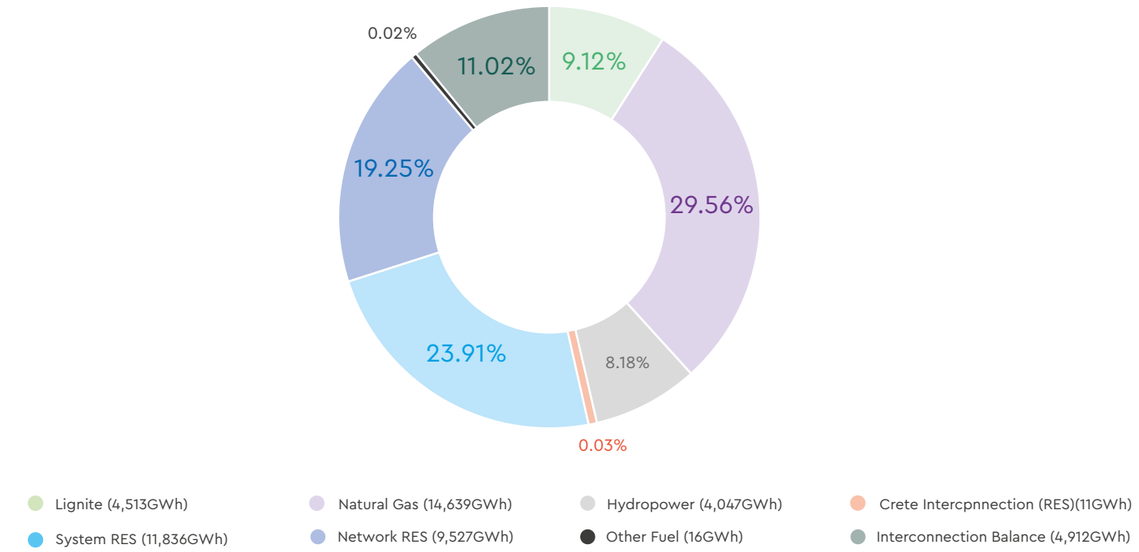
In this context, the Operational Planning procedures aim at planning the safe operation of the HETS. The key procedures include the outage planning concerning the interconnections and main elements of the HETS, as well as the Production Plants, in order to ensure the uninterrupted supply of electricity in the country and the reliable operation of the HETS.

Moreover, the analysis of the control area's adequacy of capacity and reserve margins, the creation of the Individual Grid Model that reflects current network topology, as well as the production, load and flow forecasts, constitute the main pillars for the Operational Security Analysis of the HETS.

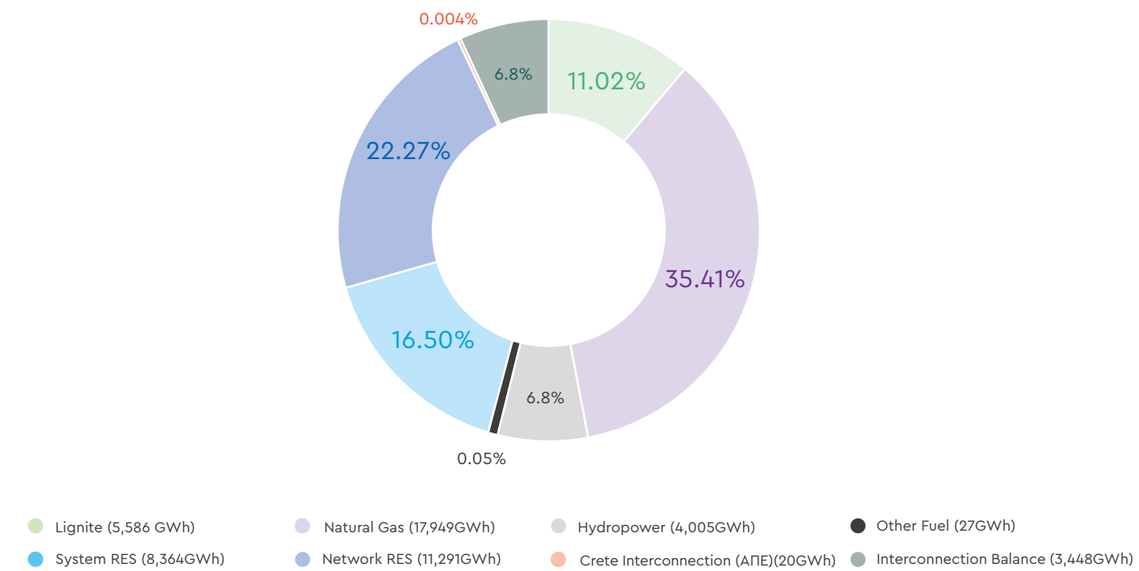
The total production and import-export balance that was traded in 2023, according to the data reported in the Monthly Energy Bulletin (December 2023), amounts to 49,492GWh, of which 21,362GWh come from RES, namely 9,527GWh are related to the production of RES from the Grid (photovoltaics, biogas, small hydroelectric plants and high efficiency CHP units) and 11,836GWh, accounting for 24% of the total production from RES from the System. With a view to implementing the energy transition, IPTO aims to further increase the integration of RES in the System, with the ultimate goal of reaching 53TW of RES energy production by 2030.

The figures below show the distribution of electricity production by different fuel sources for the years 2022 and 2023. In 2023 the domestic production share from RES reached cumulatively 48% (from 42% in 2022) and the production from lignite and natural gas plants was reduced by 19.2% and 18.5% respectively (2022- 2023).

Graph 2.4: Estimated production and interconnection balance (GWh) in 2023



Graph 2.5: Estimated production and interconnection balance (GWh) in 2022



[1]Notes:
1. Demand on the non-interconnected islands is not included.
2. Grid production is derived from certified medium-voltage measurements and low-voltage measurements and estimates.
3. The interconnection balance is shown in the estimation of aggregate demand when exported and in the estimation of aggregate output when imported.
4.The percentage of losses shown in this graph is not related to the System Loss Rate shown on page 5 of this Bulletin

Development of the Electricity Transmission System in Greece and international interconnections

In view of the rapid growth of RES, IPTO is redesigning the expansion of the System in the long term, creating electricity space not only for 2030, but with a view to 2040 and 2050. The aim is to achieve climate neutrality and transform Greece into an energy self-sufficient country and energy exporter.

With investments up to €5.7 billion over a ten-year period and prioritizing the strengthening of the electrical interconnections and the domestic infrastructure for electricity transmission, IPTO is rapidly and consistently proceeding to the implementation of the Ten-Year Development Plan, with significant benefits for the economy, society and the environment.

One of IPTO's main tasks in its role as an Operator is the development of the HETS so as to meet the needs of electricity transmission, under all expected conditions, in a safe, reliable, cost-effective and environmentally acceptable manner. Furthermore, it is important to ensure the long-term ability of the System to meeting the needs for power transmission under economically sustainable conditions, for the benefit of society, the economy and the environment.

With the above in mind and with a high sense of responsibility, IPTO designs and implements its projects in accordance with the requirements of national and European environmental legislation, while promoting the principles of sustainable development.

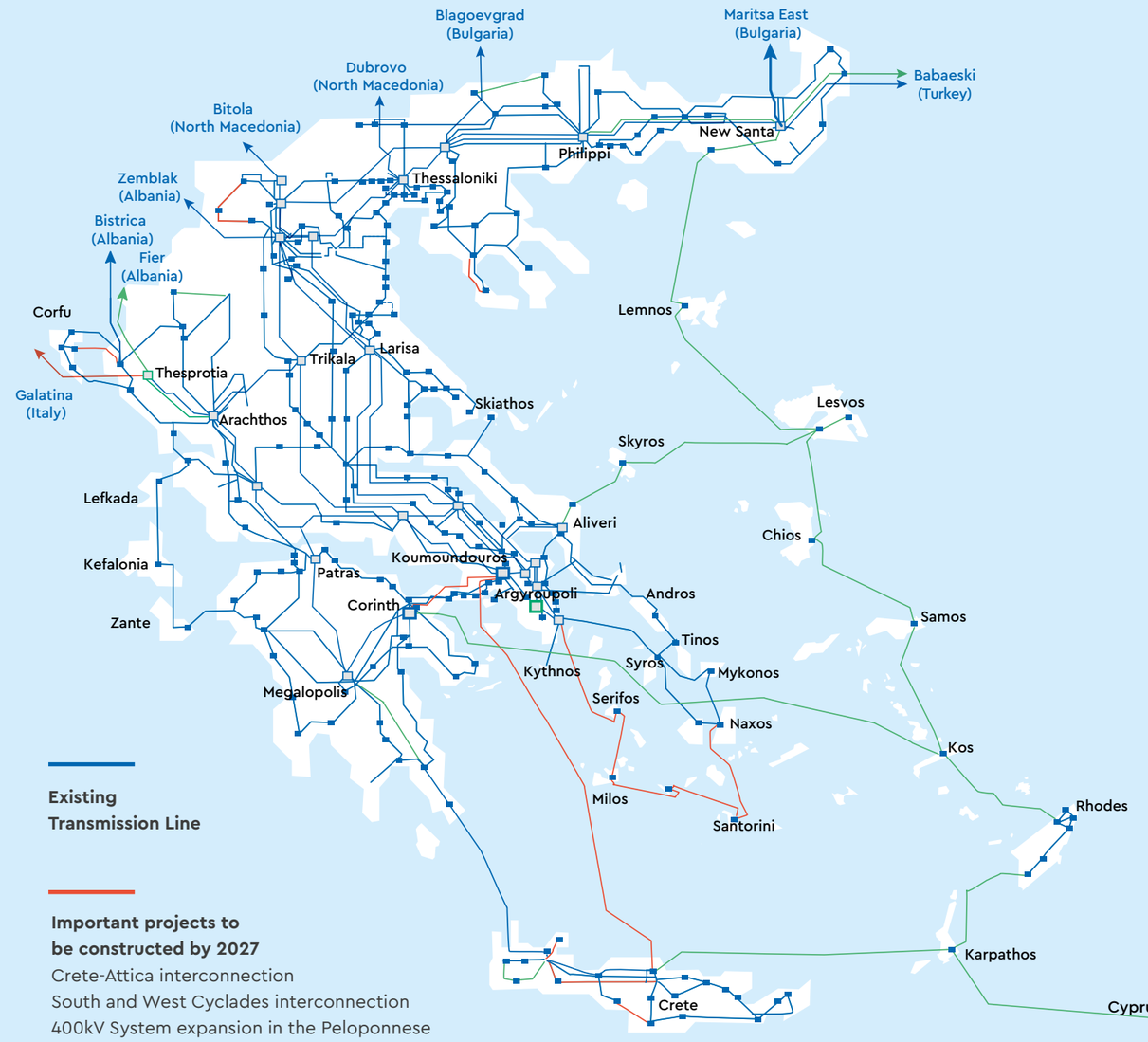
For the preparation of the TYDP, it takes into account the content, objectives and data of the National Energy and Climate Plan (NECP) for 2030, as well as the long-term strategy for 2050 in full compliance with the EU targets. The reduction of greenhouse gas emissions, due to increased penetration of RES in electricity generation, the gradual delignitisation and the use of natural gas as a transitional fuel in electricity generation are taken into account as guidelines in the TYDP. In particular, the inclusion of reinforcement and expansion projects in the TYDP aiming at increasing the penetration of RES in electricity generation is a priority.

In addition, a special category of projects to achieve the targets set in the NECP for 2030 and the Long-Term Energy Plan for 2050 includes the development of RES plants on islands or offshore areas with their submarine interconnection to the mainland system. To this end, IPTO is already proceeding with the implementation of an island interconnection development plan that includes the largest of the Aegean islands (Crete, Cyclades, Dodecanese, islands of the North-eastern Aegean). More specifically, the Cyclades-Crete interconnection is already completed, while a new cycle is starting that includes the interconnections of the Dodecanese and the islands of the North-eastern Aegean. Also, in 2023 the Environmental Impact Study was submitted to the Ministry for approval and the contracts for conducting subsea surveys for the Dodecanese interconnection were signed.

The extension of the Interconnected Transmission System to the islands will create the conditions for the development of offshore wind farms as it significantly reduces electricity transmission distances from the source of production to the grid connection points, making new areas economically and technically sustainable for the development of offshore RES projects.

With investments of up to 5.7 billion euros over a ten-year horizon and having as primary goal to strengthen international connections and domestic electricity transmission infrastructure, IPTO is advancing at speed and consistency in the implementation of the Ten-Year Development Program (TDP), with particularly important benefits for the economy, society and the environment.

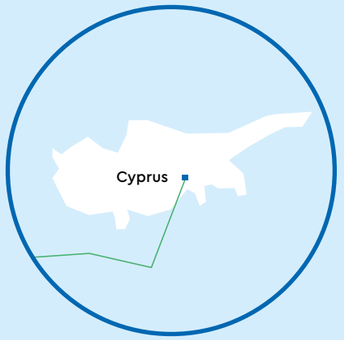
Map of the Hellenic Electricity Transmission System



Existing Transmission Line

Important projects to be constructed by 2027
Crete-Attica interconnection
South and West Cyclades interconnection
400kV System expansion in the Peloponnese
Reconstruction of the Koumoundourou HVC

Important projects planned by 2033
Dodecanese interconnection
Northeast Aegean interconnection
New 400kV TL Philippi – Nea Santa
Thesprotia HVC and connection to the 400kV System
New Greece – Albania interconnection
New Greece – Italy interconnecton
New Greece – Turkey interconnection



1 Crete - Attica interconnection

In early 2023, IPTO's subsidiary Ariadne Interconnection completed one of the most important milestones in the Crete-Attica electricity interconnection project: the laying and installation of the entire 500kV DC high voltage submarine cables. Ariadne laid a total of 1,350km of electrical and fibre optic cables between Korakia, Heraklion and Pachi, Megara. The depth of the installation reached up to 1,200m from the sea surface, while the weight of the cables exceeded 40kg/m.

For these operations of particularly high technical requirements, five specialised cable work vessels were used.
For the successful laying of the submarine cables, a thorough seabed survey was carried out by the contractors Prysmian and Nexans, and the optimal routing and protection of the cables was designed according to technical and environmental criteria. Apart from the laying of the cables, the construction works also proceeded on the onshore section of the Crete-Attica interconnection. Two of the accompanying projects that are being implemented on the occasion of the electrical interconnection on the Cretan side are the opening of roads, which will serve the road connection of the region with the Northern Crete Highway, and the upcoming undergrounding of the transmission lines in Damasta with the simultaneous removal of pylons that are currently located near the village.

The Crete-Attica electricity interconnection is the largest energy investment, worth €1 billion, currently underway in the country and will fully integrate Crete into the mainland Electricity Transmission System by the end of 2024. In addition, it will significantly enhance the telecommunications connectivity of Crete, creating opportunities for new international strategic synergies.

2 EIB supports Greece's energy transition

In 2023, the European Investment Bank (EIB) and IPTO signed a long-term loan agreement, which is based on funds from the Recovery and Resilience Facility (RRF), which will help finance the construction of the vital electricity interconnection between mainland Greece and the Northwestern Cyclades.

The much-needed new electricity transmission network consists of five underground and submarine cables totalling 350km in length. The interconnection is the fourth stage of the Cyclades project which aims to connect Santorini, Folegandros, Milos and Serifos, the last islands of the cluster that remain cut off from the mainland network.

The interconnection will allow the phasing out of independent island power systems - which currently rely on more expensive, polluting oil-fired power plants - providing cheaper and cleaner energy for citizens, while supporting regional development and cohesion.

3 Interconnection of Santorini, Folegandros, Milos and Serifos

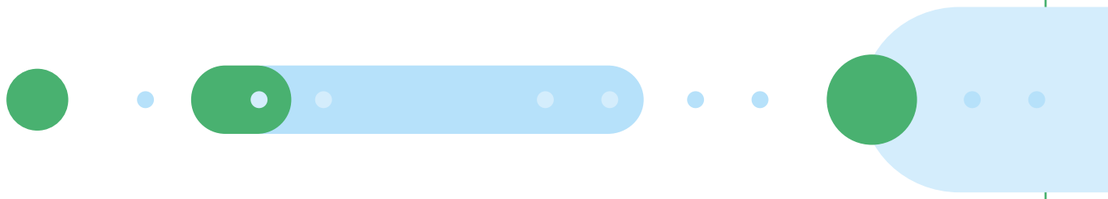
IPTO will interconnect the four islands of Santorini, Folegandros, Milos and Serifos with Naxos and Lavrio by 2025, completing the integration of the Cyclades into the mainland high-voltage system. The laying of the cable for the Santorini-Naxos electrical interconnection, as well as the initiation of construction works for the Substation, took place in 2022. In September 2023, the contracts for the High-Voltage Substations to be built on Folegandros, Milos and Serifos were signed, putting the entire project in the construction phase. The project is co-funded by the Recovery and Resilience Facility Greece 2.0 with funding from the European Union NextGeneration EU and by the Government Gazette Issue D 494 4/8/2022 was characterized as a project of general importance for the country's economy.

With the operation of this project, which is at the core of IPTO's investment programme, a new reliable route for the energy supply of the Cyclades will be created and the electricity supply of the island complex will be shielded, even in conditions of increased demand.

Four more indirectly interconnected islands (Ios, Kimolos, Sifnos and Kythnos) will benefit similarly, while due to the gradual withdrawal of old and polluting power plants, carbon dioxide emissions are estimated to be reduced by up to 200 thousand tonnes annually in the Cyclades. At the same time, the electrical space for renewable energy development will exceed 600MW.

4 Upgraded Aktio-Preveza electrical interconnection

In April 2023, the upgraded 150kV submarine and underground High-Voltage cable line connecting Aktion to Preveza was successfully put into full operation. An important project for the strengthening of the Transmission System in Western Greece, the implementation of which was accelerated by one year by timely replacing the old electrical interconnection that had been operating continuously for at least three decades, electrifying the Industrial Area of Preveza through the Aktio Substation.



5 Western and Eastern Corridor of the Peloponnese

The last part of the interconnection of the Megalopoli HVC with the existing 400kV Acheloos-Distomo transmission line was completed and became fully operational in May 2023. The extension of the 400kV System to Megalopoli drastically increases the transmission capacity to and from the Peloponnese, thus decongesting the region's saturated networks, enhancing voltage stability for the Southern System as a whole.

As to the Easter Peloponnese Corridor, the sub-project of the 400kV transmission line that connects the existing Megalopoli HVC with the new Corinth HVC was completed in December 2022. In December 2023, the contract for the sub-project of the new transmission line that will connect the Corinth Nuclear Power Plant with the Koumoundouros Nuclear HVC was signed, putting the second part of the project in the construction phase. The completion of this sub-project is expected in the first half of 2026. The project of the transmission line Koumoundourou HVC-Corinth HVC is co-financed by the Recovery and Resilience Facility Greece 2.0 with the funding of the European Union NextGeneration EU and by the Government Gazette Issue D 494 4/8/2022 was characterized as a work of greater importance for the country's economy.

6 New Kyllini-Zakynthos interconnection

In mid-2023, the upgraded 150kV Kyllini-Zakynthos high-voltage submarine electricity interconnection was put into operation. With the successful launch of the new cable system, the obsolete technology interconnection that had been operating continuously since the early 1980s was finally retired. This project strengthens the energy shield of the Ionian Sea.

7 Electricity interconnections of the Dodecanese and the NE Aegean

In the summer of 2023, IPTO proceeded with the commissioning of the studies and the reconnaissance oceanographic - bathymetric surveys concerning the electrical interconnections of the Dodecanese islands and in November 2023 for the electrical interconnections of the NE Aegean islands, which are currently underway. Specifically, the seabed survey for the Corinth - Kos, Kos - Rhodes interconnections for the Dodecanese has been launched with a completion date of June 2024. For the NE Aegean, the seabed survey for the Skyros - Evia route has been completed and the seabed survey for the Lesvos - Skyros, Limnos - Lesvos, Limnos - Thrace routes has been launched, which are expected to be completed in August 2024. These surveys are particularly important for the maturation of the electricity interconnections that the Operator is launching by the end of the decade, as part of its investment programme.

International interconnections

Since October 2004, the Greek System operates anew synchronously and in parallel with the interconnected European System under the overall coordination of the European Network of Transmission System Operators for Electricity (ENTSO-E). The parallel operation of the Greek with the European System is achieved through interconnecting transmission lines (of mainly 400kV) with the Systems of Albania, Bulgaria, North Macedonia and Turkey. Moreover, the Greek System is connected asynchronously through a 400kV DC submarine link with Italy. The implementation of international interconnections is a major challenge for all Operators. Their common goal is to create a Modern Below is a summary of the developments for the international interconnections and cooperation projects that took place in 2023: Electricity Grid.

The development of electricity interconnections between countries is an important priority, as it:

- drastically contributes to the security of supply,
- is a key factor in the integration of national electricity markets through the implementation of the Target Model,
- generally allows the sharing of various resources (capacity, flexibility, reserves, etc.) between power systems, which can lead to a reduction in the overall cost of electricity and
- will enable the desired high penetration of RES in Europe, as this will require the ability to transmit significant amounts of electricity over long distances, while the replacement of conventional plants by RES plants will lead to the need for increased inter-system transmission capacity for regulation purposes

IPTO's development strategy is largely based on the development of international interconnections, as they contribute significantly to the stability of the System and the convergence of prices among different European regions. To this end, IPTO is in cooperation with the neighbouring Operators to assess alternatives for strengthening transnational interconnections.

Below is a summary of the developments for the international interconnections and cooperation projects that took place in 2023:

1 Second Greece-Bulgaria interconnection

The project concerns the implementation of a second interconnection line between the systems of Greece and Bulgaria, which will be realized with a 400kV overhead interconnection between the Nea Santa HVC and the Maritsa East 1 S/S. The line, which started operating on 30 June 2023, has a nominal transmission capacity of 2,000MVA and a total length of approximately 151km, of which 29km will belong to the Greek territory and 122km to the Bulgarian territory. The new 400kV Greece-Bulgaria interconnector is an important project of European-wide interest and was integrated into the European System in 2023.

2 Second Greece-Italy interconnection

According to the results of the studies investigating the needs for strengthening the European Transmission Network, in the long term, price convergence between the two countries requires the strengthening of the electricity interconnection between them. To this end, in November 2020, a collaboration was launched between IPTO and the Italian Operator (TERNA) by establishing a working group to carry out studies aimed at upgrading the interconnection between the two electricity systems. In May 2021, an Agreement on Terms of Reference was signed between the two operators for the preparation of a Feasibility Study for a new interconnection between Greece and Italy. Feasibility studies for this second reinforcing interconnection were completed in 2023. According to the 2024-2033 TYDP, the nominal capacity of the submarine cable interconnection between Greece and Italy will be 1GW, tripling the existing electricity exchange margin between the two countries to 1,500MW. Technically, the new interconnection will be DC, with state-of-the-art Voltage Source Converters (VSC) and electrode stations in Greece and Italy. The underwater length of the route is estimated at 220km, of which 55km will be the length of the underground sections in Greece and Italy.

3 Greece-Cyprus-Israel interconnection

The project concerns the implementation of the interconnection of the Transmission Systems of Greece, Cyprus and Israel with direct current submarine cables. It includes two parts, the Cyprus-Greece (Crete) interconnection and the Israel-Cyprus interconnection and has a total length of 1,208km. The part of the project concerning the construction of the Crete-Cyprus interconnection has started from the end of 2023 with the aim of integrating Cyprus - the last non-interconnected EU Member State - into the European electricity transmission system. In the next phase of the project, Israel, which is also currently not electrically connected to its neighbours, will also enhance its security of supply, enabling it to increase, further and faster, the participation of Renewable Energy Sources (RES) in its energy balance. The project is included in the list of Projects of Common Interest (PCI) of the European Union and has received an EU funding of €657 million from the Connecting Europe Facility (CEF).

4 Greece-Egypt Interconnection

The GREGY - Green Energy Interconnector project involves the interconnection of Egypt directly with mainland Greece through a 3,000 MW submarine cable that will provide two-way power transmission. The GREGY project will transfer 100% green energy from Egypt to Greece, and through Greece to Europe, thus making a decisive contribution to tackling climate change and the greenhouse effect by significantly reducing CO_2 emissions. The GREGY project will provide alternative energy sources and routes for Europe and reduce its dependence on fossil fuel energy through the use of clean and renewable energy. In this way, the quality, reliability and security of supply of Greece and neighbouring European countries will be improved, turning Greece into an important clean energy hub in South-eastern Europe and supporting the achievement of the green transition objectives at European level. In 2023, a Memorandum of Understanding was signed between IPTO and ELICA SA of the Copelouzos Group, regarding the commencement of exclusive discussions for the evaluation of IPTO's entry into the share capital of the company developing the electricity interconnection project between Greece and Egypt, GREGY - Green Energy Interconnector. The Memorandum also provides for discussions between the two Parties and the Egyptian Electricity Transmission System Operator (EETC). It is the intention of the Parties that EETC, ELICA and IPTO participate in the shareholding with 33.3% each. In addition, it is foreseen that IPTO may proceed, in cooperation with ELICA, to additional studies for inland transmission infrastructure projects that may be required to ensure the interconnection of national transmission systems with the GREGY project.

ANDROMEDA submarine fibre optic cable system construction

GridTelecom and TamaresTelecom (a subsidiary of AlumaInfrastructure Fund), a leading international provider of wholesale telecommunications services and fibre optic network operator, have completed the initial design, routing and business plan for the ANDROMEDA fibre optic cable system that will connect Greece with Cyprus and Israel, and extend to the Arabian Peninsula. The ANDROMEDA system will offer advanced data transfer solutions through the creation of a new telecommunications bridge between Europe and the Middle East.

Establishment of the joint venture SAUDI GREEK INTERCONNECTION SA

In September 2023, IPTO signed a Shareholders Agreement (SHA) jointly with National Grid S.A. - Saudi Electricity Company for the establishment of the joint venture SAUDI GREEK INTERCONNECTION SA, taking the first step towards the maturation of the Greece-Saudi Arabia electricity interconnection.

Coupling the electricity markets of the Balkan countries

In November 2023, a Memorandum of Cooperation for the coupling of the electricity markets of the Balkan countries was signed in Athens by the relevant institutions of Regulatory Authorities, Transmission System Operators - including IPTO - and Energy Exchanges, which paves the way for the creation of a single electricity market in Southeast Europe.

Electricity market

IPTO plays a leading role in the operation of the electricity market, which is fully compliant with the respective European Target Model concerning the operation of the electricity market. The electricity market operation model has been in place for about a decade in various countries of the European Union. In November 2020 it came into force also in Greece, through which the following are ensured:

- The optimization of the use of the Transmission System's capacity through coordinated practices of the Operators of the Transmission Systems
- The achievement of reliable prices and liquidity in the allocation of interconnection capacity for the day-ahead market
- The efficient functioning of futures markets
- The effective planning of intra-day markets for the allocation of interconnection capacity.

According to law 4512/2018, the following wholesale energy product markets are set, as per the Regulation (EU) No 1227/2011:

1. Forward Market **2.** Day-ahead Market **3.** Intra-day Market **4.** Balancing Market

The operation of the first three markets has been entrusted to the Hellenic Energy Exchange (HEnEx).

In 2023, IPTO successfully managed and operated the Balancing Market and other key processes of the electricity market overall, such as the estimation and allocation of long-term interconnection capacity and the long-term allocation of capacity in the Next Day and Intraday Markets managed by the Hellenic Energy Exchange (HEnEx).

The Balancing Market, consisting of the Balancing Capacity Market, the Real-Time Balancing Energy Market and the Imbalance Settlement process, ensures the balance of supply and demand and, in general, the security of the System providing higher-quality economic operation through a more efficient use of the interconnections. It aims at promoting competition by providing significant incentives for the entry and the more efficient integration of new RES into the market, as well as of demand-responsive and storage technologies.

The information systems supporting the operation of the electricity market and concern market management (MMS platform), the collection and certification of measurements (MODESTO system), cross-border management (XBMS system) and the settlement of the Balancing Market (MSS system) are continuously upgraded and improved in order to address to the ever-emerging needs of the market and its participants.

Important milestones achieved in 2023:

Commercial exploitation of the new interconnection with Bulgaria

1

On 30 June 2023, the second 400kV interconnector between Greece and Bulgaria (Nea Santa - Maritsa East) was put into operation and then into commercial operation. The TL with a nominal transmission capacity of 2,000MVA and a total length of 151km, of which 29km belong to the Greek territory and 122km to the Bulgarian territory. This project significantly increases the scope for electricity exchanges between the neighbouring Greek-Bulgarian systems, enhancing both cross-border trade in the pre- and intra-day market, as well as energy security in SE Europe and the Balkan Peninsula. The energy traded is recorded by new meters installed at both ends of the interconnector. The data exchanged and certified by the two Operators (IPTO and ESO) are used for billing purposes.

Successful operation and market clearance

2

- **Market operation with increased penetration of RES - Changes in the UPP Balancing market operation in a context of steeply increasing RES penetration**

In 2023, the total installed capacity from renewable energy sources in HETS increased by 22.6% to 5.81GW. As a result of this increase, the penetration of RES in the energy mix increased strongly, injecting 47.94% of the total electricity produced and increasing the relative share by 8.64% by 2022, while the production from lignite plants was reduced by 19.2%.

IPTO has successfully managed the technical and operational challenges arising from this increase. Within 2023, an amendment to the Unified Planning Process (UPP) was proposed so that cases where the projected RES generation cannot be absorbed in its entirety are dealt with in a market-based and economically optimal way. The amendment took into account the ever-increasing rate of RES penetration into the energy mix, ensuring the proper functioning of the Balancing Market and maximising the energy produced from RES.

- **Operation with 2 conventional units at tests**

During 2023, two thermoelectric power plants, with a total maximum available capacity of 1,419 MW, were in trial operation. The units in test operation do not provide balancing services, thus deducting points from the flexibility of the Balancing Market and the System. Despite the fact that their simultaneous status in test operation combined with high-RES penetration increased uncertainty for the System and the Market, every effort was made by IPTO to carry out the tests and integrate them as soon as possible as distributed units in the System, providing balancing services to the Market.

- **Participation of Portfolios of Dispatchable Load and Dispatchable Renewable Energy Units in the Balancing Market**

In 2022, IPTO had completed the design and implementation of the required modifications to the regulatory framework and its information systems to ensure its ability to provide balancing services from both the Dispatchable Load Portfolios and the Dispatchable Renewable Energy Portfolio. Already in 2023, five distinct demand response entities, with a total capacity of almost 160MW, participated in the power, balancing and deviation clearing markets, having successfully completed the registration process at the IPTO Registry and the relevant pre-qualification tests. During the year there were a total of 384 activations for the provision of Manual Frequency Restoration Reserve (mFRR) upstream balancing energy with 17,980MWh of total mFRR upstream balancing energy activated.

The participation of these entities in the market, although optional, promotes competitiveness in the Balancing Market, contributes to the further penetration of RES in the energy mix and smooths load peaks, improving the reliability and cost of using the Transmission System. Ensuring the full and equal participation of the Renewable Energy Portfolio and the Demand Response Portfolio in the Energy Market is an important step towards the country's energy transition and a milestone for the wholesale electricity market, as it increases the liquidity, competitiveness and flexibility of the market, improves the ability to manage energy from unallocated RES allowing for their increased contribution to the energy mix and contributes to enhancing the security of the Transmission System.

Planning the integration of the Greek Balancing Market with the European markets through participation in the European platforms MARI and PICASSO

3

In 2023, IPTO completed certain additional steps towards the common European electricity market. The integration of the European electricity markets brings increased benefits from cross-border competition since this leads to fair and competitive wholesale prices, enhances the security of Europe's energy supply, contributes to the international objective of reducing greenhouse gas emissions and to the decarbonisation of the European economy.

With IPTO's participation in the European platforms MARI and PICASSO for the exchange of balancing energy from Frequency Restoration Reserves (FRR) with manual (mFRR) and automatic (aFRR) activation respectively, the Greek Balancing Market is being integrated with the rest of the European balancing markets in a common energy market.

In particular, the MARI platform consolidates the mFRR energy market and the PICASSO platform consolidates the aFRR energy market. These European platforms will enhance the efficiency of balancing in Europe by promoting the possibilities of balancing energy exchange while contributing to the safe operation of the connected countries' systems.

The mFRR and aFRR balancing energy exchanges are implemented on the basis of the available offers and respective balancing energy activation needs of all participating European Operators, which are submitted to the MARI and PICASSO platforms. Balancing power activations are decided centrally in a way that meets the requirements of each individual case, does not infringe the available interconnection capacity and maximises the overall social surplus.

In preparation for Greece's participation in the MARI and PICASSO platforms, in 2023, IPTO amended the Balancing Market Regulation and submitted it for public consultation. In addition, the project to modify IPTO's infrastructure and systems has been launched in order to achieve participation in the PICASSO platform within 2024.

SEE Market Coupling MoU

4

In November 2023 a Memorandum of Understanding (MoU) was signed between representatives of the Regulatory Authorities (RAEWW, ERE, ERO & ERC), the System Operators (IPTO, OST, KOSTT & MEPSO) and the Energy Exchanges (HEnEx, ALPEX & MEMO) of Greece, Albania, Kosovo and North Macedonia, as part of the elaboration of a "roadmap" for the interconnection of electricity markets and the creation of the working groups that will coordinate the next required actions. The aim of the cooperation is to facilitate the participation of the markets of Albania, Kosovo and North Macedonia in the Single European Market.

Storage - High level design

5

In 2023, a proposal for a set of basic principles for the participation of Storage Systems in the Balancing Market, taking into account the specificities of these technologies, was put out to public consultation. The consultation will be followed by a proposal to amend the existing regulatory and legislative framework to support the full integration of Storage Systems into the Energy Markets. Based on the current design, participation is envisaged through aggregated portfolios, as allocated Balancing Service Entities, with the right to participate in all Energy Markets and all relevant energy and power products. Ensuring the full and equal participation of Storage Systems in the Energy Market is a critical part of the country's energy transition and a milestone for the wholesale electricity market, as it improves the flexibility and liquidity of the market. In addition, a significant contribution to backup supply is expected, especially given the ability of storage systems to provide backup without parallel power supply, which is not possible with most balancing service technologies. As a result of the participation of storage systems in the energy markets, it is expected not only to increase the margin of penetration of RES energy in the energy mix, but also to improve the management of congestion cases and improve the operational security and smooth operation of the Transmission System.

IGCC (Start-up)

6

The IGCC cooperation platform was first put to implementation in 2011 among the German Operators and has since been continuously developing, currently listing nineteen Operators as operational members, which carry out the imbalance netting process in a coordinated manner. The said platform was selected in February 2016 by ENTSO-E as the European Platform for the Imbalance Netting Process (IN-Platform), as defined by the Electricity Balancing Guideline (EBGL Article 22).

In March 2023, IPTO became operational in the European platform International Grid Control Cooperation (IGCC) for the Imbalance Netting Process, using the Greece-Bulgaria interconnection as a border for imbalance netting, following the successful integration of the Bulgarian Operator ESO-EAD into the IGCC platform. This platform of cooperation between ENTSO-E-member operators aims at preventing simultaneous activation of automatic Frequency Restoration Reserves (aFRR) in opposite directions between neighbouring Operators. Imbalance netting allows IGCC participating Operators to restrict balancing energy activation and increase the security of their system.

HETS asset management

To optimise the returns on its investments and create value for its stakeholders, IPTO ensures the efficient operation and maintenance of its assets based on the principles of sustainability, operational efficiency, quality and safety.

IPTO's strategic objective is the transition from Time-Based Maintenance to Condition-Based Maintenance through the development of state-of-the-art cloud-installed systems. In this context, the Group will achieve both the coverage of its business operations and optimal management and maintenance of its electrical assets, which constitute the country's critical infrastructure.

In 2023, IPTO continued the equipment renewal program together with the preventive inspections of transmission lines and pylons.

To achieve this, a structured approach is applied, based on best practices covering the entire life cycle of an infrastructure, also considering respective costs and potential risks involved. Furthermore, financial and technical parameters are combined with the management of all the phases that make up the life cycle of an asset: the design, construction, commissioning, monitoring, maintenance, repair and replacement, as well as its shut-down and eventually in the end its decommissioning.

HETS consists of the Interconnected System of the country's mainland and the interconnected islands at high (150kV and 66kV) and extra-high (400kV) voltage levels, as well as the international interconnections with neighbouring countries (Italy, Albania, North Macedonia, Bulgaria, Turkey). The high-voltage underground cable network serving the needs of the capital region falls under the remit of the Network Operator (HEDNO), which is responsible for its operation and the planning of its development.

The basic HETS equipment data, as of 31.12.2022, are described in the following table:

Table 2.6: Transmission System Equipment

Transmission Lines (km)		**Total**
Overhead	12,053	**13,671**
Submarine	1,196	
Underground	421	
Optical fibres	4,753	**4,753**
Substations with IPTO fixed assets (number)		**Total**
Conversion	404	**412**
Coupling	8	
IPTO Transformers		**Total**
Number		**72**
Capacity (MVA)		**18,725**
Transformers by connected users*		**Total**
Number		**823**
Capacity (MVA)		**46,913**

*Includes: HEDNO, PPC/mines, producers, high-voltage clients

The management of the Electricity Transmission System's fixed assets is carried out by IPTO's Asset Management Division and mainly aims at maintaining healthy, strong and cost-effective power grid infrastructure. To this end, it conducts inspections and submits proposals for the improvement of scheduled maintenance sessions and has also assumed the planning for the renewal of electromechanical equipment on the basis of the available data on the condition and life cycle of fixed assets.

Asset renewal programme

To shield the System against climate change and the increasingly frequent extreme weather phenomena, to ensure the country's electricity supply in an adequate, safe, efficient and reliable manner, IPTO sets as a priority the technological upgrade and modernization of the System. To this end, seeking to modernise and upgrade existing infrastructure, it is implementing a renovation programme of the ESMIE from 2018, with newer equipment of modern technology, high operating efficiency and low periodic maintenance costs, which replaces older technology systems.

The Asset Management and Maintenance Division (AMMD) is coordinating and overseeing the five-year (2021-2026) plan for the renovation and modernisation of the Transmission System equipment and facilities. During the five-year period set as the implementation period of the Renovation Plan, IPTO seeks the effective shielding of the Transmission System, according to the guidelines of the committee established with experienced executives, with the aim of formulating an extended replacement plan of a total budget of €200 million. Critical equipment over 24 years old was included in this plan and a replacement list was established for the years 2023-2026, which includes 60% of the existing System components. The System Operation and Control Department (SOCD), in cooperation with the Transmission System Maintenance Department (TSMD) and the New Transmission Projects Department (NTPD) have set priorities regarding the timing of the replacement of components. The replacements are carried out by the crews of the TSMD and the NTPD and by contractors.

During 2023, AMMD implemented an extensive programme of equipment replacements throughout the country, alongside maintenance and restoration of equipment (breakdowns) and the delivery and commissioning of works. Specifically, the distribution of equipment by category that was planned and implemented and the distribution of CAPEX from replacements completed in 2023 are presented in the two charts below:

Graph 2.7: Equipment replacements 2023 – Items

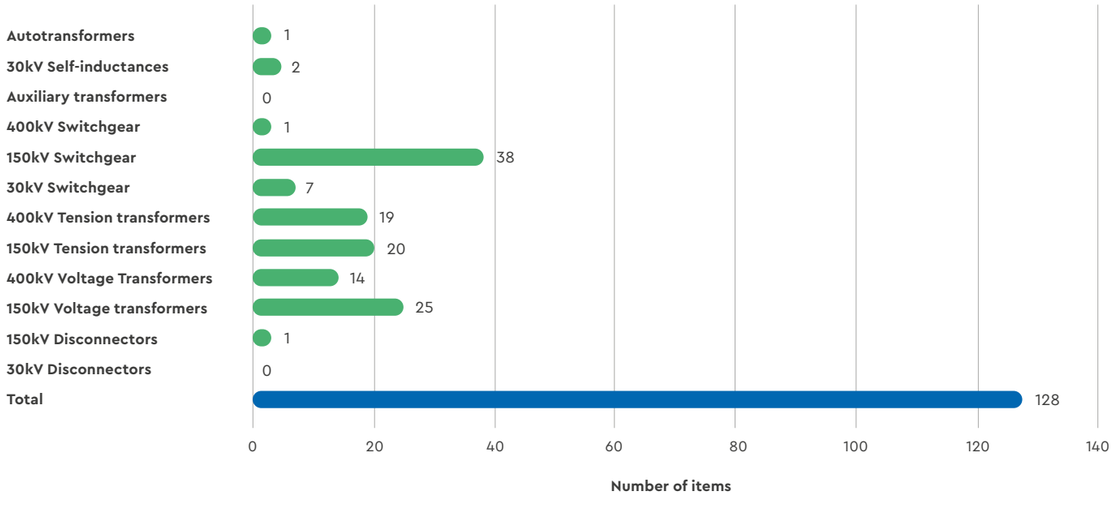


Table 2.8: Breakdown of expenditure (€ in thousands) for equipment replacements over the six-year period 2018–2023

Year	Equipment replacement costs (EUR thousand)
2018	**579**
2019	**6,173**
2020	**2,200**
2021	**12,440**
2022	**6,088**
2023	**6,734**

Implementation of HETS Improvement Projects and Inspections

In addition to the projects carried out as part of the programme for the renovation and replacement of critical equipment of High and Extra High Voltage, projects were implemented by the TSMD in 2023 to improve the operation of the TSO throughout the country. In particular, these projects included the installation and commissioning of:

Real-time On-Line Monitoring Systems (OLMS)

Over the last 6 years, IPTO has started to implement an OLMS installation programme in existing or new equipment installed in High Voltage Centres (HVCs) and Substations (S/S). In particular, such systems have already been installed at:

- Autotransformers (AT), 400/150/30 kV,
- Power switches (PI) 400 kV,
- Inductors (I) 150 kV and
- Accumulator Arrays (AA)
- GIS Substations
- Cable Lines
- Substations and HVCs for Thermal Radiometry (IR) Equipment Surveillance

Equipment to improve the system of protection:

- 21 new relays to replace older ones, and
- New 400 kV busbar differential protection systems at three HVCs.

Asset Management & Performance Systems

Geospatial analysis system:

The GeoSpacialAnalysis (GSA) Professional & Lite software, through which the new online GIS version is configured and made accessible, was put into normal operation by the Asset Management Division (AMD) in October 2023. Dozens of users have already signed up and the aim is to provide access to all interested parties. It is a user-friendly web application that allows immediate and fast provision of geographic data information of the HETS infrastructure, the easy creation of queries, analyses and reports of the Greek Transmission System. Aimed at advanced users, it allows performing advanced geospatial analyses, converting geospatial data into all possible applicable formats, as well as performing analyses on a combination of multiple networks and data formats.

Asset Management Performance Systems:

The main objective of the Asset Performance Management System (APMS) is to optimise the management of assets based on their condition (Condition Based Maintenance). With APMS, the Asset Management Department (AMD) and the Transmission System Maintenance Department (TSMD) will take timely preventive actions, which are dictated by the remote monitoring of assets and the calculation of critical performance and operational indicators. Therefore, the prediction of failures in critical equipment will improve the performance and reliability of the HETS as a whole. In summary, the key business objectives that the APMS will serve are as follows:

- The monitoring of specific assets, selected as the most critical for the reliability of the HETS
- Improvement of the use of fixed assets
- Improvement of the efficiency of maintenance activities, through prioritization procedures and reduction of work and maintenance material costs
- Improvement of risk management
- Alerts for extreme or abnormal operating conditions, which are constantly increasing due to climate change
- The storage of detailed data for the analysis of event histories
- The reduction of downtime for equipment maintenance
- The extension of equipment life
- The reduction of capital expenditure

Within 2023, the tender procedures for the selection of the contractor were completed and work began on the design of the APMS implementation study.

Project quality

Given the nature of IPTO's role and the importance of the new interconnections, both inside the country interior and with neighbouring countries, the quality of the projects and adherence to timetables are of utmost importance.

To this end, IPTO takes special care to ensure that they are completed within the required time frames and according to quality standards so that they meet national and local needs, thus decisively contributing to the implementation of the national plan for the transition to a low-carbon economy.

The TYDP includes a supervisory overview of the System's projects, with information on the progress of the implementation of projects realized in-between successive versions of the TYDP. In this way, information is provided regarding any delays in the implementation of the projects, as well as the Operator's relevant actions in order to observe the timetables.

The detailed timetables for the implementation of the System reinforcement projects reflect the timing of their construction, factoring in the time necessary for the issuance of the required permits and the completion of the expropriations. The percentage of the project's financial execution is also illustrated against the total budgeted investment cost, which does not necessarily reflect the progress of individual works but provides a relative indication of the project's progress.

ENVIRONMENTAL PROTECTION

IPTO improves the System resilience, aiming to ensure its reliability and security against climate risks, while taking measures to reduce its environmental footprint.

Addressing climate change

The climate crisis experienced in our time is one of our greatest global challenges. Climate change acceleration is leading to a gradual rise in average global temperatures and the occurrence of increasingly frequent extreme weather events, creating a series of natural and transient risks, but also opportunities for businesses.

In this context, the IPTO Group, in order to ensure the reliability and security of HETS, implemented a series of actions focusing both on its adaptation to the new conditions formed and on the mitigation of climate change. These actions include improving the Transmission System's resilience against climate crisis, as well as redusing our carbon footprint.

Specifically, IPTO has designed and implemented an extended plan for the replacement of System equipment, budgeted at €200 million and with an implementation time frame up to 2026. More information about the Replacement Programme is provided on page 86.

Furthermore, the Regulatory Authority for Energy, Waste and Water (RAEWW), in cooperation with IPTO and the contribution many other entities, such as the Hellenic Electricity Distribution Network Operator (HEDNO), the Hellenic Energy Exchange (HEnEx) and the General Directorate for Cyber Security of the Ministry of Digital Governance, proceeded with the development of a Risk Preparedness Plan concerning the electricity sector in Greece. Within the framework of this Plan, potential risks were identified, which formed the basis for identifying scenarios at national level, for the country's electricity supply crisis and the assessment of their probability of occurrence.

Below are the physical hazards identified within the framework of the Risk Preparedness Plan:

1 Floods

This scenario refers to extreme rainfall after a long period of drought, which causes river overflows, dyke collapses and soil erosion. In this context, there may be, among other things, flooding phenomena in substations and severe damage to the foundations of TL pylons, underground networks, as well as equipment at substations and HVCs.

2 Windstorms

The risks due to gusty winds during the winter or summer months include extremely strong gusts and severe thunderstorms with lightning, which may cause whirlwinds, falling trees, etc. As a result, severe damage may occur, including damage to radial distribution networks, possible collapse of pylons or cutting of pipelines at TLs and reduction of wind turbine capacity (due to high wind speeds or interruption of their circuits to the grid).

3 Cold wave-snow

The assessed cold wave risk is the occurrence of extreme low temperatures, heavy snowfall and frost combined with high energy demand due to weather conditions. This scenario assessed severe damage to distribution and transmission networks, possible circuit failures and possible damage to pylons due to ice accumulation, as well as reduced production from RES, hydropower and thermal plants due to frost and problems in transporting LNG to supply them, issues that may cause overloading of the grid and consequently reduced electricity transmission capacity.

4 Drought

The scenario concerns the occurrence of a prolonged and extremely dry period during the summer, combined with high temperatures and high winds, which may cause forest fires to start and spread. This may result in disruptions to TLs and distribution networks, damage to equipment in substations, power outages in the affected areas and reduced availability of thermal and hydroelectric plants. The above may cause an electricity adequacy problem and the occurrence of rolling blackouts due to the inability to meet demand.

5 Earthquake

A powerful earthquake can cause extensive damage to the System's TL pylons, distribution network poles and substation equipment. In addition, among other things, major equipment in production plants may be damaged, affecting their availability, as well as the structure and monitoring of the Transmission System. Furthermore, unusual load flows may occur due to the unavailability of important system components, and there may be delays in repairing the damage due to damage to other infrastructure, such as the road network.

To safeguard the Transmission System against the above risks, IPTO has undertaken and implements a series of strategic initiatives and measures which are described in detail below:

Enhanced resilience of the Transmission System

- **Asset renewal programme**
  To strengthen the Transmission System against extreme weather events, IPTO implements an extensive programme to replace various System components.
- **Revised selection criteria**
  IPTO has updated the site selection criteria for the installation of new substations and the delineation of TLs. The criteria were revised to ensure greater resilience to extreme climatic conditions.
- **Enhanced protection against floods and fires**
  To reinforce the infrastructure against the risks of flood and fire, IPTO has increased protection measures within substations. This includes the strengthening of flood and fire protection protocols.
- **Προστασία των υποθαλάσσιων υποδομών**
  Αναγνωρίζοντας την ευπάθεια των υποθαλάσσιων υποδομών, η εταιρεία επέκτεινε τα μέτρα προστασίας σε βάθος 100 μέτρων ή και βαθύτερα όπου αυτό είναι εφικτό. Αυτή η προληπτική προσέγγιση εξασφαλίζει την προστασία των κρίσιμων υποθαλάσσιων στοιχείων.
- **Protection of subsea infrastructure**
  Recognising the vulnerability of subsea infrastructure, the company has extended protection measures to a depth of 100 metres or deeper where feasible. This proactive approach ensures the protection of critical subsea assets.
- **Implementation of monitoring mechanisms**
  To facilitate the immediate detection of technical problems, IPTO installs advanced monitoring mechanisms. These systems are designed to immediately detect and address potential problems in both substation equipment and critical transmission lines, thus contributing to the overall infrastructure resilience.
- **Extended RES integration**
  IPTO actively contributes to a more sustainable electricity generation mix with a significant increase in the penetration of RES. In particular, procedures for the integration of new RES power plants have been fast forwarded. By the end of 2023, RES power plants with an installed capacity of up to 12 GW were in operation, while additional RES power plants with an installed capacity of more than 15 GW received binding offers for connection, exceeding the anticipated target of the National Energy and Climate Plan (NECP) for 2030 (23.5GW). This achievement was made possible thanks to planned investments of up to €5.7 billion by 2033, paving the way for a significant increase in available capacity from 18GW to over 28GW by 2030.
- **Early warning systems**
  IPTO has installed an advanced fire detection system in the high voltage pylons of the TLs in Parnitha. This system allows the monitoring and identification of potential fire hazards in real time, enabling the timely response to emerging risks, thus minimising the impact on infrastructure and the environment.
- **Quick TL restoration**
  IPTO has invested in cutting-edge technology systems for the rapid restoration of TLs in case of tower collapses. This feature minimises the duration of prolonged outages.
- **TL monitoring by aerial means**
  In cases where ground vehicles cannot access the TLs due to adverse weather conditions, IPTO maintains a helicopter on standby for rapid TL inspections.
- **Vegetation management programmes**
  To mitigate fire risks, IPTO implements strict vegetation management programmes. These initiatives include regular inspections and clearing of vegetation near TL sites.
- **System operating precautions**
  A number of preventive measures are implemented in response to risks caused by extreme weather events that affect the operation of the System, such as: enhanced Transmission System readiness, emergency technical staff, safe electrical routes, notification of Network Users, cooperation with the Network Operator, communication with neighbouring TSOs and appropriate operational controls.
- **Measures mitigating System operation impacts**
  In case of extreme weather events affecting a wide area of the System, there is a potential risk of total collapse due to successive disconnections of components. To ensure the safe operation of the System, various mitigation actions are implemented, such as those described below (adaptation and mitigation measures).
- **Risk Preparedness and Response Plan**
  IPTO is fully aligned with the provisions outlined in the Risk Preparedness Plan for the Greek Electricity Sector by RAEWW, ensuring a comprehensive preparedness plan against potential risks.

As shown above, IPTO is taking a proactive stance with multi-dimensional initiatives that reflect its commitment to maintaining a resilient Transmission System, in the face of the challenges and risks caused by climate change.

Taking measures to adapt to and mitigate climate change

More specifically, IPTO implements a series of adaptation and mitigation measures against the impacts of climate change, as presented below:

Adaptation measures

1 Enhanced resilience of the Transmission System	Increasing reserves and equipment availability to deal with the increased probability of unit failures and outages in critical components of the Transmission System.
2 Emergency technical staff	Depending on the severity of the expected phenomena, appropriately manned crews are on alert near the areas that are most likely to be affected.
3 Safe electricity routes	IPTO takes strategic measures to secure additional electricity routes to supply the areas expected to be affected. This includes the cancellation of scheduled maintenance, the reopening of important System components under maintenance and the activation of power plants in different areas for safety reasons.
4 Notification of Network Users	When there is sufficient time, IPTO informs Important Network Users (INUs) of possible outages.
5 Cooperation with the Distribution Network Operator	Close cooperation is maintained with the HEDNO to coordinate actions and determine preventive measures.
6 Communication with neighbouring TSOs	IPTO communicates and informs the neighbouring TSOs on the development of the phenomena and the assistance readiness assessment.
7 Operation checks	Rigorous checks are carried out to ensure that emergency mechanisms work properly and action plans are developed to mitigate the impacts.

Mitigation measures

1 Energy flow management	It includes strategic adjustments such as changes in topology, suspension of scheduled maintenance, start-up of additional units and load reduction mechanisms.
2 Voltage control and reactive power flow management	Measures are implemented to control voltage and manage reactive power.
3 Automatic mechanisms for frequency deviations	Automatic managing mechanisms are activated in case frequency deviations exceed specific safety limits.
4 Emergency declarations	In cases of emergency, the Operator declares the appropriate level of alert and initiates the necessary actions by issuing orders to the Users.
5 Modification of the allocation procedure	During the restoration process, in addition to the above actions, the Operator modifies the allocation process.
6 Ensuring additional energy	If IPTO estimates that the forecast demand cannot be met by the Generating Units, measures are taken to secure additional energy from the available plants, limit energy storage through hydropumped storage and seek additional energy through interconnections.
7 Load shedding as a last resort	If the above actions prove insufficient, load shedding is applied as a last resort.

"The Risk Preparedness Plan for the Greek Electricity Sector" provides more information regarding climate risks, the possible scenarios analysed and the measures taken by IPTO to safeguard the System.

Energy consumption and greenhouse gas emissions (GHG)

To respond to the challenges climate change, in addition to the new interconnections and the development of the System, which contributes substantially to the country's energy transition, IPTO seeks to reduce energy consumption and the respective emissions from its own activities.

Energy consumption

IPTO's energy consumption in 2023 was related to fuel consumption (heating oil and diesel, petrol, natural gas) and electricity. These consumptions, which take place in the Group's buildings, vehicles and construction machinery, are presented in detail for the years 2022 and 2023 in the table below:

Table 3.1: Total energy consumption per fuel type

Type of fuel	2022		2023	
Electricity consumption	5,723 MWh	20,603 GJ	7,521 MWh	27,076 GJ
Thernal energy consumption	92MWh	330 GJ	321 MWh	1,155 GJ
Heating oil consumption	28,160 lt	1,004 GJ	14,003 lt	499 GJ
Gas consumption	61,439 Nm³	2,329 GJ	49,288 Nm³	1,853 GJ
Petrol (vehicles)*	110,587 lt	3,537 GJ	122,539 lt	3,920 GJ
Diesel (vehicles)*	728,851 lt	25,970 GJ	909,264 lt	32,398 GJ
TOTAL	-	**53,389 GJ / 14,901 MWh**	-	**66,900 GJ / 18,583 MWh**

* Petrol and diesel used at works are related to construction machinery so they have been incorporated into petrol and diesel for vehicles respectively.

Considering that the estimate for the total production and import-export balance traded in 2023 according to the data reported in the Monthly Energy Bulletin (December 2023) amounts to 49,491 GWh, the intensity of energy consumed in GJ per GWh of energy produced equals 1,333 GJ/GWh.

In 2023, 48% of the electricity consumed came from RES, subject to the participation of RES in the country's energy mix, which indicates an increase compared to the corresponding rate recorded in 2022, which was 38.8%.

The total energy consumption due to renewable energy sources equals 3,764 MWh or 13,551 GJ for the year 2023. The remaining 14,819 MWh or 53,349 GJ (80%) has been sourced from non-renewable energy sources.

Energy consumption and energy efficiency improvements in the central administration buildings

In 2023, at the Company's two administration buildings in Attica, there was a slight increase in electricity consumption by 3.81% compared to the previous year and a decrease in oil and gas consumption by 48.4% and 20.2% respectively. The main reasons for these changes were the energy upgrade projects that were carried out and the fact that this year was warmer than the previous.

Table 3.2: Total consumption of electricity, heating oil and gas in the 2 main administration buildings

	2022	2023
Electricity consumption (MWh)	3,042	2,925
Heating oil consumption (L)	27,160	14,003
Natural gas consumption (Nm3)	61,439	49,288

In water consumption at the two administration buildings in 2023 (7,040m³) there was an 8% increase compared to 2022 (6,522m³). The main reason for this change is the staff increase and the implementation of a number of renovation/upgrading works in the buildings. In addition, 41,960lt of drinking water bottles were consumed.

Based on the results of the Energy Upgrade Report that has been carried out, the Group is in the process of designing its energy efficiency upgrade method for its two buildings. The most crucial interventions regarding building energy upgrades that have been completed, are in progress or are planned to be implemented are as follows:

Konstantinoupoleos Avenue Building

- Replacement of thermal insulation and damp proofing (completed).
- Replacement of lamps with new low consumption lamps (replacement of PL lamps has been completed and the replacement of linear lamps is in progress).
- Replacement of old technology air conditioning systems with new ones (in progress).
- Construction of electrical infrastructure for the installation of electric chargers (in progress).
- Replacement of air conditioning thermostats from analogue to digital (completed).

Dyrrachiou Street Building

- Replacement of thermal insulation and damp proofing (completed).
- Modification to the refrigeration complex to improve its energy efficiency (completed)
- Creation of vehicle charging points with single-phase supplies in underground parking areas (completed).
- Energy Upgrade of the building's elevators (in progress).

Additionally, in 2023, the Department of Property and General Services (DPGS) carried out energy upgrades to many building facilities (HVCs, SSs, ECCs and warehouses) of the organisation, which included insulation and damp proofing and replacements of windows, perimeter lighting and light fixtures and air conditioning units.

Due to the above measures a decrease in the consumption of fixed sources of combustion was observed, which in combination with the reduction in the amount of fluorinated gases used in 2023, led to the subsequent reduction of energy consumption, which in its turn produced a smaller carbon footprint.

Vehicle fleet energy consumption and promotion of electromobility

In addition to its efforts to reduce the energy requirements of its buildings, the IPTO Group also aims to reduce its carbon footprint in terms of transport. As part of reducing energy consumption and air pollutant emissions, the company has undertaken two strategic actions.

The first action involves the gradual replacement of the old technology vehicles in its fleet with near zero emissions electric vehicles, aiming to reduce the energy consumption required by its fleet. Furthermore, it increases the number of charging stations on its premises.

With the two actions, IPTO is one of the first agencies of the greater public sector that aligned with the new legislative framework of the Greek government which sets a mandatory quota on the supply of clean vehicles and a mandatory siting for installing and operating electric vehicle charging facilities.

At the end of 2023, IPTO had 32 electric passenger vehicles with near-zero emissions and 53 charging stations (installed or under construction), in facilities of Attica, Crete and Thessaloniki.

Transmission System losses and reduction actions

Energy Transmission System losses refer to the energy lost during the transmission of electricity from the point of generation to the point of consumption. It is a natural phenomenon which characterises electricity transmission from generation points to consumption points, as well as the step-up and step-down of voltage where necessary, resulting in thermal and electromagnetic energy losses.

To cover the necessary amount of energy absorbed by consumers, the production of the corresponding amount of energy to meet demand is required, as well as the additional production of the amount of energy that "escapes" due to Transmission System losses. The production of the additional energy required due to losses causes the generation of additional GHG emissions. Thus, IPTO constantly seeks to restrain losses as much as possible, but in reality, the measures to be taken to this end are limited. For instance, the development of the 400kV System towards the Peloponnese contributes to limiting the overall System losses. Since the System is constantly growing, a key measure for monitoring the energy losses of the network is the percentage resulting as the fraction of losses (in energy units) to the total energy input to the System.

Table 3.3: System Losses

Year	Percentage
2020	2.76%*
2021	2.74%
2022	2.74%
2023	2.36%

*For two months (from the start of the Target Model 11/2020)

To reduce load losses, IPTO has proceeded with the installation of an automation system, which operates on a 24-hour basis, achieving a reduction of energy losses by optimising inductive load compensation.

Greenhouse gas emissions inventory

As part of its actions to reduce its carbon footprint, IPTO is undertaking an inventory of the greenhouse gas emissions resulting from its operation.
The GHG emissions inventory conducted was carried out in accordance with the International Protocol on Greenhouse Gas Emissions (GHG Protocol) and guidelines of the Ministry of Energy circular (100964/1762, 03/10/2023) to record the direct emissions (Scope 1) resulting from operations, including fossil fuel combustion and fugitive gases, as well as the indirect emissions from electricity consumption and Transmission System losses (Scope 2). Since 2021, when the first organised attempt to record the footprint was made, we have been developing better and more reliable procedures for data collection, while important issues, such as the absence of electricity meters from the System's facilities, have started to be resolved by installing meters.

Finally, as far as Scope 3 emissions are concerned, they have not been recorded due to their computational complexity. However, the methodology for calculating Scope 3 is being designed to be eventually incorporated. Properly recording the organisation's carbon footprint is a work in progress, as each year we improve our processes and incorporate more data. In any case, the main source of our emissions, as well as those of all Operators, is documented. These are the Transmission System losses, which constitute the largest share of total emissions (Scope 1, 2) for both 2022 (99.04%) and 2023 (98.36%).

Specifically, Scope 1 and 2 emissions for 2023 amounted to 471,439tCO_2e. In particular, 3,914 tCO_2e (0.83%) resulted from direct emissions (Scope 1), while the largest share, 467,525 tCO_2e (99.17%), comes from indirect emissions (Scope 2), which are due to the losses occurred during the transmission of electricity from the System. The significant reduction in emissions is due to the change in the total load transferred to the System (42,325GWh in 2022, 39,965GWh in 2023), which corresponds to a 5.6% decrease in demand. It should be noted that the comparison of emissions between consecutive years, although realistic, is not exact. Each year new elements are added, production factors change and, for some of the emission categories, some carbon dioxide equivalent conversion factors may be slightly changed.

The Scope 1 and 2 emissions calculations include emissions from the following gases: CO_2, CH_4, N_2O, SF_6, R-410A, R-407C, HFC-134a, HFC-227ea, HFC-32 και HCFC-22.

Greenhouse gas emissions are presented per category in the table below:

Table 3.4: Greenhouse gas emissions*

Source flow	2022			2023		
	Total emissions (tn CO_2 eq)	%/Scope	%/ Total	Total emissions (tn CO_2 eq)	%/Scope	%/Total
Mobile combustion	**2,219**	**58.35**	**0.31%**	**2,731**	**69.77%**	**0.58%**
Petrol (vehicles)	1,953	51.37%	0.27%	294	7.50%	0.06%
Petrol (vehicles)	266	6.98%	0.04%	2,437	62.27%	0.52%
Fixed combustion	**204**	**5.37%**	**0.03%**	**140**	**3.59%**	**0.03%**
Natural gas (heating)	130	3.41%	0.02%	103	2.64%	0.02%
Heating oil	74	1.95%	0.01%	37	0.94%	0.01%
Fugitive emissions & refrigerants	**1,380**	**36.28%**	**0.19%**	**1,043**	**26.65%**	**0.22%**
SF_6	1,338	35.19%	0.19%	1,002	25.59%	0.21%
Refrigerants (A/C)	42	1.09%	0.01%	42	1.06%	0.01%
Scope 1 total	**3,803**	**100%**	**0.53%**	**3,919**	**100%**	**0.83%**
Electricity used (Administration Buildings, Offices, Energy Control Centres, Warehouses)	3,000	0.42%	0.42%	3,661	0.78%	0.78 %
Thermal energy	45	0.01%	0.01%	160	0.03%	0.03%
Network losses	708,576	99.57%	99.04%	463,704	99.18%	98.36%
Scope 2 total	**711,621**	**100%**	**99.47%**	**467,525**	**100%**	**99.17%**
Total emissions (Scope 1 & 2)	**715,423**	**100%**	**100%**	**471,439**	**100%**	**100%**

*The values for 2022 were revised as per the relevant data published by the Ministry of the Environment and Energy for the Implementation of the National Climate Law.

Considering that the estimate for the total production and import-export balance traded in 2023, according to the data reported in the Monthly Energy Bulletin (December 2023) amounts to 49,492GWh, the intensity of GHG emissions per GWh equals 9.45 tCO_2e/GWh.

Table 3.5: Greenhouse gas emissions intensity

	2022		2023	
	GHG emission intensity (Scope 1 & 2) (tn CO_2 eq/GWh)	GHG emission intensity (Scope 1 & 2) (tn CO_2 eq/ Total Group revenue)	GHG emission intensity (Scope 1 & 2) (tn CO_2 eq/GWh)	GHG emission intensity (Scope 1 & 2) (tn CO_2 eq/Total Group revenue)
Scope 1	0.08	0.01	0.08	0.01
Scope 2	14.04	2.34	9.45	1.15

Waste management and circular economy

IPTO attaches particular importance to the reduction and proper management of waste generated from its activities throughout the country, from:

- the Group's premises,
- Substations, HVCs, TLs, ECCs and
- warehouses

Waste generation results from activities such as the construction of new projects, replacements, maintenance or repairs in the System, withdrawal of old support equipment (e.g., electrical, electronic and mechanical equipment) or from stocks that have become technologically obsolete and items of daily use.

The waste streams produced, the corresponding quantities and the way they are managed are recorded in the Electronic Waste Register on an annual basis.

We emphasise the reduction of waste generated from our operations and seek to implement reuse practices where feasible.

Depending on each waste type, waste management is carried out following the appropriate method in each case; waste is removed either by sale or recycling in cooperation withan appropriately licensed body. When works are carried out by contractors, they are also responsible for waste-disposal.

Furthermore, IPTO is in the process of developing a single Waste Management System and a Waste Management Policy. In September 2023, the relevant contract was signed with an external consultant and a project team was set up from different IPTO Departments. By the end of the year, an inventory of the current situation was made and the planning of procedures was started.

The table below presents the waste generated in 2022 and 2023, with reference to the respective management method.

Table 3.6: Waste production and management*

	2022				2023			
	Hazardous	Non-hazardous	Non-hazardous (WEEE**)	**Total**	Hazardous	Non-hazardous	Non-hazardous (WEEE**)	**Total**
Production within the year (t)	43	60,705	4	**60,752**	90	105,861	4	**105,955**
Production from previous years (t)	88	1,320	0	**1,408**	63	337	0	**399**
Total quantity (t)	**131**	**62,025**	**4**	**62,160**	**152**	**106,198**	**4**	**106,354**
Amount of waste diverted from disposal (recovery) (t)	22	1,335	4	**1,361**	6	34,403	0	**34,409**
Amount of waste disposed (t)	0	59,267	0	**59,267**	107	72,544	4	**72,655**
Quantity that remained on the premises (t)	109	1,423	0	**1,532**	64	337	0	**401**

*For the year 2022 the table shows IPTO-generated quantities, while for the year 2023 it additionally includes quantities produced by its subsidiary Ariadne Interconnection.
** Waste Electrical and Electronic Equipment

Non-hazardous waste includes:

- Scrap metals (scrap steel, copper, aluminium)
- Mixed materials (switches, lightning arresters, cables, conductors, power transformers not containing PCBs, voltage transformers, current transformers, disconnectors, wave traps, connectors, inductors, capacitors not containing PCBs, etc.)
- Rubber parts
- Packaging materials (tanks, barrels, SF6 bottles)

Hazardous waste generated due to Company activity includes:

- Insulating oils
- Batteries (Ni, Cd, Pb), electrolytes
- Materials that may contain PCBs, PCTs
- Fire extinguishers

In recent years, IPTO has digitised its internal communication, leading to a significant reduction in the consumption of paper, plastic and toner. Some of the Company's Departments already issue exclusively digital briefing notes, a practice which will be extended to other Departments in the coming period. The reduced quantities of paper, plastic and toner used are disposed of in appropriate recycling bins.

Circular economy practices

Insulating oils for high-voltage equipment are considered high-impact waste. This is why in addition to checking for leaks, they are also separated from other materials to ensure their subsequent proper management. Putting the principles of circular economy into practice, IPTO has been practising the regeneration of insulating oils since 2020 achieving the regeneration of tens of tonnes per year by using a regeneration system that processes used and degraded insulating oils so that they may be reused. In 2023 about 49 tonnes were regenerated.

Similarly, a regeneration process is applied to the greenhouse gas sulphur hexafluoride (SF_6), which is used as an insulator in Transmission System equipment such as power switches. SF_6 can be recovered through processing and then be reused. In 2023 about 147kg of the gas was regenerated and 196kg was stored as waste material for disposal. The above circular economy practices provide economic and environmental benefits, as both waste and the repurchase of new materials are avoided.

As part of the European Institute of Technology (EIT) community initiative for the New European Bauhaus, which presents important ideas for a beautiful and sustainable, inclusive future, the proposal entitled "I am greening and beautifying the centre of Kozani using cells made of reusable materials with the active engagement of professionals and students" was approved. Transmission System Maintenance Department (TSMD) of the Regional Sector of Central Greece and Western Macedonia donated receiver tanks that were stored away and no longer suitable to be turned into flower beds and benches. Concrete pots and flower beds with three-dimensional relief were also made from rubble generated from works carried out at the organisation's facilities.

During the implementation of the Renovation plan, which foresees the replacement of circuit breakers (150KV & 400KV), instead of constructing a new base for certain circuit breakers we opted to use the existing base along with metallic adaptation plates. New bases were purchased for the 150KV CBs, while for the 400KV CBs the plates used came from dismantled scaffolds processed at a local repair shop.

The Municipality of Agrafa was provided with tower posts of dismantled pylons of various cross-sections, intended for sale, of a length of 1m to 6m and total weight of approximately 20 tonnes for road support needs, fencing municipal parks and playgrounds, flood protection works, path demarcation and various other works.

Biodiversity protection and environmental restoration

IPTO's activity and the new projects it implements do not involve productive activities and have limited environmental impacts. However, attention is paid to the protection of biodiversity and the management of potential impacts that may arise across the range of activities, both as part of the Company's operations and in new projects under implementation.

Environmental impact studies are prepared for the construction of all new projects, in cooperation with the competent authorities, to ensure full compliance with national and European environmental legislation and to keep up to date with the current national and European regulatory framework regarding environmental protection and biodiversity issues. The implementation of the projects is preceded by a series of permits and all the environmental conditions that apply during their construction and operation are defined so they are in full compliance with the current legal framework.

IPTO, in compliance with the legislation, conducts special studies (Special Ecological Assessment) in cases where Transmission Projects cross or are adjacent to environmentally protected areas.

Activity in protected areas

To cover energy needs throughout the country, IPTO has a very extensive TL network, which extends throughout the entire Greek territory. The interconnection of certain areas requires thatTLs are installed also within protected areas. Specifically, in Greece there are 446 protected areas belonging to the Natura 2000 network, which cover 28% of the country's land area and 20% of its sea area. The TLs pass through 143 of the 446 protected areas of the Natura 2000 network in Greece.

In addition, in cases where Transmission Projects cross or are adjacent to environmentally protected areas, IPTO prepares special environmental studies such as the Special Ecological Assessment.

During 2023, new works were completed and electrified that do not exceed over the 143 Natura sites. The most important ones are the installation of about 5km of a second submarine cable for the Aktio-Preveza interconnection, the 35km-long Lavrio-South Evia interconnection (underground/ submarine), as well as the construction of 3.3km of a 400kV overhead Nea Santa-Maritsa (Bulgaria) transmission line which corresponds to 13 pylons within a protected area, where System infrastructure already existed.

It is worth noting that although TLs cover long distances and travel through various ecosystems, their operation does not alter the composition of vegetation or change the overall shape of the landscape.

The percentage of NATURA sites covered by the overhead (66kV, 150kV, 400kV), the submarine and the underground network is estimated at 15.95% (~2,156km). In addition, the area covered by pylons and masts is approximately 0.34km². Similarly, the coverage due to 150kV SSs, 400kV HVCs and 66kV terminals is 0.59km².

Natura 2000 Network areas Transmission Lines

Table 3.7: **Total area of works in protected areas of the Natura 2000 network**

Installation categories	Total project area (length or surface area) until 31/12/2022	Total project area (length or surface area) until 31/12/2023
Overhead network (400kV, 150kV, 66 kV)	1,634.30km	**1,638.30km**
Submarine network	444.00km	**470.60km**
Underground network	24.30km	**47.40km**
400kV pylons (Occupied area of 144m²/pylon)	0.16km²	**0.16km²**
150kV pylons (Occupied area of 75m²/pylon)	0.18km²	**0.18km²**
Mast (Occupied area of 25m²/mast)	400m²	**400m²**
150kV S/S	0.19km²	**0.21km²**
400kV HVC	0.40km²	**0.40km²**
66kV terminal	3,981.5m²	**3,981.5m²**

*They include land in Special Areas of Conservation (SAC) and Special Protection Areas (SPAs).

The majority of substations are located outside protected or high environmental value areas, covering a total area of 192.5km². In this case, the measures taken to reduce any visual nuisance nclude vegetation restoration, tree planting or mounding, always approved by the competent Forest Authorities.

The nature of the projects we carry out may generate disturbances during construction but balance is fully restored after their completion through either natural regeneration or interventions made by IPTO, always approved by the competent authorities. On the contrary, the operation phase generates less important nuisance, e.g. noise, electromagnetic radiation and visual/morphological nuisance, we take preventive measures by limiting a project's potential negative impacts at a very low level.

Measures for the protection of the environment and biodiversity in the existing network

During the operation phase at IPTO's facilities, no significant impacts on the natural environment of the respective Natura 2000 protected areas are identified, however we take all possible measures to mitigate them.

Measures for the protection of the Bonelli's eagle in Evia and Andros

As part of the Life Bonelli EastMed project for the prevention and control of potential threats to the population of the Bonelli's eagle in the Eastern Mediterranean, the tender procedure for the procurement and installation of buoys at the TLs of the Electricity Transmission System in South Evia was completed in 2023. Their procurement and installation were completed in mid-2024.

Apart from the avifauna, it is estimated that during operation no significant negative impacts occur since mitigation measures are taken to reduce noise generated from substation transformers, which possibly disturbs animals and drives them away from their nests, so that equilibrium is restored after the construction phase.

Forest fire prevention and suppression

Environmental protection is a key pillar of the practices we follow in both maintenance and upgrade projects, as well as in construction projects, ensuring full compliance with the rules of environmental licensing and all domestic specifications as they are mentioned in the environmental legislation.

As part of IPTO'S regulatory obligations and institutional role for the safety of the electricity transmission infrastructure, following scheduled or unscheduled inspections, our Company implements works to reduce the thermal load on the bases of the transmission line pylons and ensure that safety distances from its networks are observed. Such works are carried out throughout the entire length of its lines, especially in part running through forest areas, and always in cooperation with the competent forest authority, the local forest authorities and in full compliance with their instructions. IPTO's main objective is that its staff carries out the maintenance work for the uninterrupted and safe operation of the network.

In order to keep the electricity transmission infrastructure secure, the Company contracts cleaning services for substations and HVCs, vegetation removal around pylon bases, tree pruning/cutting and the maintenance/

replacement of portable fire extinguishers. IPTO's premises and facilities are protected, preventing the likelihood of a fire ignition and/or spread, while carrying out flood control and reforestation works.

The expenditure over the last four years for the pruning of trees adjacent to overhead networks under our responsibility, as well as for vegetation removal works at SSs and HVCs, is described in the table below.

Table 3.7: Total area covered by projects within the Natura 2000 network

Costs of works (€)	2021	2022	2023
Deforestation at substations and HVCs	220,993	433,728	234,532
Cleaning and clearing land areas around TL towers (pylons)	100,288	158,238	80,315
Pruning/cutting of trees adjacent to overhead high-voltage TL networks	91,743	147,238	112,924
Other works (earthworks/asphalting) related to fire prevention	-	126,000	191,033
Total	**413,024**	**865,204**	**618,804***

* Including the costs for fire protection (€75,676) the total amount equals €694,480 for 2023.

It is worth noting that planning for the above tasks is independent of the maintenance program followed for the Transmission System.

Finally, it should be pointed out that IPTO, whenever requested, participates in meetings and responds to Political Protection's requests at central or regional level.

Environment and biodiversity protection measures during the construction phase of new projects

Our approach during the construction phase of new projects focuses on protecting the environment and mitigating the potential environmental impacts that are generated during this phase or that may be generated in the future.

In this context, IPTO follows rules and practices in line with the precautionary environmental principle (for prevention and safeguarding) during the preliminary design and planning of new projects, always aiming at the protection of the environment and biodiversity. The design of new energy infrastructures and the upgrading/modernisation or modification of the existing ones are part of the System Operator's main duties, whose key pillar is environmental protection. When making the final decisions on the routing of lines and the siting of new System infrastructure (substations, terminal stations, HVCs, etc.), environmental impact minimisation is also considered and the following criteria are mandatorily taken into account:

- mapping of environmentally sensitive areas and conducting a preliminary impact estimation caused by any given siting of our projects on the environment
- complete impact assessment as part of our environmental studies
- thorough assessment of the public consultation process outcomes on the environmental impact studies
- full compliance with the environmental licensing decisions concerning our projects

In addition, IPTO has conducted a Strategic Environmental Impact Assessment as part of the HETS TYDP for the period 2017-2026. An aim of the Strategic Environmental Impact Study is to identify, describe and assess the significant potential impacts on the natural environment that may be brought about by the implementation of proposals in the development plan, as well as to propose mitigation measures to minimise these impacts.

At the same time, with a view to a balanced and sustainable development, prior to adopting any plans and programmes, a Strategic Environmental Assessment (SEA) is prepared in order to incorporate the environmental aspect by introducing the necessary measures, conditions and procedures. Consequently, an assessment and evaluation of the potential impacts on the environment is carried out, promoting thus sustainable development and a high level of environmental protection in the areas where the Company operates.

The steps followed in the planning and management process in respect with a new project are shown in the following figure:

1 Necessity to design a new project

Necessity to design a new project

- It arises when there is:
- ncreased electricity consumption in an area that cannot be met by the existing infrastructure,
- need to connect projects for the use of RES,
- need to interconnect the HETS with island complexes in order to exploit RES and reduce PUs costs,
- need to increase or create new interconnectors with other countries.

2 Project design

It is conducted by IPTO under the Ten-Year Development Plan. A project may aim to:

- enhance the HETS or
- expand the HETS

3 Consultation and maturity

Once a project has been thoroughly studied and included in the TYDP, it is introduced for consultation and then final approval by the Regulatory Authority. The approved project is accompanied by a budget, financial flows and an implementation timetable. Projects of national importance are also accompanied by cost-benefit studies.

4 Project licensing

All necessary steps are followed to obtain the required permits and environmental reports for the implementation of the project (including report updates, commissioning of works, necessary permits, drafting of Environmental Impact Assessments, file submission, Environmental Terms Approval Decision).

5 Project implementation

Project implementation is conducted by IPTO either with its own resources (direct labour) or by outsourcing (turnkey projects). Where applicable, implementation is supervised by IPTO, a third party or a special-purpose vehicle (see Ariadne Interconnection).

6 Project completion

The project is electrified upon completion.

7 Project maintenance

Subsequently, the project is maintained, repaired when damaged and upgraded when needed.

8 Decommissioning and management of materials

When the life cycle of the project is completed, it is decommissioned. The resulting materials are properly managed as waste.

Flora and fauna protection practices during construction works

To ensure that an area's biodiversity remains unaffected during the construction phase of projects involving TLs, substations or HVCs, the Operator takes a series of measures to protect the flora and fauna, which are summarised as follows:

- The extent of the area occupied by the project is limited to what is strictly necessary for its construction.
- No uncontrolled disposal of debris, lubricants and other waste or rubbish is allowed at any location within the immediate project site areas
- The areas in which existing vegetation will be cleared are limited to those strictly necessary. For this reason, prior to the launch of construction works these areas are demarcated with precision (the area to be occupied by the first pylon) by a special team of surveying engineers.
- Any damage to vegetation is limited to the minimum possible extent and always takes place in accordance with the instructions of the competent Forest Authority.
- The construction site areas are restored according to relative vegetation technical studies.
- In case of adverse weather conditions during earthworks, soil wetting is applied to reduce dust dispersion.
- Workers, both in the construction phase and in the operation phase, are thoroughly informed so that all environmental terms, especially those concerning the natural environment, are observed.

Care for our staff and society

2,216
hours of Health & Safety training

12%
of all training hours were pertinent to Health & Safety topics

18,907
total hours of training in 2023

160
training programmes were carried out in 2023

154,038€
for the training and development of employees

100%
of our employees were assessed based on their performance

We apply practices that promote the Health and Safety of our employees, through timely hazard identification, prevention and minimization of work accidents.

Human resources data

In the year 2023, the IPTO Group employed 2,085 full-time employees (31/12/2023). In addition, permanent/regular staff includes regular staff, staff with a three-year fixed-term contract, the CEO, the General Manager, as well as employees with a consultancy contract. All three-year fixed-term contracts are for positions of responsibility. There are 14 people employed in the positions of CEO, General Manager, and Advisors to the General Manager. The data on regular staff and fixed-term contracts are drawn from the Company's Employment Data Sheets. The data on the contracts for services and the temporary staff are drawn from the company's payroll.

100% of the Group's employees (regular staff) are covered by the new three-year collective labour agreement (2021-2024), which is fully in line with the standards and principles governing the modern working environment.

Among other things, the collective labour agreement provides for:

- The continuation of the group health and life insurance plan for all employees.
- The regulation of teleworking, ensuring all labour rights included in IPTO's Workforce Regulation and the collective labour agreements.
- Ensuring of the amount for meal vouchers.

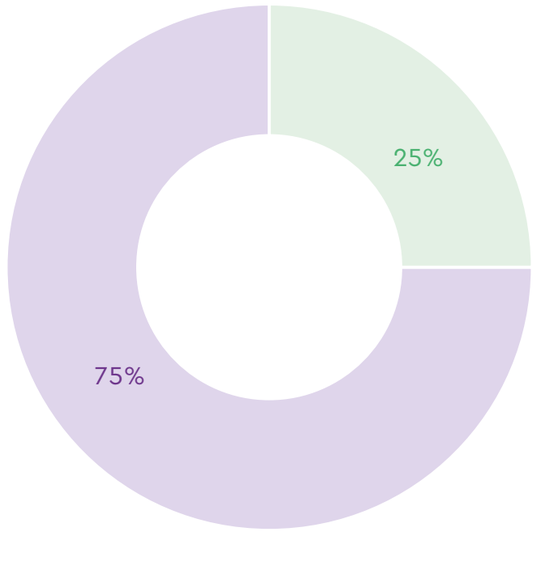
In addition, the Group employed 323 non-employees. More detailed information on the IPTO Group's human resources is presented in the following tables and charts.

Table 4.1: Human resources data by labour contract and gender

	Women	Men	Total
Permanent/regular staff	259	863	1,122
Temporary staff	0	0	0
Seasonal	0	0	0
Employees under contracts for services and staff with fixed-term contracts	271	692	963
Total*	**530**	**1,555**	**2,085**

*The figures in the table also include 14 Senior Management members

Graph 4.2: Percentage of employees by gender



Glyph 4.3: Percentage of employees by type of employment contract

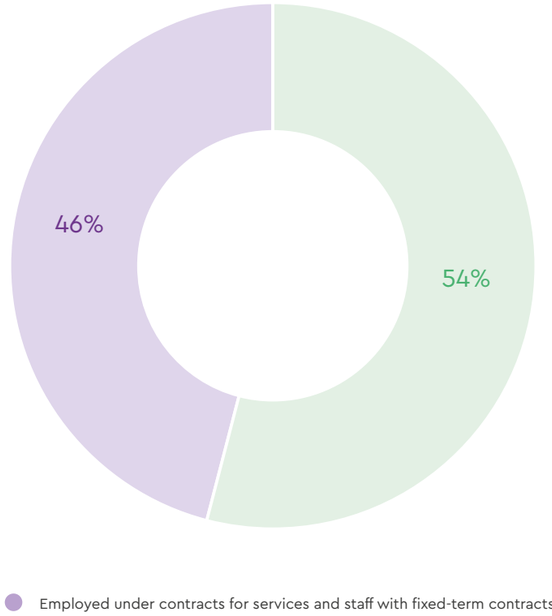


Table 4.4: Breakdown of employees by geographical area (2023)*

	Regional Sector of Central, Northern Greece	Regional Sector of Western Greece and the Peloponnese	Regional Sector of Attica	Regional Sector of Crete
Permanent/regular staff	251	119	741	11
Temporary staff	0	0	0	0
Seasonal	0	0	0	0
Employees under contracts for services and staff with fixed-term contracts	169	82	705	7
Total	**420**	**201**	**1,446**	**18**

*Only IPTO employees. All staff at subsidiaries ARIADNE and GRID are based in Attica.

Table 4.5: Staff's age breakdown by labour contract and age group

	<30	31-50	>50
Permanent/regular staff	3	342	777
Temporary staff	0	0	0
Seasonal	0	0	0
Employees under contracts for services and staff with fixed-term contracts	211	620	132
Total	**214**	**962**	**909**

Glyph 4.6: Staff's age breakdown by labour contract and age group

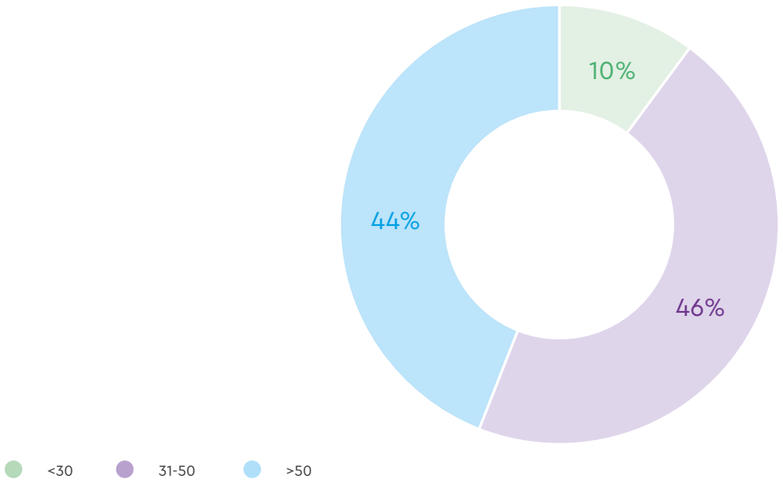


Table 4.7: Number of workers who are not IPTO's employees by category

Internship	3
Security	124
Cleaning services	159
Catering services	4
Others (doctors, nurses, gardeners)	33
Total	**323**

Graph 4.8: Percentage of workers who are not IPTO's employees by category

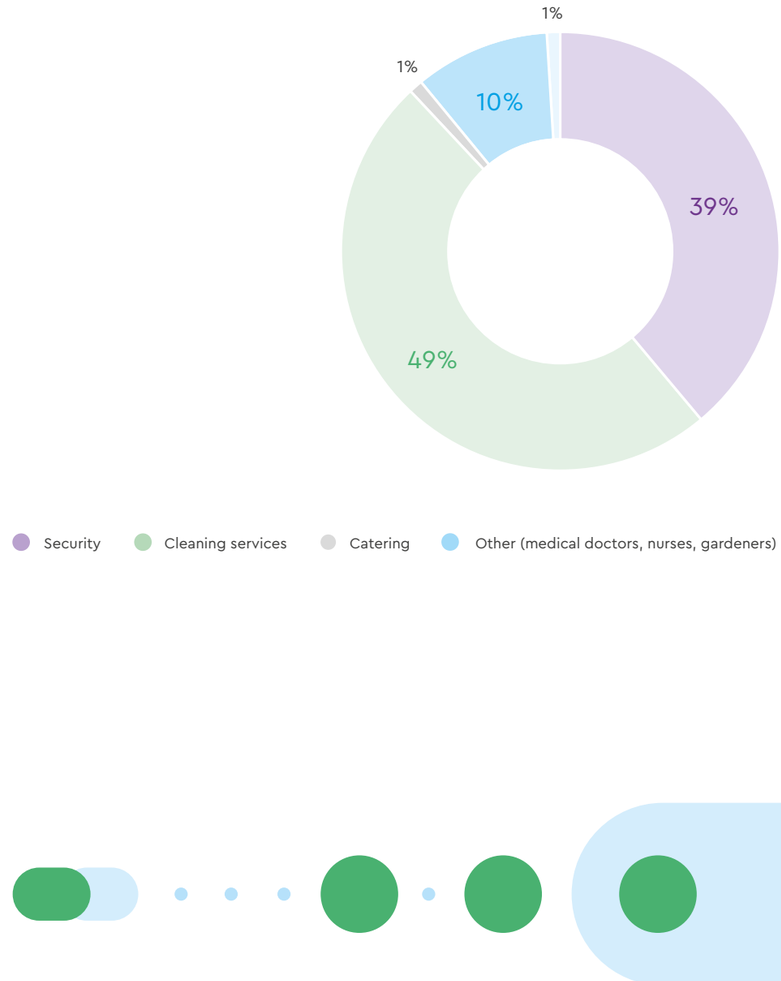


Table 4.9: Employee mobility by gender (2023)

	Men	Women	Total
Voluntary exit	16 (89%)	2 (11%)	18 (45%)
Retirement	9 (75%)	3 (25%)	12 (30%)
Dismissal	0	0	0
Resignation	5 (63%)	3 (38%)	8 (20%)
Death	2 (100%)	0 (0%)	2 (5%)
Σύνολο	**32 (80%)**	**8 (20%)**	**40 (100%)**

Graph 4.10: Employee mobility by type (2023)

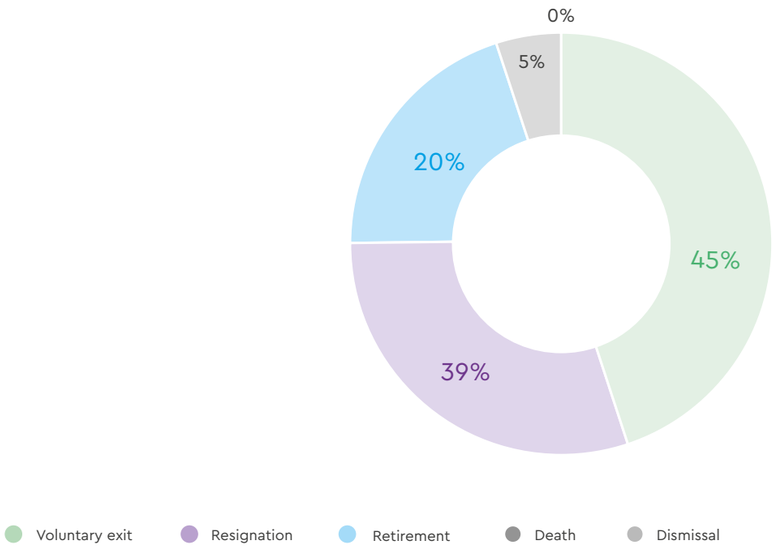


Table 4.11: Employee mobility by age group (2023)

	<30	31-50	>50	Σύνολο
Voluntary exit	0	0	18 (45%)	18 (45%)
Retirement	0	0	12 (30%)	12 (30%)
Dismissal	0	0	0	0
Resignation	0	7 (17.5%)	1 (2.5%)	8 (20%)
Death	0	0	2 (5%)	2 (5%)
Σύνολο	**0**	**7 (17.5%)**	**33 (82.5)**	**40 (100%)**

Table 4.12: Employee mobility by geographical area (2023)

	Regional Sector of Central, Northern Greece	Regional Sector of Western Greece and the Peloponnese	Regional Sector of Attica	Regional Sector of Crete	Total
Voluntary exit	8 (20.0%)	4 (10.0%)	6 (15.0%)	0 (0.0%)	18 (45%)
Retirement	4 (10.0%)	1 (2.5%)	7 (17.5%)	0 (0.0%)	12 (30%)
Dismissal	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Resignation	0 (0.0%)	0 (0.0%)	8 (20.0%)	0 (0.0%)	8 (20%)
Death	1 (2.5%)	0 (0.0%)	1 (2.5%)	0 (0.0%)	2 (5%)
Total	**13 (32.5%)**	**5 (12.5%)**	**22 (55.0%)**	**0 (0.0%)**	**40 (100%)**

Graph 4.13: Staff on 24-hour shift (only for IPTO)

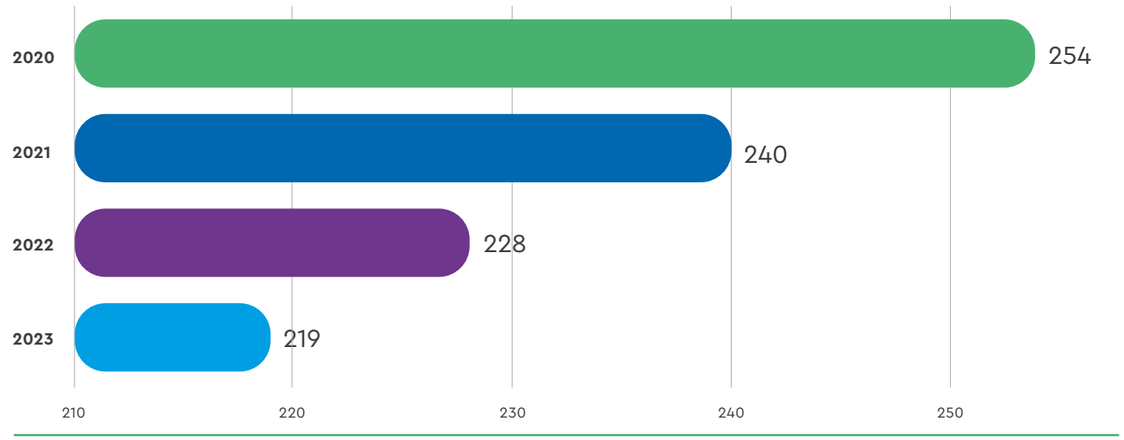


Table 4.14: Breakdown of employees by rank and gender

	2021			2022			2023		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Department & Branch Directors	32 (76%)	10 (24%)	42	41 (75%)	14 (25%)	55	46 (69%)	21 (31%)	67
Section Heads & Deputy Section Heads	127 (64%)	73 (36%)	200	115 (60%)	78 (40%)	193	128 (62%)	80 (38%)	208
Employees (permanent)	765 (83%)	161 (17%)	926	716 (82%)	153 (18%)	869	680 (81%)	155 (19%)	835
Employees under contracts for services and staff with fixed-term contracts	-	-	-	-	-	-	690 (72%)	271 (28%)	961
Total	**924 (79%)**	**244 (21%)**	**1,168**	**872 (78%)**	**245 (22%)**	**1,117**	**1,544 (75%)**	**527 (25%)**	**2,071**

Table 4.15: **Breakdown of employees by rank and age group**

	<30	31-50	>50	Total
Department & Branch Directors	0 (0,0%)	38 (1.8%)	29 (1.4%)	67 (3.2%)
Section Heads & Deputy Section Heads	1 (0.1%)	89 (4.3%)	118 (5.7%)	208 (10.0%)
Employees (permanent)	2 (0.1%)	207 (10.0%)	626 (30.2%)	835 (40.3%)
Employees under contracts for services and staff with fixed-term contracts	210 (10.1%)	620 (29.9%)	131 (6.3%)	961 (46.4%)
Total	**213 (10.3%)**	**954 (46.1%)**	**904 (43.7%)**	**2,071 (100%)**

Workforce Regulation

All IPTO regular employees are covered by the Workforce Regulation, following the trends of a modern working environment, ensuring their rights and working conditions, which are guaranteed through collective bargaining. In addition, through the Workforce Regulation, various employment issues are addressed, including recruitment, remuneration and working hours. More specifically, the Regulation:

- Safeguards the staff's job posts;
- Disconnects seniority-related remuneration levels from the staff assessment procedure;
- Updates provisions on disciplinary procedure;
- Increases parental leave by two days;
- Provides for paid leave for employees who are either bone marrow donors or have children with severe mental illnesses, and
- Provides for the inclusion of the new recruits in the regular staff after seven months of service rather than two years as previously.

Additional Benefits

At the IPTO Group, we support our employees and their families, ensuring the balance of their personal and professional lives. To this end, we offer them and their families our support by providing additional insurance coverage. More specifically, we provide:

- life insurance
- permanent total disability insurance due to illness (for people up to 65 years of age),
- death insurance,
- insurance in the event of permanent total disability caused by an accident and hospital or out-of-hospital care as a result of an accident or illness,
- meal vouchers and
- allowance for nurseries and camps for the employees' children.

Moreover, regarding parental and maternity leave, the IPTO Group fully implements the regulations of the current labour legislation, increasing the number of parental leave days by 2 to further support parents. More specifically, in 2023, 4 IPTO regular employees (2 men, 2 women) were entitled to maternity/paternity leave all of whom used it as provided for. 100% of employees returned to work as normal after the expiry of their parental leave.

Occupational Health & Safety

At the IPTO Group, we apply practices that promote our employees' Health and Safety. Through the early identification of risks, prevention and minimisation of accidents at work, we aim to create a strong corporate culture, focusing on ensuring the health and safety of our employees.

For us, Health and Safety at work is our main priority. To this end, we make every possible effort and implement appropriate measures to ensure a safe working environment.

Health and Safety Policy

Through the Group's Occupational Health and Safety Policy, IPTO aims to improve the existing systems, standards and practices in place, laying the foundations for a safe working environment. The Policy has been approved by the Management and is binding for all employees regardless of rank, as well as forthird parties who collaborate with IPTO or are in its premises.

Furthermore, through the implementation of this Policy, we aim at the early identification of risks, prevention and minimisation of work-related accidents and illnesses.

Identifying, assessing and minimising risks

A Written Occupational Risk Assessment (WORA) has been prepared to identify all risks arising from the Company's activities. The existing WORA is up to date and contains, inter alia, risk identification and analysis, risk assessment tables and the actions implemented according to the hierarchy of controls for risk minimisation. In addition, the Company is in the process of developing a Health and Safety Management System (HSMS) to be completed by the first half of 2024.

Until the completion of the HSMS, the risk identification process is as follows:

- The Safety Technicians (from a licensed external H&S services provider - External Protection and Prevention Services - EPPS) cooperating with the Company carry out scheduled visits to the Company's facilities, according to visit schedules approved by the Hellenic Labour Inspectorate.
- The remarks made by the Safety Technicians recorded in the Indication Books at facilities are sent by the service provider (EXYPP) to the Health & Safety Branch (H&S Branch), where they are collected, analysed and then sent to all the Company's competent Departments to take all necessary corrective actions.

To avoid any possible exposure to risks at work, employees are informed through training seminars held on a regular basis, as well as through WORA, which is accessible to all.

The Company encourages employees to be actively involved and report any suggestions for improvement that may contribute to the better protection of occupational health and safety. In case employees identify a potential hazard, they can report it to both the Safety Technicians and their superiors.

Several additional measures taken to protect Health and Safety at work include:

- Appropriate signage where necessary
- Provision of the necessary Personal Protective Equipment (PPE) to staff and training in its use
- Fire safety
- Emergency response
- First Aid
- Incident Management and Accident Investigation

Incidents are investigated by the Safety Technician, as provided by the applicable legislation. Their investigation identifies the causes and suggestions are noted so that similar accidents are avoided in the future.

Practices and measures to safeguard Health and Safety

The IPTO Group makes every effort and implements appropriate measures to create a safe working environment and to ensure its employees' health and safety. More specifically, the Group applies the following measures:

- Preparation and updating of Occupational Risk Assessment studies for all IPTO facilities throughout the country.
- Coverage of all workplaces with Safety Technicians and Occupational Physicians to identify and note occupational hazards.
- Right of access to nursing staff for all employees, distributed in clinics located in nine main Company facilities throughout the country.
- Operation of staffed medical clinics at IPTO facilities throughout Greece.
- Preventive staff medical check-ups.
- Mandatory annual occupational health check-ups for the employees who work under high-risk conditions and biennially for the rest of the staff.
- Issuance of fitness-for-duty certificates for all employees, fully protecting medical confidentiality and personal data.

Health and Safety training

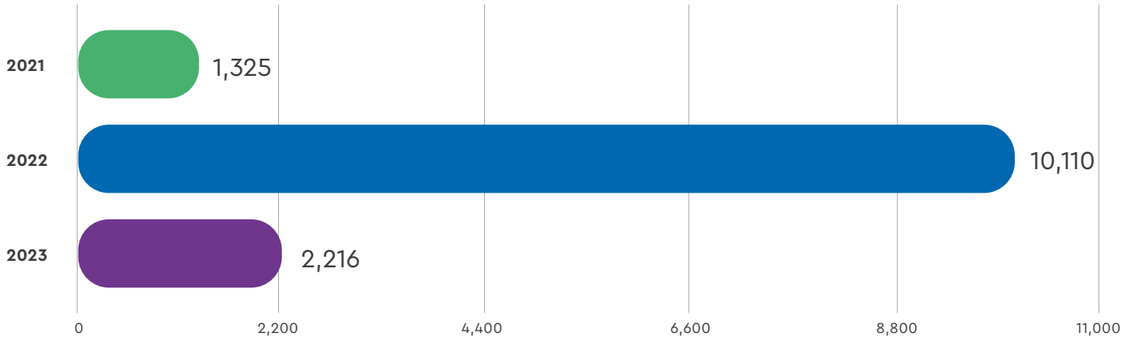
The effective protection of Health and Safety requires the consolidation of a culture and active engagement by all employees regardless of their rank. For this reason, we are committed to the continuous training of our employees in topics pertinent to the protection of occupational health and safety.

The IPTO Group continuously invests in the training of its employees on Health and Safety issues, which is integral to their basic and special technical training. The proper training of employees is one of the key pillars in the effort to prevent accidents and achieve high levels of safety. For this reason, IPTO draws up an annual Health and Safety training plan, considering a number of parameters, including experiences and lessons learned from investigating past accidents, employee suggestions, current Health and Safety awareness campaigns, as well as potential renewed safe working guidelines and regulations.

Through the annual programme of training and experiential workshops, the Group aims to prevent and address any potential negative impact on the Health and Safety of employees, which may occur at work, covering a range of relevant topics, such as the correct use of personal protective equipment, information on occupational hazards, dangerous tasks or even dangerous situations and how to address them according to best practices.
Group employees are required to attend theme-specific seminars, tailored to the needs of their position of responsibility, further developing their skills to prevent and address occupational risks they may face.

In 2023, seminars on Health and Safety issues totalling 2,216 training hours and 906 participants were held, representing 12% of total training hours. The seminars included occupational risk assessment topics, fire safety and workplace evacuation, standard newcomer briefings, and first aid. The change in total hours of H&S training between 2022 and 2023 is due to the scheduling of staff first aid training, which takes place every two years.

Graph 4.16: Hours of Health and Safety training



Our performance

Our relentless efforts to protect Health and Safety have resulted in a reduction of serious injuries at work to one by 2023.

Our performance in relation to occupational Health and Safety is presented in detail below.

Table 4.17: Performance indicators for occupational Health & Safety

	2021			2022			2023		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Number of injury-related deaths	1(*4)	0	1	0	0	0	0	0	0
Injury-related death rate*1	0.14	0	0.11	0	0	0	0	0	0
Number of serious injuries	0	0	0	0	0	0	1	0	1
Serious injury rate*2	0	0	0	0	0	0	0.073	0	0.054
Number of recordable injuries	5	0	5	9	0	9	11	3	14
Recordable injury rate*3	0.69	0	0.55	0.77	0	0.58	0.80	0.64	0.76
Number of total working hours	**1,442,969**	**378,057**	**1,821,026** (*5)	**2,348,313**	**766,303**	**3,114,616** (*5)	**2,753,371**	**945,051**	**3,698,422**

*1: Injury-related death rate = (Number of injury-related deaths / total working hours) *200,000
*2: Serious injury rate = (Number of serious injuries excluding deaths / total working hours) *200,000
*3: Recordable injury rate = (Number of injuries / total working hours) * 200,000
Serious injuries are injuries that result to lost working days totalling more than 6 months and recordable injuries are injuries of any kind, even if they did not result in lost workdays or required first aid.
*4: Death was caused by pathological causes during working hours
*5: Hours of leave, sick leave and quarantine hours have been deducted and are not included, i.e. only office work and telework are included. Previous years included both leave and sick leave.

From the 14 injuries that occurred in 2023, three were due to road accidents, four due to fall, one due to fall from a vehicle, one due to a vehicle roll-over, one due to injury by a sharp object, one due to electric shock, one during the replacement of a breaker, one due to the abrupt closing of a door, and one due to heavy object falling on the employee's hand. According to the data of the competent branch, 244 working days were lost due to accidents in 2023 and the annual number of working hours was 3,698,421.75. Therefore, the Accident Severity Index for 2023 is 13.2.

Employee training and development

At the IPTO Group, we invest in the continuous and high-quality training of our employees and development of their skills. Their training aims to educate our staff to meet the increasing challenges of the ever-changing market.

The continuous monitoring of the needs and developments in the energy sector is of great importance for the design of educational programmes that will contribute to the education of our employees, promoting their professional and personal development.

At the IPTO Group, we constantly invest in both the professional and personal development of our employees, through appropriately designed training programmes that meet their needs.

The training programmes strengthen the employees' technological and organisational knowledge and boost creativity and innovation. They are organised and carried out annually basis with the participation of employees in seminars and training workshops. IPTO does not limit itself only to short-term training programmes. Its employees may participate in postgraduate, doctoral and post-secondary education programmes, as well as in foreign language learning programmes, utilising new educational practices, such as experiential education and alternative ways of implementation such as distance learning.

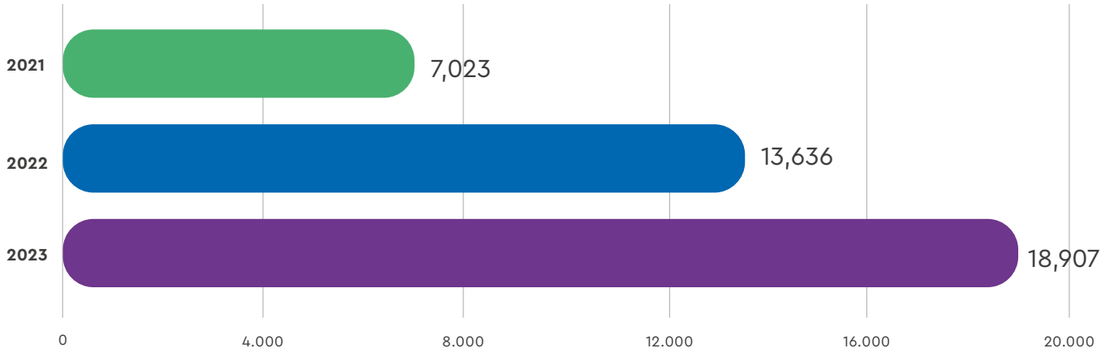
In 2023, 160 training seminars totalling 18,907 hours and 2,208 participants were carried out and their total cost amounted to €154,038[1].

The training seminars are designed in collaboration with specialised and experienced instructors, covering a wide range of topics, aiming at the acquisition of specialised training, as well as the development of horizontal skills.

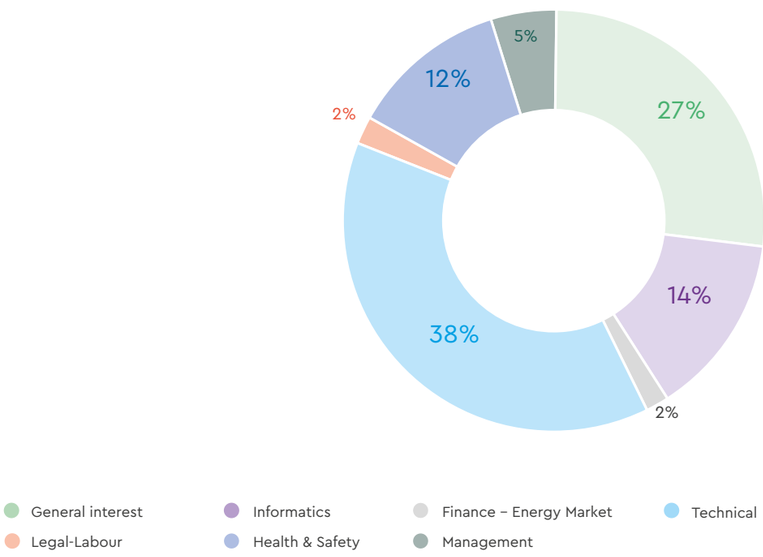
[1] The data concern permanent employees, as well as IPTO and ARIADNE employees under contracts for services; temporary and GRID employees are not included.

The design of the annual training plan is dynamic. The topics of the training seminars implemented each year vary to meet the changing needs of employees and the Company. To identify these needs, the Training and Development Department communicates with all Company Departments and collects specialised topics of interest. The Company then processes results and designs the annual employee training plan, which is implemented according to priority needs.

Graph 4.18: Total employee training hours per year



Graph 4.19: Training hours per subject area (2023)



Graph 4.20: Average training hours per gender (2023)

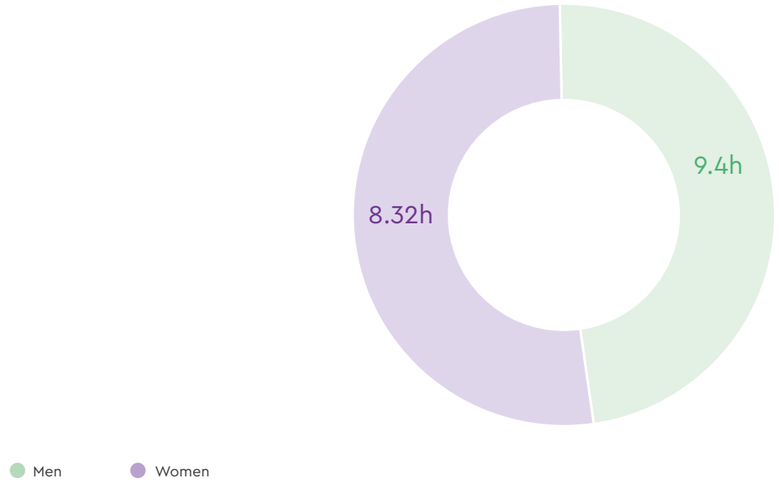


Table 4.21: Average training hours per category of permanent employees*

	2022			2023		
	Men	Women	Total	Men	Women	Total
Directors of Departments & Branches	7.1	9.6	7.8	6.5	13.2	8.6
Section Heads & Deputy Section Heads	9.8	9	9.4	4.8	6.8	5.5
Salaried employees	6.8	7.5	7.0	9.9	8.4	9.5
Total	**7.1**	**7.8**	**7.3**	**9.4**	**8.3**	**9.1**

Table 4.22: Average number of employee training hours subject to total remuneration*

	2022	2023
Employees in the 10% of employees with the highest total remuneration (Management)	7.8	8.8
Employees in the 90% of employees with the lowest total remuneration (Heads of Sections & Subsections & salaried employees)	7.4	9.2

*The salaried employee category also includes employees under contracts for services at IPTO and ARIADNE. Temporary and GRID employees are not included.

Employee assessment

Keeping performance management in mind, we apply an up-to-date assessment system for employees and executives.

IPTO has developed effective employee management and assessment mechanisms, thus ensuring the increase of the Company's efficiency for the benefit of all.

Specifically, it implements a fully modernised electronic evaluation system, which aims to manage the entire Company's performance in a systematic and organised manner and promote continuous development for its employees and executives.

Thus, the Assessment Management System has a diagnostic character, as it demonstrates both the points that need improvement and the scope for continuous development of employees, teams, executives and the Company as a whole.

Performance assessment is based on both qualitative (skills - behaviours) and quantitative (measurable objectives) criteria. Specifically, staff with non-responsible positions and Section Deputy Heads are evaluated only on qualitative criteria whereas Section Heads and higher executives are evaluated on both quantitative and qualitative criteria, in a ratio of 30% - 70% respectively.

Through this procedure, fairness and meritocracy of the evaluation system is strengthened, as the people being assessed have a primary role in the whole process. More specifically, the process includes the following steps:

1. The person being assessed carries out a self-assessment.
2. The Direct Supervisor (assessor A) and the Next Higher Supervisor (assessor B) of the person being assessed submit their ratings.The overall assessment score derives from the score average of the two assessors (A and B).
3. The person being assessed is informed of his/her score and has the option to accept it by completing the process or to disagree.
4. In case of disagreement, the parties involved in the assessment can resolve the disagreement through discussion. The two assessors then resubmit their assessment (with or without changes to their ratings).
5. The person being assessed is informed of their score and may accept it and complete the process or disagree for a second time.
6. In case of a second disagreement, the assessment is systemically forwarded to the Next Higher Supervisor (assessor C), who submits the employee's final score.

It is noted that depending on the executive's rank and the organisational chart of each reporting year, the employees under assessment may by exception be assessed by one assessor.

In this case, the assessment process is completed by the first assessor A. In the event of a second disagreement, the role of the third evaluator is assumed by the Next Higher Officer.

The assessment of employees is carried out on an annual basis and concerns the previous year. The assessment process for 2022 started in June 2023 for a total of 1,669 persons, of which 222 are executives and 1,447 are non-executives.

Diversity, inclusion and equal opportunities

With people regardless of gender, nationality, religion, age or any other particularity at the centre of our activities, we promote equal opportunities and respect for diversity in the workplace daily, which is put into practice through our Equality and Inclusion Policy and Action Plan.

With people regardless of gender, nationality, religion, age or any other particularity at the centre of our activities, we promote equal opportunities and respect for diversity in the workplace on a daily basis, which is put into practice through our Equality and Inclusion Policy and Action Plan.

IPTO respects and supports the internationally recognised human rights and seeks to create an inclusive environment of equal opportunities and non-discrimination that embraces diversity. To this end, in 2023 we applied the "Gender Equality and Diversity Inclusion Policy" and the "Policy for the Prevention and Combating of Violence and Harassment in the Workplace", which includes a Complaints Mechanism for issues of equality, discrimination, violence and harassment in the workplace. These Policies were based on both the OECD and ILO Guidelines and the internal gender mainstreaming survey conducted for the first time in 2022.

Within the framework of these Policies, the Environmental, Social and Corporate Governance Branch, which is part of the Division of Human Resources, Legal & Regulatory Affairs, assumes, among other tasks, the following:

- Monitoring the implementation of the relevant Policies and the achievement of the objectives set and the incorporation of monitoring indicators in the Sustainability Report to assess the current situation within the Company and examine the effectiveness of the measures taken towards the achievement of the objectives set.
- Preparation of an Action Plan for the promotion of improvement actions where necessary and the development of appropriate -quantitative and qualitative- methods for monitoring the equality and diversity inclusion status achieved within the Company (e.g., collection of statistics, comparison, completion of anonymous questionnaires by the employees).
- Cooperation with organisations or other bodies aiming to promote equality and eliminate discrimination based on sex, race, colour, national or ethnic origin, ancestry, religion, political or other beliefs, disability or chronic illness, age, marital or social status, sexual orientation or identity.

No incident of discrimination was recorded in 2023.

Table 4.23. Gender ratio in management executives*

	Men	Women
2021	160 (65%)	85 (35%)
2022	158 (63%)	92 (37%)
2023	174 (63%)	101 (37%)

*Including Directors, Heads of Sections and Subsections

Table 4.24: Women's pay and total remuneration to men's by employee category (2023)*

Department & Branch Directors**	0.76
Section Heads & Deputy Section Heads	0.95
Salaried employees (regular)	0.77
Staff under contract for services	0.93
Salaried employees (regular staff and staff under contracts for services)***	0.82

(*) Values based on the Athens Stock Exchange (ATHEX) Disclosures Guide: 8%, 3% and 21% respectively.
(**) Part of the staff in this category work part-time. In addition, part of the staff did not work at IPTO for the entire year.
(***)Salaried employees also include employees under contracts for services at IPTO and ARIADNE. Temporary and GRID employees are not included.

Policy on the Prevention and Combating of Violence at Work

The Company, taking every possible effort to eliminate violence and harassment in the workplace, has developed and implements a Policy for the Prevention and Combating of Violence at Work, setting up a modern framework of rules and procedures that prevents and addresses all forms of violence, while creating an environment of respect and ensuring human dignity. The Policy is addressed to all employees, without discrimination, of any rank and position, age group or gender.

The Policy on Preventing and Combating Violence at Work details the rights and obligations of human resources, setting clear boundaries between the two. It also defines "violence" in terms of acts and behaviour (psychological intimidation, physical or verbal violence, sexual abuse).

In addition, it refers to specific measures and actions that the Company takes to safeguard its employees' physical and mental health as part of combating violence and discloses the existence of a complaints mechanism that preserves the anonymity of complainants and protects their personal data. Finally, the Policy includes sanctions in the form of an enforcement pyramid for respondents, only if the complaints against them are confirmed.

More information on the Policy on Preventing and Combating Violence at Work is available on the Group's website.

Internal Audit System

The Internal Audit System is designed to identify and manage potential threats and prevent potential failures. It includes safeguards and control mechanisms for all functions and for all levels of management.

The Internal Audit Division has been designated as the competent reporting authority under the Policy on Preventing and Combating Violence and Harassment at Work and managing internal complaints.

At the end of 2023, two (2) complaints were made under the Policy for the Prevention and Combating of Violence and Harassment at Work. One complaint had its investigation completed and is no longer under investigation. The second is still under investigation.

With a view to informing all staff about the new framework of established policies and to address and eliminate gender-based violence in the workplace there are plans for the next two years:

- An awareness-raising campaign on the new policies and their importance through the production of audiovisual material; and
- Training and sensitisation of all employees on gender, equality and inclusion issues.

Social responsibility and value chain

IPTO Group collaborates with suppliers for purchasing the necessary supplies to fully meet its needs and ensure optimal quality in final services. At the same time, it focuses on supporting local suppliers where possible, thus strengthening the local market.

The Group procures the right goods (e.g., infrastructure, equipment, materials, services) in the right quantity and quality, at the best possible price and in the desired time, according to specifications, achieving the smooth running of its operations.

Specifically, the categories of suppliers with whom IPTO interacts are:
- Contractors/constructors
- Service providers
- Civil Engineering Contractors
- Hardware/equipment manufacturers
- Material suppliers
- Transporters

Aiming to support the local communities in the areas where we operate, we focus on supporting local suppliers where possible, or alternatively suppliers at national level, thus boosting the Greek economy.

In 2023, the total number of suppliers/contractors of works amounted to 44. The total amount paid by the Company to suppliers amounted to €247 million, with the ratio of expenditure between domestic and foreign suppliers being 88 to 12 percent, an increase compared to the previous year (2022: 95 to 5 percent). At the same time, in 2023, the total number of suppliers/contractors of materials and equipment rose to 39, with total supply expenditure amounting to €40 million with the expenditure ratio of domestic to foreign suppliers being 83 to 17 percent.

Socially responsible procurement

To ensure that suppliers respect their employees, IPTO requires their compliance with labour, insurance and environmental legislation and is in favour of cooperating with environmentally sensitive and socially responsible suppliers. The Supply Chain Division (SCD) is responsible for ensuring that compliance requirements with labour, safety and environmental legislation are communicated to suppliers through tender documents and agreed through the respective agreements.

Support and cooperation with the local communities

At the IPTO Group, we understand our responsibility towards the local communities in which we operate. For this reason, we seek their constant support both through our activity and the development of the System and through our contribution to works aimed at empowering the local community.

Every year the IPTO Group supports the local communities where it operates and implements a series of actions aimed at further strengthening them, remaining faithful to its values. The total amount IPTO spent on actions for 2023 amounted to €5.39 million against €1.06 million in 2022.

In 2023, the total amount of expenditure on social actions of ADMIE Group amounted to €5.39 mil.

Some of the health and well-being projects that IPTO supported through sponsorships and donations in 2023 are presented below:

- Sponsrships to Social Groceries of municipalities in Attica
- Scolarships at the University of Crete
- Donations for forest fire prevention and suppression
- Donations to the General Hospitals of Thessaly, against the ramifications of hurricane Daniel
- Sponsorships to animal welfare associations

Governance

IPTO continues its digital transition in line with technological developments of the energy sector and the global economy, while contributing to the digital transformation of the entire country.

402%

increase in investments paid by IPTO at community level

No incidents

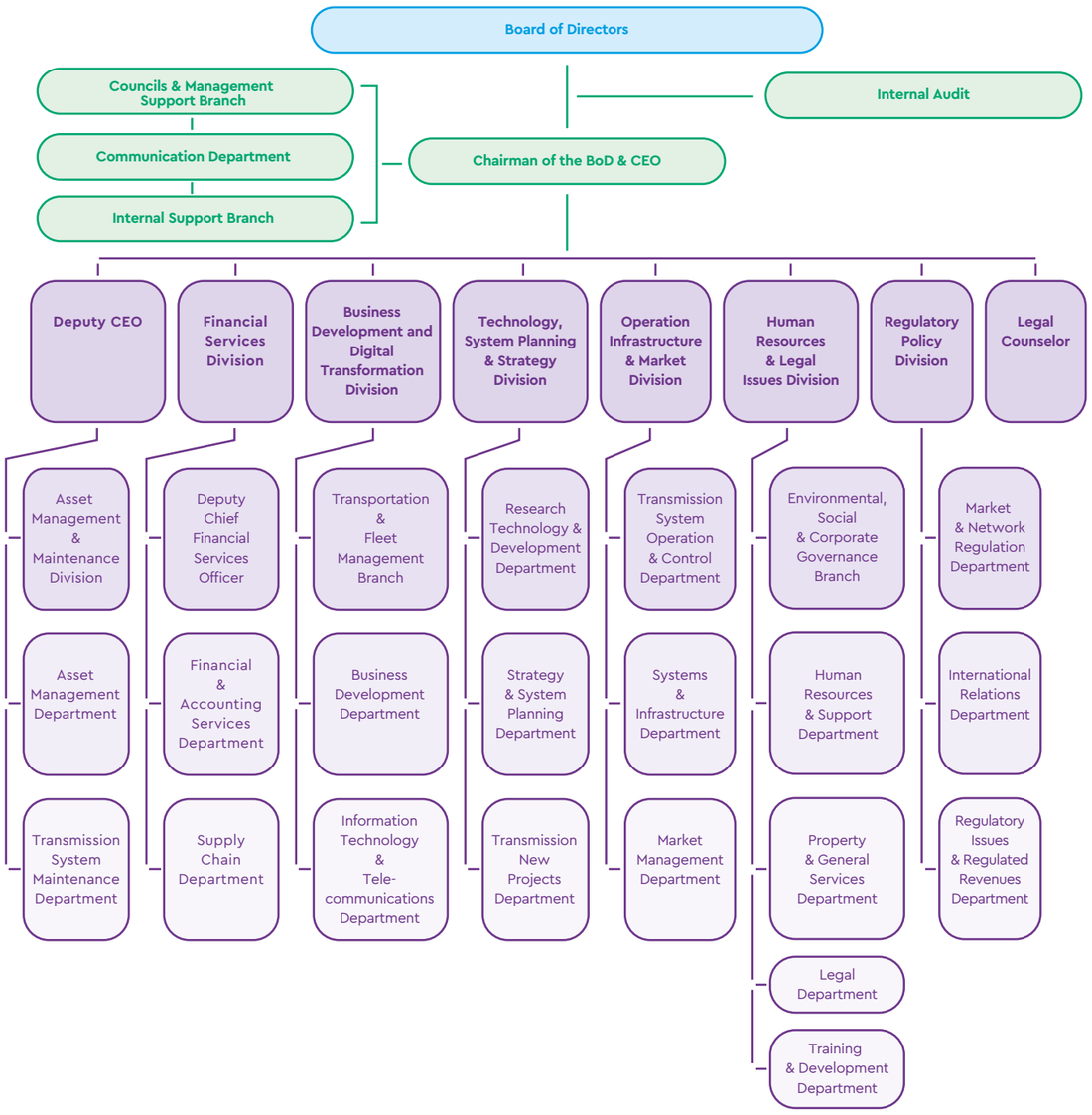
of corruption occurred at the IPTO Group in the year 2023

Corporate Governance

Organisation and administrative structure

The IPTO Group has developed and applies a modern management model aiming to ensure its smooth operation and responsible growth. More specifically, due to the nature and complexity of the Group's operation, many Departments have been established to assist the Management's work, assuming supervisory, coordinating and advisory responsibilities.
The Group's basic organisational structure is presented in the organisational chart below, illustrating the Group's major Departments.

Graph 5.1: **Organisational chart**



IPTO's Board of Directors is responsible for the formulation of the Company's strategy and policy. In addition, it has a supervisory and monitoring role over the management of the Company's assets, in particular regarding the maintenance and preparation of the Ten-Year Development Plan of the HETS. Its objective is to act collectively, making decisions in line with the legislation and the guidelines set by the Regulatory Authority for Energy.

IPTO's Board of Directors consists of nine members: 3 executive and 6 non-executive. The Chairman of the Board is also the Company CEO. This double role is intended to ensure a more direct decision-making process and a more appropriate coordination of the work performed by the Company's Divisions. The composition of IPTO's Board of Directors is presented below:

Table 5.2: **IPTO's Board of Directors**

First name & surname	Position	Role	Gender
Manousos Manousakis	Chairman & CEO	Executive	Male
Ioannis Margaris	Vice-Chairman - General Manager	Executive	Male
Dong Chen	Deputy CEO	Executive	Female
Yin Liu	Independent Member	Non-executive	Female
Yunpeng He	Independent Member	Non-executive	Male
Ioannis Karampelas	Independent Member	Non-executive	Male
Stavros Ignatiadis	Independent Member	Non-executive	Male
Despina Kalliouri	Independent Member	Non-executive	Female
Fotios Nikolopoulos	Independent Member - Employee Representative	Non-executive	Male

In 2023, the composition of the Board of Directors was reshuffled. More specifically, independent members Wang Yuanhang and Antonis Aspras withdrew and their responsibilities were assumed by Yunpeng He and Despina Kalliouri.

Table 5.3: **Classification of BoD members by age group**

<30	30-50	50>
0	5	4

Table 5.4: **Percentage of women and non-executive members in the Board of Directors**

	Ποσοστό
Women members on the BoD	33%
Non-executive BoD members	67%

BoD Committees

The Company's Board of Directors is assisted in carrying out its duties by four advisory committees: (a) the Financial Audit Committee, (b) the Strategic Planning Committee, (c) the Remuneration and Nomination Committee and (d) the Audit Committee. The members of the Financial Audit, Strategic Planning and Remuneration and Nominations Committees are appointed by decision of the Company's Board of Directors and their term of office equals that of the Board of Directors. Two of the members of each Committee are selected by the shareholder State Grid Europe Limited.

The responsibilities and structure of each advisory committee are set out below:

Financial Audit Committee

The Financial Audit Committee consists of four (4) members. It is mainly tasked with:

- Overseeing the collection of relevant information and preparing the Company's financial statements;
- Monitoring the accounting practices and rules applied by the Company;
- Monitoring the Company's business plan together with the Strategic Planning Committee;
- Being briefed by external or any internal auditors of the Company; and
- Submitting proposals to the Board of Directors regarding appointment, office term renewal and remuneration of the Company's external auditors.

Table 5.5: Financial Audit Committee

First name & surname	Position	Role
Liu Jie	Chief Financial Officer	Executive member
Eleni Zarikou	Deputy Chief Financial Officer	Executive member
Liu Yin	Independent BoD Member	Non-executive member
Iason Rousopoulos	Former Chief Officer	Non-executive member

Table 5.6: Role and gender of Financial Audit Committee members

	Men	Women	Total
Executive members	-	2	2
Non-executive members	1	1	2
Total	1	3	4

Strategic Planning Committee

The Strategic Planning Committee consists of four (4) members. Its responsibilities include, among other things, monitoring the Company's business plan together with the Financial Audit Committee and submitting strategic planning proposals to the Board of Directors.

Table 5.7: Strategic Planning Committee members

First name & surname	Position	Role
Ioannis Margaris	Chief Technology, Planning & Strategy Officer	Executive member
Fan Jie	Deputy Director, Asset Management Department	Executive member
Yunpeng He	Independent BoD Member	Non-executive member
Yannis Kampouris	SEleNe CC Chief Executive Officer	Non-executive member

Table 5.8: Strategic Planning Committee members: role and gender

Role	Men	Women	Total
Executive members	2	-	2
Non-executive members	2	-	2
Total	4	-	4

Remuneration and Nominations Committee

The Remuneration and Nominations Committee consists of four (4) members tasked with seeing after recruiting affairs and setting respective remunerations.

Table 5.9: Remuneration and Nominations Committee members

First name & surname	Position	Role
Dong Chen	Deputy CEO	Executive member
Ioannis Vrettos	Chief Human Resources, Legal and Regulatory Affairs Officer	Executive member
Yiannis Tolias	Director, International Relations Department	Executive member
Pengfei Zhang	Deputy Director, Strategy & System Planning Department	Executive member

Table 5.10: Role and gender of Remuneration and Appointments Committee members

Role	Men	Women	Total
Executive members	3	1	4
Non-executive members	-	-	-
Total	3	1	4

Audit Committee

The Audit Committee is composed of three (3) members and its main responsibilities are pertinent to the internal audit and risk management system and the supervision of the Internal Audit office.

Table 5.11: Audit Committee members

First name & surname	Position	Role
Antonis Aspras	Former BoD Member	Non-executive member
Yin Liu	Independent BoD Member	Non-executive member
Ioannis Anepoliotakis	External partner	Non-executive member

Table 5.12: Role and gender of Audit Committee members

Role	Men	Women	Total
Executive members	-	-	-
Non-executive members	2	1	3
Total	2	1	3

Election and suitability of BoD members

The members of the Board of Directors are elected by the General Meeting of Shareholders, which also decides on their term of office, set at 3 or 5 years as per training and performance criteria. The current term of the Board of Directors was reset in December 2023 and expires in May 2025.

BoD members are elected according to a set of criteria that aims to ensure their ability to fulfil their responsibilities and achieve IPTO's operational goals. Some of these criteria include specialisation and experience, as well as bachelor's, master's or doctoral degrees.

Performance assessment for BoD members

The General Meeting of Shareholders is the Company's highest governing body. Part of its responsibilities is to supervise the members of the Board of Directors in performing their duties.

BoD members are assessed against the annual targets, in accordance with the "Policy for the Remuneration of the BoD members of the Board of Directors, its Committees and the Company Executives and Procedure for Executive Recruitment", which is approved by the General Meeting.

In addition, BoD members are constantly being updated on sustainable development issues that may directly or indirectly affect the Group's activity and make relevant decisions when necessary. Furthermore, significant emphasis is also placed on the training and knowledge enhancement of IPTO's BoD members and Senior Management on topics related to sustainable development. To this end, a series of in-depth training courses have been planned and will soon be carried out.

Remuneration policy

The remuneration policy is in line with the "Policy for the Remuneration of the BoD members of the Board of Directors, its Committees and the Company Executives and Procedure for Executive Recruitment" approved by the General Meeting. It includes both fixed and variable remuneration depending on the achievement or not of the executive targets set that are related to their duties. Furthermore, compensation is provided in the event of their dismissal, should the Company be liable. Otherwise, no compensation is provided.

Remuneration setting procedure

In preparing the policy, the Remuneration and Nominations Committee takes into account corporate best practices, industry-related company practices, departmental suggestions and views, and the deliverables of the consultants entitled "Performance Management System". The policy is then submitted to the Board of Directors for approval and then to the Company's General Meeting of Shareholders for final approval.

The Remuneration and Nominations Committee regularly reviews whether the policy is still in line with the Company's business strategy or whether changes should be proposed to the Board of Directors. Every four years (or earlier if change is needed), after the Committee's proposal, the Board of Directors submits the new policy to the shareholders for approval.

Table 5.13: Annual total remuneration index

Ratio of the annual total remuneration of the person with the highest salary in the organisation to the median annual total remuneration of all employees	6.81
Ratio of the percentage increase in the annual total compensation of the person with the highest salary in the organisation to the average percentage increase in the median annual total compensation of all employees	2.26

Avoidance of conflict of interest

To ensure avoidance of conflicts of interest, all members of the Board of Directors, including the Chairman, submit a Statutory Declaration stating they have no conflicts of interest with the Company.

Internal Audit System

IPTO applies an Internal Audit System (IAS) in its operations by which potential risks are identified, assessed, and managed and potential failures are prevented. The Internal Audit System includes safeguards and control mechanisms for all operations and management levels.

More specifically, the IAS aims at identifying the main risks and the Group's respective exposed operations, limiting the extent of potential and/or actual losses, developing appropriate risk management methodologies, supporting the implementation of the Board of Directors' strategic objectives and forming the basis for the preparation of the Internal Audit Department's short and long-term work programme.

Part of the Internal Audit System is the Internal Audit Department, which contributes to risk identification, assessment and management, and the strengthening of the Internal Audit System and corporate governance mechanisms.

Internal Audit and Risk Management milestone actions in 2023

- Development of an analytical risk identification and assessment process. The process was supported by the majority of the Group's Departments and subsidiaries, coordinated by the Internal Audit Department.
- The Internal Audit Department's management holds in total five internal audit-related certifications.
- The Internal Audit Department was designated as the competent reporting authority as per the Policy on Preventing and Combating Violence and Harassment at Work and Internal Complaints Management.
- 100% coverage of the designed audit programme.
- Two complaints were investigated under the Policy on Preventing and Combating Violence and Harassment at Work and Internal Complaints Management and corrective actions were proposed.
- Advisory assistance in the preparation of Policies.

General Divisions

Proper organisation and excellent cooperation between the Board of Directors, the Advisory Committees, the General Divisions and all employees are the cornerstone for achieving the Group's goals.

1. General Division of Financial Services
2. General Division of Technology, System Planning & Strategy
3. General Division of Operation, Infrastructure & the Market
4. General Division of Human Resources & Legal Affairs
5. General Division of Asset Management & Maintenance
6. General Division for Business Development & Digital Transformation
7. General Division for Regulatory Policy

Communication with stakeholders regarding issues of concern

All IPTO's stakeholders may contact the company on issues concerning, for instance, the implementation of policies and practices for responsible business conduct, potential complaints or critical concerns by e-mail either at info@admie.gr or the e-mail addresses listed on the relevant page Contact us | IPTO (admie.gr).

Complaints and concerns are then shared with the relevant General Divisions. It is noted, however, that the number and nature of these complaints and concerns are not currently being registered. In addition, employees who wish to report ethical and conduct issues can contact the Internal Audit Department.

Managing sustainable development issues

Part of the Board of Directors' responsibilities is overseeing the Company's performance on sustainable development issues and achieving the medium and long-term goals set. The BoD is also responsible for approving the overall sustainable development strategy. Furthermore, it reviews and approves both the results of the Materiality Analysis and the Annual Sustainability Report.

Aiming at optimizing the management of sustainable development issues, at the end of 2022, IPTO created an Environmental, Social and Corporate Governance Branch (ESGB), which reports directly to the Human Resources and Legal Affairs. The main purpose of the ESGB is to work with all Departments for the implementation of the Group's Sustainable Development strategy.

The Environmental, Social and Corporate Governance Branch is responsible for:

- Contributing to the implementation of the Sustainable Development Strategy
- Publishing the Annual Sustainability Report
- Corporate Social Responsibility actions
- Supervising, coordinating and monitoring waste management
- Supervising, coordinating and monitoring direct and indirect greenhouse gas emissions (Scope 1, 2 and 3)
- The organisation's internal ESG-related surveys
- Identifying and monitoring key ESG performance indicators
- Proposing necessary ESG-related trainings and implementing them in cooperation with the Training Department
- Sponsorships
- Exploring green funding resources in cooperation with other Departments

The executives that make up the Environmental, Social and Corporate Governance Branch (ESGB) report to the Chief HR&LA Officer and the Company CEO in respect with Sustainable Development issues related to the Group's operations. Furthermore, they communicate with the General Divisions and external partners on relevant issues, manage data related to the Group's Material Topics and prepare the Annual Sustainability Report. The Chairman and CEO regularly informs IPTO's Board of Directors on the actions that are being or that need to be implemented. The review and approval of the Material Topics and other information included in the Report is made by the Group's Senior Management.

The operation of the ESG Branch in the year 2023 brought about the following results:

- The launch of the project for the creation of a single Waste Management System which the Branch coordinates, supervises and participates in its design.
- The creation of a model to calculate direct and indirect GHG emissions for the Group in respect with Scope 1 and 2. The model was created with extension options to Scope 3 and to incorporate new data.
- The design and supervision of policies on gender equality, diversity inclusion, and the prevention and combating of violence at work, including the establishment of a complaints handling mechanism. The policies and mechanism were adopted and became operational in 2023.
- The coordination and implementation of the IPTO talent attraction programme for young scientists with zero or minimal work experience.

- The organisation of the collection and dispatch of medical supplies and food to the hospitals of Thessaly after the major floods of September (Daniel).

To ensure optimal management of sustainable development issues, IPTO has created an Environmental, Social and Corporate Governance Branch, aiming at the supervision and full implementation of the Group's sustainable development strategy.

Innovation, RnD, and digital transformation

3 pilot projects

demonstrating the application of research

2 internal

research programmes

17 European

programmes

Since 2014, IPTO has established its Research, Technology and Development Department (RTDD), according to the standards of similar Departments at European Electricity Transmission System Operators. Research programmes, linking Research and Innovation at Universities and Research Institutions with the Group's operational and strategic needs, so that to attract know-how in the following pillars:

- Infrastructure and Asset Management
- System Operation
- Digitisation and communication
- Market management and flexibility

The Department aims to integrate the results of different research initiatives in the company through the horizontal contribution of its employees, from the initial conception of ideas and the drafting of research proposals to the implementation of pilot innovative ideas and their transformation into real solutions in the field.

More specifically, IPTO participates in a number of research programmes and actions (pilot research projects, internal research projects and European research projects) which are presented in detail below:

Pilot research projects::

Testing of the design, implementation and deployment of a Wide Area Measurement, Protection and Control (WAMPAC) system to investigate the capabilities provided by these systems for overseeing and controlling the stability of the System. The operation was based on measurements from 15 phasor measurement units (PMUs) and 2 data collection servers (PDCs) installed on key points of the System and at the Energy Control Centre, as part of the FARCROSS research programme.

Active Power Flow Controller (m-SSSC) tests at the Nea Santa HVC aiming at controlling the active power flow per interconnection line dynamically and in real time according to the needs of the System. The innovative technology of m-SSSC can redirect the flow of active power by injecting voltage into the line, providing an inductive or capacitive response as appropriate.

Tests on the operation of the Battery Energy Storage System (BESS) with a capacity of 2MW (2MWh of energy), which was installed at the Aisymi substation and more precisely at a Wind Generator's facilities, aiming to explore the possibilities of providing ancillary services (e.g. congestion management, etc.) to the Electricity Transmission System.

Internal research projects:

Dynamic Line Rating Application
Dynamic Line Rating (DLR) technology enables greater utilisation of the existing infrastructure, especially when weather conditions are conducive to cooling transmission lines. Having explored the potential of DLR, as part of the FLEXITRANSTORE project and the FARCROSS project pilots, RTDD in cooperation with SSPD will implement an internally funded project to integrate this technology on selected lines aiming at mitigating congestion problems in cases of high wind generation. The application will be based on the use of estimation models.

Innovation hub
IPTO's priorities include continuous investment in research and development to facilitate and accelerate the energy transition. RTDD, in cooperation with the IT and Telecommunications Department, is implementing IPTO's Innovation Hub in an effort to achieve regular communication with research institutions, universities and innovative businesses. Bringing IPTO in direct contact with the innovation and start-up ecosystem will contribute to the exchange of know-how and the introduction of new technologies that support the green transition. In addition, through the Innovation Hub, IPTO's Departments will have an additional locus to explore innovative solutions for actual problems.

European research projects:

A. Market management and flexibility

TwinEU: This programme aims to improve management and operations for the resilience of the EU network using digital-twin technology. It involves 75 partners from 15 European countries working together to create a Digital Twin (DT) of the entire European electricity grid, enabling simulations to be run for the exploration of possible scenarios that may arise during the operation of the grid. IPTO is actively involved in the development of a DT suitable for forecasting (system load and RES generation) and optimizing the necessary actions for balancing. The Greek participation in the project includes HEDNO, HEnEx, RAEWW and the University of Piraeus. In addition, a model will be developed, in cooperation with HEDNO, for optimal reserve planning and for determining the required balancing energy.

OneNet: OneNet aims to create the necessary conditions for the emergence of a new generation of Transmission System services to fully exploit demand response, storage and distributed generation, while creating fair and transparent conditions for consumers.

ENFLATE: ENFLATE aims at RES sharing and their greater penetration in the electricity Systems, reducing at the same time operational costs and enhancing the sustainable development of new business models with the participation of consumers and/or producer-consumers in the electricity markets.

Opentunity: The Opentunity research project aims to create an ecosystem of flexibility, which will target the end consumer through interoperable software solutions.

The Distribution & Transmission System Operators, as well as other market participants, will benefit from interoperable software which will be based on Dataspace technology for the network's more efficient operation also on the development of flexibility technologies. IPTO participates in a pilot project with HEDNO and the ICCS of the National Technical University of Athens.

Crete Valley: Crete Valley aims at the transition from centralised coal-based energy production systems to distributed renewable energy sources that meet local energy needs by utilising storage technologies and by developing a framework to improve efficiency, consumer participation through energy communities, and energy security.

B. System Operation

SINNOGENES: SINNOGENES aims to design and demonstrate the Storage INNOvations (SINNO) Energy Toolkit, a suite of innovative technologies and applications that make energy storage the key to accelerating a successful energy transition and decarbonisation.

Farcross: This project aims to provide innovative solutions to issues arising from interconnections due to the increasing penetration of RES in the Transmission System by using grid technologies (e.g., Dynamic Line Rating, SSSC, WAMS using PMUs etc). As part of this research project, a fixed power flow control unit was installed and is being tested. The power flow control unit enables the Electricity Transmission Operator to adjust the inductive response of the TL in real time by controlling its power flow.

C. Digitisation and communication

HedgeIoT: This project aims at facilitating the operation of energy systems with increased flexibility by creating functional connections between IoT/edge devices and fog/cloud platforms. In this project, IPTO, in cooperation with HEDNO, PPC and HEnEx, will participate in the demonstration of the provision of flexibility services in market-based scenarios. Various IoT-Cloud/Edge data exchange mechanisms, the design and operation of a flexibility local market platform and the mechanisms for data exchange coordination between IPTO, HEDNO and HEnEx will be examined.

iDesignRES: The iDesignRES project aims to provide energy system organisations and bodies with open source toolkits for the design and improvement of systems at national and European level. It enables

the design of renewable energy systems through a cloud-based platform, providing high-resolution modelling and detailed representation of the energy system.

SYNERGY: SYNERGY introduces a Big Data electricity data market architecture, aiming to improve access to electricity shareholder data, enhancement of knowledge for optimization purposes and participation in data and knowledge sharing/purchasing models.

5G-VICTORI: The aim of the project is to strengthen existing infrastructure and to create a platform that will turn closed and restricted infrastructures into an open environment, where information and tools will be available to tech companies and vertical industries using 5G technology.
Specifically, IPTO will participate in the consolidation, validation and field testing that concern its facilities and the deployment of two pairs of nodes providing 5G access at (a) railway stations and along 2-3km long railway lines and (b) electricity substations.

SYNERGIES: The SYNERGIES project implements a benchmark application for Energy Data Spaces, which attempts to unleash the accumulated innovation and value of data located at different levels of the energy value chain, to energy actors (prioritizing consumers and making them data owners/providers) and to the connected sectors (construction, transport), ultimately making this information accessible. The project will facilitate the transition from isolated and siloed data management approaches to collaborative approaches that promote the creation of a data-centric ecosystem.

Smart5Grid: Smart5Grid aims to revolutionize the energy industry through the successful establishment of four pilot demonstration applications, introducing an open 5G pilot facility, supporting the integration, testing and validation of existing and new 5G services and NetApps provided by third-party SMEs.

Electron: The project aims to develop a next-generation platform capable of strengthening the resilience of energy systems against cybersecurity incidents and privacy breaches, power disruptions and human errors. This will be done through risk assessment and equipment certification, anomaly detection/prevention, failure mitigation and power restoration while addressing internal threats and security gaps. IPTO participates in a pilot of the project, in cooperation with the University of Western Macedonia (UOWM) and PPC.

D. Asset Management

ENORASI: The ENORASI system aims to offer the option for automated inspection, using an optical and thermal camera system a moving robot which records key electrical components at the HVC, and takes reliable periodic measurements.

INCODE: INCODE envisions the design and development of an open platform for the deployment and dynamic management of end-user applications over distributed, heterogeneous and reliable IoT-Edge node infrastructure, with enhanced programming features and tools concerning network infrastructure as well as service development and operation.

ACES: ACES aspires to be one of the key drivers for the post-cloud era, also known as intelligent edge computing, where application requirements lead to the design of advanced computing systems. Unlike the centralised nature of cloud computing, intelligent edge computing requires a new type of distributed system, adapted to the specific characteristics of edge computing, artificial intelligence and Internet of Things systems.

Cooperation with the European Space Agency

The ENTSO-E Research, Development and Innovation Committee decided to launch a partnership between the European Space Agency (ESA) and ten European Transmission System Operators, including IPTO, in order to design a pilot project with the purpose to investigate whether the satellites of the European Space Agency can provide monitoring services to the European Transmission Systems. The areas of interest are vegetation management at the TLs, disaster and extreme weather risk management services, as well as over-limit early warning systems.

Energy storage

Energy storage is a dynamically growing sector in Greece. To this end, IPTO has participated in the Ministry of Environment and Energy project management team with the task to formulate the institutional and regulatory framework for the development and participation of storage units in the electricity markets, mainly describing the technical requirements for Electricity Storage Units as well as the Connection Procedures of Electricity Storage Units with the Transmission System. IPTO's interest in storage units is also reflected on the published Ten-Year Development Plans that includes proposals for pilot projects concerning the installation of storage systems at Naxos, (with a capacity of 7-10MW), and Central Greece. The storage projects will immensely contribute to the management of local congestion due to the high penetration of RES.

Crete-Attica electricity interconnection Life Cycle Analysis (LCA)

The Crete - Attica electricity interconnection project is currently the largest infrastructure project for the transmission of electricity in the country. Along with the integrated electrical interconnection between Crete and the Peloponnese, it aims to end Crete's "electrical isolation" from the electrical grid of mainland Greece. The International Standard Organization (ISO) has developed the framework of the LCA methodology, considered as one of the most reliable tools for the environmental assessment of products or services. The study aims to holistically assess and estimate the environmental impacts of the Crete-Attica electricity interconnection, in order to identify those life-cycle points that may have the greatest environmental impact. The Group's actions shall be focused on improving the project's environmental performance. Finally, the study will assess the results of environmental policies and actions related to the saving of raw materials and the reduction of greenhouse gas emissions. It will be carried out by the Technical University of Crete School of Production Management and Engineering with the participation of the Technology and Development Department (RTDD) and ARIADNE Interconnection.

Digital transformation

In response to modern challenges and technological developments, IPTO is proceeding with the implementation of its Digital Transition by transforming systems, developing processes and training its human resources.

The 6 pillars of IPTO's strategy in the field of Technology, Information and Communication (ICT) are the following:

1. Modern and secure communication networks with seamless communication
2. Data centres with uninterrupted operation and reserves (Disaster Recovery)
3. Management of IT services and processes and cloud-first strategy
4. Information systems development and DevSecOps methodology
5. IT and OT infrastructure cybersecurity
6. Digital transformation

Important actions taken by IPTO in the field of Information and Communication Technology:

1 Modernisation of the telecommunications equipment by creating a multi-level IP/MLS telecommunications network

IPTO invests significantly in its own fibre optic network, which is one of the country's critical infrastructures and extends over more than 4,500 kilometres, as it is deemed essential for the communication between the components of the National Electricity Transmission System (Energy Control Centres, HVCs, substations). Through the fibre optic network, innovative technologies (e.g. IoT and AI) and methods (e.g. preventive, maintenance) can be exploited for the needs of smooth operation and also for the overall maintenance of the system. The Group's goal is to extend its fibre optic network by 2028 to more than 9,000km.

Benefits

- Achievement of IPTO's Management strategic objective for the overall modernisation of the telecommunications network, through the replacement of old equipment with state-of-the-art technological solutions.
- Achievement of more efficient and reliable communication for the HETS' critical infrastructure.
- Uninterrupted (24/7) monitoring of network functionality through the Network Operations Centre (NOC) and addressing any malfunction or congestion in real time, while achieving the response time to provide services to all types of customers.
- Financial advantages such as significant economies of scale through the replacement of third-party leased lines with IPTO's own fibre optic network.
- Independence in telecommunications through the extension of the new IP/MPLS telecommunication network to more than 250 nodes (HVCs, Substations, PCCs).

Our performance

By the end of 2023, the first 70 nodes were installed and put into operation throughout mainland and island Greece, providing reliable services for the communication of HETS's HVCs and substations with the Energy Control Centres, the collection of energy measurements necessary for the Electricity Market, as well as several of other services, such as maintenance systems communications of the HETS, corporate network and Internet and telephony. Additional services are planned to be included in the coming period such as remote protection and the movement of CCTV surveillance of the premises.

2 IT infrastructure and Data Centres Upgrading and the creation of a Centre for Securing Available Information Systems

Apart from the business applications (accounting, payroll, personnel management, digital signatures, etc.), IPTO's central IT infrastructure also supports several Electricity Market applications whose smooth and uninterrupted operation is extremely important. At the present stage, this infrastructure is housed at IPTO's Data Centre (DC) on Dyrrachiou Street. However, a project is being planned for the creation of a Disaster Recovery Datacenter at the Kryoneri Data Centre. In addition, IT infrastructure is planned to be developed in peripheral facilities (staff office buildings) to create mini Data Centres that will serve local users.

Benefits

- Increase of the resources available to serve existing and new applications.
- Greater flexibility in allocating resources to different applications through new technologies, improving the deployment time of new applications and the performance of existing ones, resulting in better end-user experience.
- Uninterrupted application operation in any eventuality, through the creation of the Disaster Recovery Site. With the implementation of new technologies, the transition from the main data centre to the disaster centre will be achieved with minimal or even no loss of applications.

3 Software Development in Hybrid format (IPTO IT, Business & External Partners)

A software development team was created which follows the DevSecOps methodology and the Software Development LifeCycle Strategy (SDLC) developed at IPTO. In accordance with the information systems development strategy, a Hybrid Development scheme has been created where IPTO's IT, operational executives and external partners participate. This cross-functional team aims to achieve expertise and autonomy several of critical areas for the operation of the company.

The team focuses on the implementation of specialised algorithms and data models that require specialised knowledge in subjects exclusively related to Transmission System Operators. The construction of the software is complemented by obtaining third-party services for whatever additional is needed in each case. It is therefore a hybrid software development model, where IPTO undertakes the software parts that require specialised knowledge (Core Functionality) and/or the parts where Business Rules change frequently and flexibility is required for small and immediate modifications (Frequent Change Requests).

The hybrid development strategy is currently being implemented in the following projects:

- Market Settlement System (MSS) Platform, baSE+
- IPTO Analytics application
- Open Data Platform (Open Data)

Benefits

- Maximization of IPTO's technological sovereignty over the Information Systems related to the specialized scope of TSOs and the limitation of the Vendor Lock-in risk.
- The ability to quickly change an Information System's selected set of Core Functionalities, bypassing time-consuming procurement processes and lengthy negotiations with IT vendors.
- The prospect of future contributions to Open-Source Software Initiatives such as the Linux Foundation Energy (https://lfenergy.org/) supported by other ENTSO-E members.

4 Development of key systems for Asset Management

This strategic initiative concerns the modernisation of the existing systems of maintenance and asset management and aims to significantly improve the Transmission's System operational efficiency, reliability and maintenance management. Using advanced technologies and the integration of various data sources, we will ensure continuous, real-time monitoring and predictive maintenance of assets. Specifically, it concerns:

- SAP Enterprise Asset Management (EAM) & WorkForce Management (WFM) system.
- Asset Performance Management Systems (APMS).
- Geographical Information System (GIS).
- Interoperability of all Asset Systems and integration with data from the Energy Control Centres.
- Use of data resulting from inspections with cameras and drones.
- Continuous Status Monitoring.

Benefits

- Integrated IT service management: The ITSM tool enables the effective management and support of IT and Enterprise Service Management services, serving the needs of the entire organization.
- Strengthen internal organisation: It contributes to better organisation and flexibility of processes, improving service to end-users and customers.
- Modularity and ease of upgrading: The system's modularity allows ease of future upgrading and integration of new modules.
- Monitoring and improving processes: The system provides tools to analyse and improve various processes, such as incident and request management, ensuring higher quality of service.
- Ensuring compliance and ITIL principles: It guarantees compliance with ITIL and ISO 20000 principles, enhancing the quality and reliability of processes.
- High response speed and data integrity: The ITSM/ESM system ensures speed of response and data integrity, providing reliable services to users.
- Flexibility and adaptability: The system offers flexibility to adapt to changes and increased demands, improving the performance and responsiveness of the organization to modern challenges.

5 IT Service Management (ITSM) Information System

The IT Service Management Information System is a project for the implementation of a new IT Service Management (ITSM) system provided to all IPTO employees by the IT Department, supporting the following modules:

- Service Desk module
- Incident management module
- Problem management module
- Change management module
- Request management module
- Service Catalogue module supported by the ITSM system
- Configuration management module (CMDB) to be supported by the ITSM system that will be implemented
- Service quality assurance and support contracts management module (SLAs, Service/Asset Contracts)

6 Fast and smooth migration of office applications to the cloud (Office 365)

The project of transferring office applications to the cloud aims to increase productivity and enhance flexibility at work, enabling employees to adapt to the new environment of the modern digital era, ensuring that the Company remains at the forefront of technological innovation and business excellence.

Grid Telecom awarded at the InfoCom Awards

Grid Telecom, IPTO's subsidiary and telecommunications services provider, was awarded the honorary distinction of Company of the Year 2023 at a special event as part of the 25th InfoCom World, the annual IT, Cybersecurity and Telecommunications Conference.

Grid Telecom's distinction confirms its dynamic course, through which new synergies have been created both within and outside Greece, contributing to the digital transformation and the emergence of the country as a data transfer hub.

Data and infrastructure security

Cybersecurity strategy

The digital transformation, taking place in the last years both in the energy sector and the global economy as well, has led IPTO into digitising its operations and services, thus contributing to the digital transformation of the entire country.

Following the model of cooperation between government agencies in both the United States (Department of Energy and CISA) and Europe, IPTO's vision is to become a model in cybersecurity for the country's critical infrastructure and establish itself as the Critical Cybersecurity Network in the energy sector.

IPTO's cybersecurity strategy, as well as the implementation of Zero Trust Architecture, can become a security benchmark in the energy sector not only at the national but also at the international level. Moreover, IPTO's Security Operations Centre has been structured to eventually expand in order to provide high quality security incident response services for the entire public sector. The key principles on which IPTO's cybersecurity strategy is based are the following:

- Safety in Design: Threats and hazards are monitored and addressed during the design of projects on an ongoing basis.

- In-depth defence: The creation of a multi-layered protection to ensure IPTO's security and resilience.
- Application of cutting-edge technologies: Artificial intelligence technologies (machine learning/ deep learning) are now the basis of the Company's resilience and cyber defence.

- Adoption of zero-trust architecture: Zero-trust architecture helps prevent security breaches by eliminating the concept of trust from IPTO's infrastructure.

- Information and awareness (Cybersecurity Awareness): All employees are informed on cybersecurity matters and digital threat management both in the workplace and in their personal online activity.

The IPTO Group has developed and implements an appropriate cybersecurity strategy that lays the foundations to make it a model of security in the energy sector, both in Greece and abroad.

The 12 pillars of IPTO's Strategy:

IT/OT Cybersecurity Centre of Excellence

The establishment of an IT/OT Cybersecurity Centre of Excellence (CoE) is a critical step towards strengthening a holistic cybersecurity. It aims at developing a strategy to address the complex and evolving threats in the energy infrastructure sector using the following tools and technologies:

- **Intrusion Detection Systems (IDS) and Intrusion Prevention Systems (IPS):** To monitor and protect OT networks.

- **SOAR (Security Orchestration, Automation and Response) platforms:** Automation of security responses and incident management.

- **Attack Simulation Tools and Vulnerability Tests:** Normal tests to assess the robustness of the systems.

- **Big Data Analytics Tools:** To identify trends and patterns in cyber threats, improving prevention and response.

- **Education and Integration:** A strategy of cybersecurity training and skills development for staff, ensuring that the team effectively addresses modern threats.

- **Cooperations and Alliances: P**artnership building with other TSOs and cybersecurity experts to share knowledge and better address common threats.

- **Holistic Approach to Cybersecurity:** The aim is to create a holistic framework that integrates technology, procedures and security policies, ensuring the protection of IPTO's critical infrastructure.

The operating model of IPTO's Operational Security Centre (SOC)

Security incidents created by IPTO's Information Technology (IT) & Operational Technology (OT) infrastructure are forwarded to the security incident management platform. This platform uses high levels of intelligent automation, leveraging artificial intelligence technologies to help identify sophisticated known and unknown threats in real time. Intelligent threat information, vulnerabilities, as well as information from the user-behavioural analysis service, the terminal devices, cloud services, etc. provide the platform with confirmed Indicators of Compromise (IoCs) and Indicators of Attack (IoAs) to identify actual cyber-attacks.

The above services are founded on a holistic approach, whereby the organisation collects and analyses, in real time, security data from its infrastructure, as well as from intelligence analysis sources to identify advanced threats and integrate response services.

The organisation collects and correlates data from endpoints, cloud services, networks and industrial control systems to identify malicious activities, prioritise them and present them to its security teams in a normalised format via a single console.

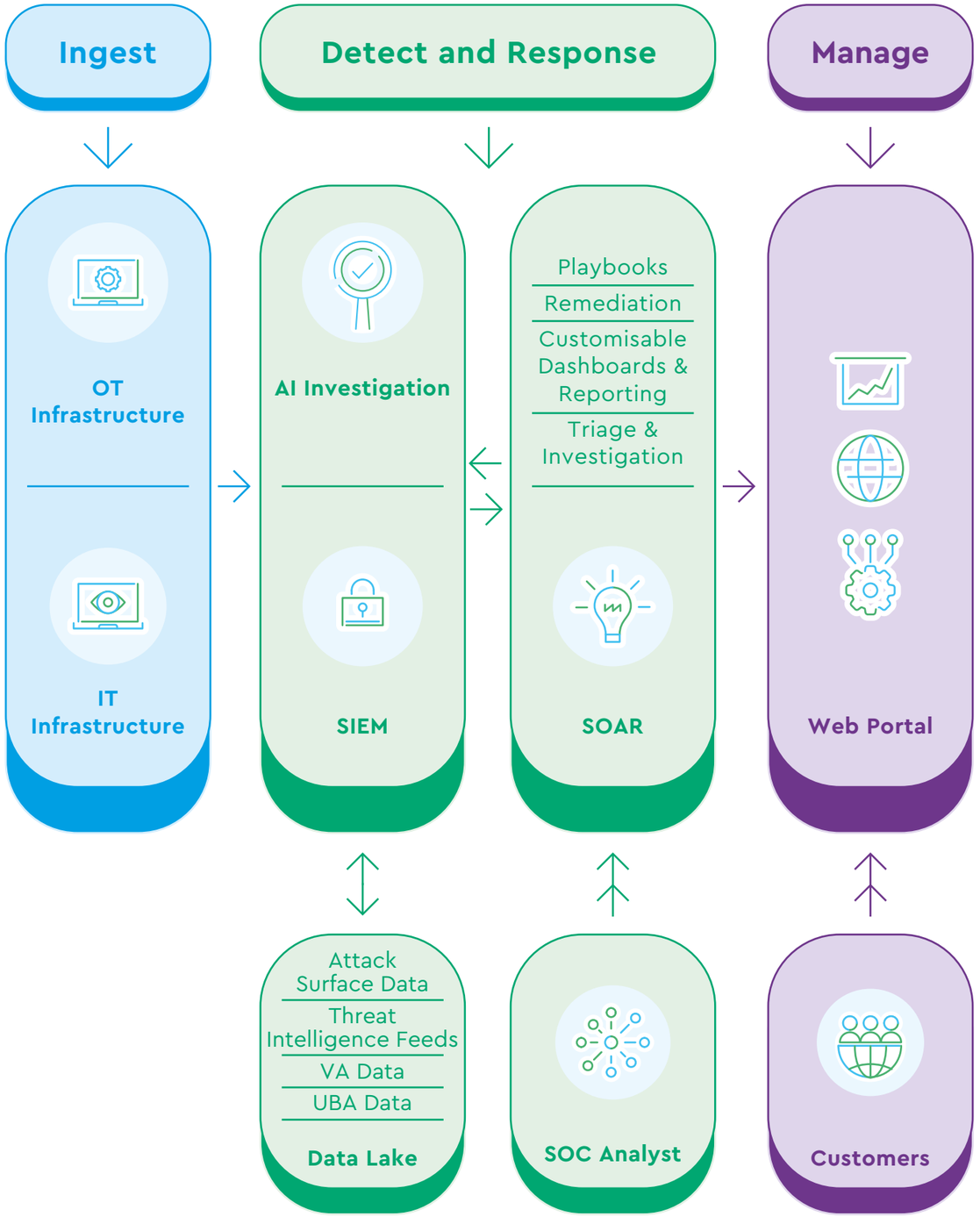
While traditional Security Information Event Management solutions collect, analyse and correlate information from an organization's infrastructure through a set of correlation rules and use cases, at IPTO, we designed and implemented an integrated solution, which in addition to the simple collection and analysis of security events, is based on advanced analytics for the detection of cyber-attacks.

Analytics such as AI technologies are applied to search for advanced hidden or invisible threats by creating and analysing behavioural models. These models are enriched with data from international Threat Intelligence sources to understand multiple, dissimilar and weak malicious activities based on behaviours that make up the Organisation's infrastructure such as:

- Users
- Endpoints
- Networks
- Cloud services
- Industrial Control Systems etc.

By implementing the cybersecurity project, strengthening IPTO's critical infrastructure and fully deploying solutions/actions, IPTO minimises the systemic risk from cyber-attacks. Specifically, it has a 17-solution package in respect with its security hardware and software, as well as an action package intended for Enterprise Risk Management (ERM) and the preparation of Business Continuity Plans (BCPs) for all critical IPTO operations. Furthermore, 100,000-150,000 malicious (and usually dangerous) incoming emails are filtered by our cyber security tools on a daily basis. The cybersecurity systems block any attempt of downloading malicious content even in cases where malicious emails bypass the initial filter.

Graph 5.14: Security Operations Center (SOC) Model



Our performance

As a result of our practices and strategies, no substantiated complaints about privacy breaches and data losses have been reported.

24/7 real-time IT & OT incident management

The IPTO Group manages to respond in real-time 24/7 to IT & OT incidents through Claroty's Continuous Threat Detection (CTD) platform. This platform is a designed to monitor and protect industrial networks and critical infrastructure from cybersecurity threats and attacks. CTD captures all network-level traffic at each site, looks for potential indicators of compromise (IoC) and generates operational alerts and security events. It also creates and maintains a list of the OT elements it has identified, the communication patterns between them, and provides a risk value for each one.

More specifically, through the platform we achieve:

- Real-time visibility into industrial network and critical infrastructure communications where specific communications protocols are supported.
- Analysis of communications and identification of threats to OT systems and networks and generation of alerts for security and operational events.
- Presentation of data with a banded breakdown, revealing possible non-compliance with different standards, such as IEC 62443 and the PURDUE reference architecture.

Integrated Business Continuity Plans

To ensure business continuity at the IPTO Group in the event of a business interruption due to an incident that leads to a total or partial loss of access to the organisation's workplaces, we have developed Business Continuity Plans that define the responsibilities, actions, procedures and resources necessary to ensure business continuity.
More specifically, recovery time targets and maximum acceptable outage period times were set for the following 10 critical functions:

1. Energy Management System
2. HETS components control
3. Means of communication with the control rooms of other TSOs and and Regional Coordination Centres (RCCs)
4. Tools for operational safety analysis
5. Cross-border transactions
6. Electricity balancing market
7. Procedures relating to ERP
8. Procedures of the Cybersecurity Operations Centre
9. IT help desk
10. Backup & other important procedures for the operation of the Data Centre

Open data

The Open Data project concerns an innovative initiative developed by the most advanced European Transmission System Operators (TSOs) ENTSO-E members.

More specifically, it forms a modern portal that will be available to the general public and will include the public energy data managed by IPTO concerning the balancing market, electricity transmission, load, grid congestion and many other things, things. Moreover, these data are being grouped and presented through graphs and tables. In addition, through Open Data, it is possible to correlate multiple datasets in one graph for comparisons and further analysis. All datasets will be available for download via RESTful APIs.

The Open Data platform will include:

- A dataset catalogue management mechanism
- A web application presenting a dataset catalogue and viewing, downloading to file, interactive analysis via ad-hoc graphs and downloading via RESTful API functions for the contents of the catalogue.

Benefits

- Enhancing of transparency, which presents a strategic decision of the European Union.
- Optimisation of decision making at all management levels of the Company through the analysis of practical data.
- Greater accuracy in forecasting both for the operation and maintenance of HETS and for the Management of the Energy Balancing Market.
- Extending the assets' life cycle by applying preventive maintenance.
- Mitigating business risk.
- Achieving a fast and flexible compliance with ever-changing regulatory requirements.
- Supporting of the Company's digital sustainability.
- Promoting the extroversion and sustainable development by providing real-time information on (among other things) the energy mix, penetration of RES and carbon emissions.

Economic value creation and distribution – "Social Product"

Through its operation, IPTO produces and distributes economic value for all its stakeholders, actively contributing to both the wider society's and greek economy's development. The Group's commitment to positively contribute to the well-being and development of society is also reflected through the sponsorships and donations it makes annually. Furthermore, as a result of IPTO's operation and the System's development, jobs are created, insurance contributions are paid to the competent bodies and tax revenues are generated for the state.

More specifically, in the year 2023, IPTO's social product at both Group and corporate level amounted to €283.4 million and €281.4 million respectively. In addition, the insurance contributions paid by the Group totalled €54.9 million, contributing positively to the country's GDP, as wages and benefits have a multiplier effect. It is important to note that the Group's investments at the community level amounted to €5.4 million, an increase of 402% compared to the corresponding amount for the previous year.

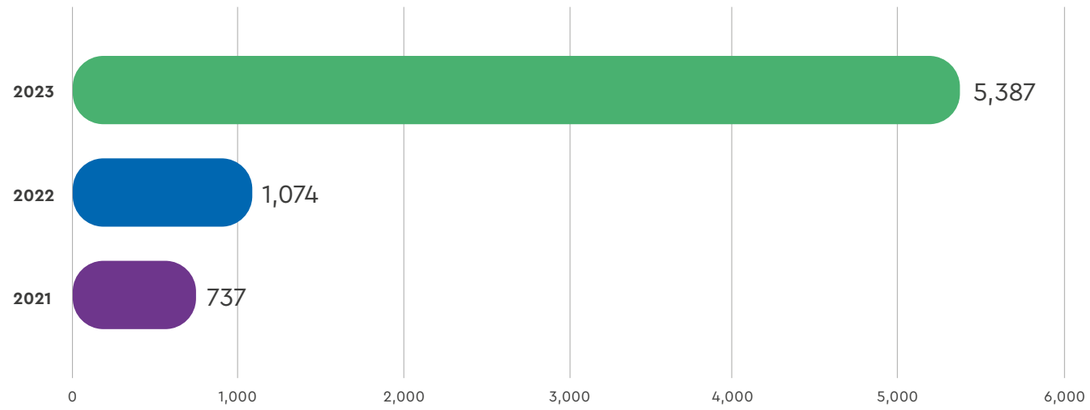
By operating and developing the Electricity Transmission System, the IPTO Group creates value for all its stakeholders, significantly contributing to sustainable development at local, national and greater levels.

Table 5.15: Economic value generated and distributed

Economic value generated (in € thousands)	2021		2022		2023	
	Company	Group	Company	Group	Company	Group
Total revenue	292,614	295,841	302,186	303,624	402,206	407,310
Economic value distributed						
Operating costs	140,495	141,453	151,017	152,608	172,228	174,833
Employee wages and benefits	58,957	59,255	56,266	56,632	54,656	54,869
Payments to capital providers	55,300	55,838	51,152	53,903	48,911	48,937
Total payments to government bodies (paid taxes)	6,853	7,028	3,759	3,759	4,831	(588)*
Community-level investments (donations - sponsorships)	707	737	929	1,074	768	5,387
Economic value retained						
Economic value retained	36,477	37,706	39,063	35,647	120,812	123,873
Social product						
Social product	256,136	258,134	263,123	267,977	281,394	283 437

*Tax refund

Graph 5.16: IPTO's investments at community level



Sponsorships and donations in 2023

Committed to actively contributing to the development of local communities, the IPTO Group continued in 2023 with a series of sponsorships and donations. Among other things, we have supported public benefit initiatives mainly from local communities in which we operate (e.g. social grocery stores, educational/health structures or cultural activities) and we respond to emergency situations (e.g. floods in Thessaly).

Compliance

Regulatory Compliance is our priority; therefore, we ensure that all necessary actions, procedures and measures are taken to achieve our objectives, i.e. to maintain zero incidents of non-compliance with laws and regulations.

IPTO Group complies with the applicable legislation. All regulatory compliance issues are monitored by the Legal Affairs Department (LRAD). More specifically, through the LAD, the Group guarantees compliance for the Group's activities; obligations are set each time by the applicable institutional and regulatory framework. The Department's main mission is to safeguard IPTO's rights and ensure legitimacy in the decision-making process.

No incidents of corruption were recorded in the year 2023. Moreover, there were two incidents of non-compliance with laws and regulations. One relating to overtime work not registered in ERGANI and one from late payment of an invoice. The total fines paid by IPTO for the year 2023 amounted to EUR 1,437.19.

Environmental compliance

At the IPTO Group, we are aware of our responsibility for the protection and conservation of the environment and biodiversity and we ensure to comply with all environmental legislation and regulations. In this context, the Group's projects are designed, sited, constructed and operated in compliance with applicable legislation.

More specifically, the Group, aiming at the protection and preservation of the environment and biodiversity, fully complies with the rules and practices according to the just environmental principle of prevention and precaution in the preplanning and design of new projects.

The design of new energy infrastructure and the upgrading/modernisation or modification of the existing ones are part of the Operator's main duties, whose key pillar is environmental protection.

Measures to minimise environmental impacts

The minimisation of environmental impacts plays a key role in the final decisions regarding the routing of the lines and the siting of the System's new infrastructure (HVCs, Terminal Stations, Substations, etc.). To achieve the above, IPTO inevitably considers the following:

- Mapping environmentally sensitive areas and conducting a preliminary environmental impact assessment for any given siting of our projects.
- Complete impact assessment as part of the environmental impact studies.
- Thorough assessment of outcomes derived from the public consultation process regarding the environmental impact studies.
- Full compliance with environmental licensing decisions concerning our projects.

As a result of our actions and efforts, no adverse impact on the environment and biodiversity has been reported by official management bodies or other institutional bodies, due to our operations. In the few cases where additional measures were required during the construction phase following instructions by the competent authorities (e.g., Forest Authorities), our executives were cooperative and responsive, promptly and effectively. The embrace of the Company's projects by local communities and the recognition of their benefit for the regional economic and social development of each area are of major importance to the Operator.

However, in a limited number of cases, IPTO has been faced with protests, objections and requests for the annulment of the priorly approved environmental terms. It is important to note that the implementation of the new energy infrastructure projects by IPTO, that are also in line with the European Union's strategy towards a climate-neutral economy, is a national obligation, as these projects will contribute to the promotion of renewable energy sources in the energy mix and the achievement of delignitisation.

Reporting standards and external assurance

IPTO's annual Sustainability Report discloses its ESG performance and highlights its contribution to the energy transition of the country and Europe.

Report Methodology

This is IPTO Group's fifth Sustainability Report and covers all Group operations unless otherwise stated. Through this Report, IPTO seeks to disclose the Company's performance regarding ESG and sustainable development topics, as well as the ways it effectively contributes to the implementation of the national policy for the transition to a low-carbon economy.

ESG reporting standards

IPTO has prepared its Sustainability Report 2023 in accordance with the GRI Standards 2021 for the period from 1/1/2023 to 31/12/2023. Moreover, additional reference standards, such as the SASB Standards and the AthEx ESG 2022 Reporting Guide, were taken into account while drafting this Report, as well as the United Nations Sustainable Development Goals (SDGs).

In addition, following the European Sustainability Reporting Standards (ESRS), IPTO conducted for the first time a Double Materiality Assessment, evaluating the Company's impacts on the environment, society and the economy, including the impact on human rights (impact materiality), as well as the financial risks and opportunities associated with sustainable development issues (financial materiality), thus affecting IPTO's business value, i.e. the economic value created by its operations in the short and medium to long term.

Coordination and project team

The publication of this Report is a task of IPTO's Environmental, Social and Corporate Governance Branch, which collected the data, supervised and co-edited all texts and coordinated both internal and external associates who contributed to the Report. We warmly thank all those who participated in the process of drafting IPTO's fifth Sustainability Report.

Coordination

Irini Tsevi
Stefanos Tsemperlidis
Garyfallia Makri

Review

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Administrative support

Despina Kavvadia

External assurance

The Report has been audited by an external assurance body.

Support

The Report was prepared with the support of AIPHORIA Consulting.

The GHG calculation model was developed in collaboration with EnerSyn.

Printing

KETHEA Schema + Chroma

Design

The Birthdays Design

Translation into English

Olga Karyoti

Contact point

We will be happy to discuss with you any sustainable development issue related to our operations. If you have any questions, please do not hesitate to contact us.

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GRI Content Index

Declaration of use	IPTO has prepared this Report in accordance with the GRI 2021 standards for the period from 1 January 2023 to 31 December 2023
GRI 1 used	GRI 1: Foundation 2021
GRI industry standard(s) applied	M/Δ

Table 6.1: GRI Standards 2021 Table

GRI Standard 2021	Disclosure	Report Page / References	Omissions	External assurance
GRI 2: Γενικές Δημοσιοποιήσεις 2021	2-1 Organisation information	Page 18, 171 b. Annual Financial Report 2023, 2023, Page 118-119	Grey areas in the table indicate that the Omission column is not applicable.	✓
	2-2 Entities included in the organisation's sustainability reporting	Page 18, 21-23, 170		✓
	2-3 Reporting period, frequency and contact point	Page 170-171, b. anually		✓
	2-4 Restatements of information	Page 102		✓
	2-5 External assurance	Page 181-184		✓
	2-6 Activities, value chain and other business relationships	Page 18-23, 30-33, 70-78	-	✓
	2-7 Employees	Page 116-118	-	✓
	2-8 Workers who are not employees	Page 116, 119	-	✓
	2-9 Governance structure and composition	Page 138-142	-	✓
	2-10 Nomination and selection of the highest governance body	Page 142	-	✓
	2-11 Chair of the highest governance body	Page 139	-	✓
	2-12 Role of the highest governance body in overseeing the management of impacts	Page 49, 145-146	-	✓
	2-13 Delegation of responsibility for managing impacts	Page 145-146	-	✓
	2-14 Role of the highest governance body in sustainability reporting	Page 49	-	✓
	2-15 Conflicts of interest	Page 143	-	✓
	2-16 Communication of critical concerns	Page 144	-	✓
	2-17 Collective knowledge of the highest governance body	Page 142	-	✓
	2-18 Evaluation of the performance of the highest governance body	Page 142	-	✓
	2-19 Remuneration policies	Page 143	-	✓
	2-20 Process to determine remuneration	Page 143	-	✓
	2-21 Annual total compensation ratio	Page 143	-	✓
	2-22 Statement on sustainable development strategy	Page 10-11	-	✓
	2-23 Policy commitments	Page 23-24, 123, 131, 133	-	✓
	2-24 Embedding policy commitments	Page 123-125, 131-133	-	✓
	2-25 Processes to remediate negative impacts	Page 46-48, 92-113, 123-126	-	✓
	2-26 Mechanisms for seeking advice and raising concerns	Page 144	-	✓
	2-27 Compliance with laws and regulations	Page 166-167	-	✓
	2-28 Membership associations	Page 58-59	-	✓
	2-29 Approach to stakeholder engagement	Page 43-46, 48	-	✓
	2-30 Collective bargaining agreements	Page 116	-	✓
Material Topics				
GRI 3: Material Topics 2021	3-1 Process to determine material topics	Page 49	Grey areas in the table indicate that the Omission column is not applicable.	✓
	3-2 List of material topics	Page 50-57		✓
System development and energy transition GRI 3: Material Topics 2021				
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 24-29, 34	-	✓
IPTO Indicator	New installed RES capacity in the Interconnected System	Page 63	-	✓
IPTO Indicator	Production and interconnection balance	Page 69	-	✓
Network adequacy, security, stability, reliability and risk management				
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 62-69, 70-78	-	✓
IPTO Indicator	Transmission System resilience indicators	Page 27	-	✓
GHG emissions and energy efficiency				
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 98-102	-	✓
GRI 302: Energy 2016	302-1 Energy consumption within the organisation	Page 98-99 c. iii, iv: Zero d. Do not apply for IPTO.	-	✓
	302-3 Energy intensity	Page 98	-	✓
	302-4 Reduction of energy consumption	Page 98-100		✓
GRI 305: Εκπομπές 2016	305-1 Direct (Scope 1) GHG emissions	Page 102	-	✓
	305-2 Energy indirect (Scope 2) GHG emissions	Page 105	-	✓
	305-4 GHG emissions intensity	Page 102	-	✓
	305-5 Reduction of GHG emissions	Page 100-102	-	✓
Innovation, research & development, and digital transformation				
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 146-163	-	✓

Other topics				
Waste management				
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 103-105	-	✓
GRI 306: Waste 2020	306-1 Waste generation and significant waste-related impacts	Page 103	-	✓
	306-2 Management of significant waste-related impacts	Page 103, 105	-	✓
	306-3 Waste generated	Page 104	-	✓
	306-4 Waste diverted from disposal	Page 104	-	✓
	306-5 Waste directed to disposal	Page 104	-	✓
Health and safety at work				
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 123-125	-	✓
GRI 403: Occupational Health and Safety 2018	403-1 Occupational health and safety management system	Although the assurance of health and safety at work is basic priority for the IPTO Group, currently no applicable health and safety management system exists. However, the application of such a system is a key objective for the Group.	-	
	403-2 Hazard identification, risk assessment, and incident investigation	Page 123-124	-	✓
	403-3 Occupational health services	Page 124	-	✓
	403-4 Worker participation, consultation, and communication on occupational health and safety	Page 124	-	
	403-5 Worker training on occupational health and safety	Page 125	-	✓
	403-6 Promotion of worker health	Page 116, 122	-	✓
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationship	Page 134	-	✓
	403-8 Workers covered by an occupational health and safety management system	The Health and Safety Management System to be developed, will cover all employees	-	
	403-9 Work-related injuries	Page 126	-	✓
Cooperation and consultation with stakeholders and local communities				
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 43-48	-	✓
GRI 413: Local communities 2016	413-1 Operations with local community engagement, impact assessments and development programmes	Page 46-48, 106-107, 109-113, 166-167	-	✓
Ecosystem protection and environmental management				
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 106-113	-	✓
GRI 304: Biodiversity 2016	304-1 Operational sites owned, leased or managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Page 106-108	-	✓
	304-2 Significant impacts of activities, products, and services on biodiversity	Page 106-113	-	✓
Equal opportunities and diversity				
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 131-133	-	✓
GRI 405: Diversity and equal opportunity 2016	405-1 Diversity of governance bodies and employees	Page 121-122, 139-142	-	✓
	405-2 Ratio of basic salary and remuneration of women to men	Page 132	-	✓
GRI 406: Non-discrimination 2016	406 -1 Incidents of discrimination and corrective actions taken	Page 131	-	✓
GRI 3: Material Topics 2021				
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 166-167	-	✓
GRI 205: Anti-corruption 2016	205-3 Confirmed incidents of corruption and actions taken	Page 166	-	✓
Training and development				
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 127-130	-	✓
GRI 404: Training and education 2016	404-1 Average hours of training per year per employee	Page 129	-	✓
	404-2 Programmes for upgrading employee skills and transition assistance programmes	Page 128	-	✓
	404-3 Percentage of employees receiving regular performance and career development reviews	Page 130	-	✓
Value chain social impacts				
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 134	-	✓
GRI 204: Procurement practices 2016	204-1 Proportion of spending on local suppliers	Page 134	-	✓

Other disclosures				
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed	Page 164-166	-	✓
	201-2 Financial implications and other risks and opportunities due to climate change	Page 86-87, 92-97	-	✓
GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and services supported	Page 109-110, 135, 164-166	-	✓
	203-2 Significant indirect economic impacts	Page 63, 67-69, 70-83	-	✓
GRI 401: Απασχόληση 2016	401-1 New employee hires and employee turnover	Page 120-121	-	✓
	401-2 Benefits provided to full-time employees that are not provided to temporary or parttime employees	Page 116, 122	-	✓

ESRS Standards table

The following table shows a mapping of the GRI indicators and the corresponding requirements of the European Sustainability Reporting Standards (ESRS), reflecting a first effort for IPTO's gradual adaptation to the ESRS requirements.

Table 6.2: ESRS Standards- GRI Standards

GRI standard	GRI disclosure	ESRS disclosure	Report Page / References
GRI 2: General Disclosures 2021	2-2 Entities included in the organisation's sustainability reporting	**ESRS 1** 5.1, **ESRS 2** BP-1 §5 (a), (b) i	Page 18, 21-23, 170
	2-3 Reporting period, frequency and contact point	**ESRS 1** §73	170-171, b. ετήσια
	2-4 Restatements of information	**ESRS 2** BP-2 §13, §14 (a) - (b)	Δεν υπήρξαν αναδιατυπώ-σεις πληροφο-ριών
	2-6 Activities, value chain and other business relationships	**ESRS 2** SBM-1 §40 (a) i - ii, (b) - (c), §42 (c)	Page 18-23, 30-33, 75-78
	2-7 Employees	**ESRS 2** SBM-1 §40 (a) iii, **ESRS S1** S1-6 §50 (a) - (b), (d) - (e), §51 - §52	Page 116-118
	2-8 Workers who are not employees	**ESRS S1** S1-7 §55 - §56	Page 116, 119
	2-9 Governance structure and composition	**ESRS 2** GOV-1 §21, §22 (a), §23, **ESRS G1** §5 (b)	Page 138-142
	2-12 Role of the highest governance body in overseeing the management of impacts	**ESRS 2** GOV-1 §22 (c), GOV-2 §26 (a), (b), SBM-2 §45 (d), **ESRS G1** §5 (a)	Page 49, 145-146
	2-13 Delegation of responsibility for managing impacts	**ESRS 2** GOV-1 §22 (c) i, GOV-2 §26 (a), **ESRS G1** G1-3 §18 (c)	Page 145-146
	2-14 Role of the highest governance body in sustainability reporting	**ESRS 2** GOV-5 §36, IRO-1 §53 (d)	Page 49
	2-17 Collective knowledge of the highest governance body	**ESRS 2** GOV-1 §23	Page 142
	2-30 Collective bargaining agreements	**ESRS S1** S1-8 §60 (a), §61	Page 116
Environment			
GRI 302: Energy 2016	302-1 Energy consumption within the organisation (302-1-a, b, c, e, g)	**ESRS E1** E1-5 §37, §38, §AR 32 (a), (c), (e), (f)	Page 98-99
	302-3 Energy intensity	**ESRS E1** E1-5 §40 - §42	Page 98
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	**ESRS E1** E1-4 §34 (c), E1-6 §44 (a), §46, §50, §AR 25 (b), (c), §AR 39 (a) - (d), §AR 40, AR §43 (c) - (d)	Page 102
	305-2 Energy indirect (Scope 2) GHG emissions	**ESRS E1** E1-4 §34 (c), E1-6 §44 (b), §46, §49, §50, §AR 25 (b), (c), §AR 39 (a) - (d), §AR 40, §AR 45 (a), (c), (d), (f)	Page 102
	305-4 GHG emissions intensity	**ESRS E1** E1-6 §53, §54, §AR 39 (c), §AR 53 (a)	Page 102

SASB Standards table

IPTO aims at continuously improving the disclosures of its impacts and performance in relation to sustainable development. In this context, and on a voluntary basis, the most relevant SASB Standards performance metrics concerning the operations of the Company are presented in the following table. The data reflect the Company's performance on an annual basis, as recorded at the end of 2023.

Table 6.3: SASB Standards table

Industry: Infrastructure - Electricity Producers & Services				
Theme	**Code**	**Indicator**	**Report Page / References**	**External assurance**
Workforce Health & Safety	IF-EU-320a.1	Total recordable incident rate (TRIR)	Page 126	✓
		Fatality rate	Page 126	✓
Grid Resiliency	IF-EU-550a.1	Number of incidents of non-compliance with physical or cybersecurity standards or regulations	There were no such incidents.	✓
	IF-EU-550a.2	System Average Interruption Duration Index (SAIDI)	Page 27	✓
		System Average Interruption Frequency Index (SAIFI)	Page 27	
Activity metrics				
IF-EN-000.C		Length of transmission and distribution lines	Page 19	✓

Athens Stock Exchange ESG 2022 Disclosures

Table 6.4: Athens Stock Exchange ESG 2022 Disclosures – Table of Contents

ATHEX metric	Description	Report page / References	Additional remarks	External assurance
Environment				
C-E1-1	Scope 1 emissions - Total amount of direct emissions (Scope 1)	Page 102	-	✓
C-E1-2	Scope 1 emissions - Greenhouse gas intensity of Scope 1 emissions	Page 102	-	✓
C-E2-1	Scope 2 emissions - Total amount of indirect emissions (Scope 2)	Page 102	-	✓
C-E2-2	Scope 2 emissions - Greenhouse gas intensity of Scope 2 emissions	Page 102	-	✓
C-E3-1	Energy consumption and production - Total amount of energy consumed within the organisation	Page 98-99	-	✓
C-E3-2	Energy consumption and production - Percentage of electricity consumed	41%	-	✓
C-E3-3	Energy consumption and production - Percentage of renewable energy produced energy consumed	20.3%	-	✓
C-E3-4	Energy consumption and production - Total amount of energy generated	-	It does not apply. IPTO does not produce	✓
C-E3-5	Energy consumption and production - Total amount of renewable energy produced	-	It does not apply. IPTO does not produce energy.	✓
A-E2-1	Climate change risks and opportunities - Discussion of climate change-related risks and opportunities that can affect business operations	Page 86-87, 92-97	-	✓
A-E3-1	Waste management - Total amount of hazardous waste	152 tn Page 104	-	✓
A-E3-2	Waste management - Total amount of non-hazardous waste	106,202 tn Page 102	-	✓
A-E3-3	Waste management - Percentage of waste by type of treatment - Recycled	32.04% Page 104	-	✓
A-E3-4	Waste management - Percentage of waste by type of treatment - Composted	-	It does not apply. IPTO does not compost waste.	✓
A-E3-5	Waste management - Percentage of waste by type of treatment - Incinerated	-	It does not apply. IPTO does not compost waste.	✓
A-E3-6	Waste management - Percentage of waste by type of treatment - Landfilled	68.3% Page 104	-	✓
A-E5-1	Biodiversity sensitive areas - Description of the impacts of business operations on biodiversity sensitive areas	Page 106-108	-	✓
Society				
C-S1-1	Stakeholder engagement - Discussion of the organisation's main stakeholders and analysis of key stakeholder engagement practices	Page 43-46	-	✓
C-S2-1	Percentage of women employees	25% Page 117	-	✓
C-S3-1	Percentage of women in managerial positions	31% Page 121	-	✓
C-S4-1	Employee mobility - Percentage of voluntary turnover rate of full-time employees	45% Page 120-121	-	✓
C-S4-2	Employee mobility - Percentage of involuntary turnover rate of full-time employees	0% Page 120-121	-	✓
C-S5-1	Employee training - Average training hours for the top 10% of employees in terms of total compensation	8.8% Page 129	-	✓
C-S5-2	Employee training - Average training hours for the top 10% of employees in terms of total compensation	9.2% Page 129	-	✓
C-S6-1	Human rights policy - Description of the human rights policy and the fundamental principles	Page 131-133	-	✓
C-S7-1	Percentage of employees covered by collective bargaining agreements	100% Page 116	-	✓
C-S8-1	Supplier assessment - Discussion on the screening of suppliers that used ESG criteria	Page 134	-	✓
A-S2-1	Total amount of money spent on employee training	€154,038 Page 127	-	✓
A-S3-1	Pay gap ratio between men and women	23% Page 132	-	✓
SS-S6-1	Health and safety performance - Number of injuries	14 Page 126	-	✓
SS-S6-2	Health and safety performance - Number of work-related fatalities	0 Page 126	-	✓
SS-S6-3	Health and safety performance - Accident frequency rate	0.7 Page 126	-	✓
SS-S6-4	Health and safety performance - Accident severity rate	Page 126	-	✓

Governance				
C-G1-1	Board composition - ESG-related qualifications of board members	Page 142	-	✓
C-G1-2	Board composition - Classification of the Chairman of the Board	Page 139	-	✓
C-G1-3	Board composition - Percentage of female board members	Page 139	-	✓
C-G1-4	Board composition - Percentage of non-executive members	67% Page 139	-	✓
C-G1-5	Board composition - Percentage of non-executive independent members of the Board	67% Page 138-139	-	✓
C-G2-1	Sustainability oversight - Description of the approach to sustainability oversight	Page 49, 145-146	-	✓
C-G3-1	Materiality - Description of the materiality assessment process	Page 49	-	✓
C-G4-1	Sustainability policy - Description of the sustainability policy and fundamental principles	Page 3-24, 24-26, 34-35	-	✓
C-G6-1	Data Security Policy - Description of the data security policy and fundamental principles	Page 158-163	-	✓
A-G1-1	Business model - Discussion of the business model and value creation	Page 30-33	-	✓
A-G2-1	Total amount of monetary losses as a result of business ethics violations	0	There were none.	✓
A-G3-1	ESG targets - Short-term performance targets associated with strategic ESG objectives	Page 38-39	-	✓
A-G5-1	External assurance - Discussion on reported ESG information	Page 171, 181	-	✓
G-SD1-1	Data coverage	IPTO GROUP	-	✓

External Assurance Statement for Ipto

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EUROCERT

External Assurance Statement for IPTO

Sustainability Report 2023

(No. KZ/72108)

Information on the Assurance Statement

The Assurance Provider EUROCERT has been engaged to provide external assurance on the disclosur published in the Sustainability Report 2023 ('the Report') of IPTO Group of Companies | Independent Pow Transmission Operator Group of Companies ('the Company'). The Company is exclusively responsible for t data and information within the Report. The assurance process was conducted by EUROCERT in terms sample-based audits of data and information, as well as audits of data collection systems and procedures.

Economic and financial data were not verified. Instead, they were assessed with respect to the informati contained in the 2023 annual financial statement which has been verified by other third parties.

The intended users of this Statement are all the stakeholder of the Company.

Scope of Assurance

EUROCERT undertook and implemented the following quality assurance activities during September October of 2024:

1. Review of the Report against the requirements of Global Reporting Initiative (GRI) Sustainability Reporti Guidelines, to confirm that the GRI-STANDARDS requirements are fulfilled
2. Review of the Report against the requirements of ATHEX ESG Reporting Guide 2022.
3. Evaluation and verification of the IF-EU-320a.1, IF-EU-550a.1 and F-EU-550a.2 Accounting Metrics and t Activity Metric IF-EU-000.C of SASB Sustainability Standards Framework.
4. Verification of the data included in all the chapters of the Report.
5. Conduct audit in the central offices of the company, including interviews with the Sustainability Team a the main executives of the Company, and sampling inspections of files, in order to evaluate:
   - the reliability and accuracy of performance indicators of the Sustainability Report
   - the processes for generating, gathering, and managing information included in the Report
   - the adherence to the principles of inclusivity, materiality, and responsiveness to stakeholders.

Limitations

The extent of the evidence, data and information collected justifies the characterization of a "limited level assurance", as:

a) The objective evidence collected via internal sources of the Company and not via contacting external stakeholders.

b) The verification of the information took place by using a combination of remote and onsite auditi technics at the Headquarters of the company, including interviews and documentation examinatior

Conclusions

As a result of the application of the external assurance process, it was confirmed with "limited level assurance" that the data and information of all the chapters of the Report are accurate and reliable. T accuracy of the disclosed statements and assertions was found to be within acceptable limits. The Compa provided a comprehensive and proper presentation of performance based on reasonably document

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information as well as that there is an effective data gathering, management and reporting system in place for issues which pertain to sustainable development.

Furthermore, it is confirmed that the statements of the Company related to the IF-EU-320a.1, IF-EU-550a.1 and F-EU-550a.2 Accounting Metrics and the Activity Metric IF-EU-000.C of SASB Sustainability Standards Framework are accurate and reliable.

EUROCERT concurs that the GRI-STANDARDS "Core option" requirements, as those of ATHEX ESG Reporting Guide 2022, have been met

Opportunities for Improvement

Based on the observations and concluding remarks derived from the assurance engagement, EUROCERT's recommendations for the improvement of the Company's future Sustainability Reports are as follows:

- Provision of information for additional GRI-STANDARDS performance indicators, according to the material topics of the company.

Statement of Independence, Impartiality and Competence

EUROCERT is an independent professional services company that specializes in quality, environmental, health, safety and social accountability. Its assurance team has extensive experience in conducting verification over environmental, social, ethical and health and safety information, systems and processes for the environment, society, ethics, health & safety at work and sustainable development.

EUROCERT is an accredited certification body which operates a Quality Management System which complies with the requirements of several accreditation standards, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

EUROCERT has implemented a Declaration of Impartiality and Independency and several relevant procedures which ensure that all employees, that work for or on behalf of it, maintain high standards in their day-to-day business activities. We are particularly cautious in the prevention of conflicts of interest. Our assurance team does not have any involvement in other projects with the Company that would cause a conflict of interest and has never provided any consulting services to the Company.

Note: This Independent Assurance Statement has been prepared as a translation of the original Greek version.

On behalf of EUROCERT,
Athens, 16th of October 2024

Athanasia Chalkiopoulou
General Certification Director

Nikolaos Sifakis
Lead Auditor

Carbon Footprint Verification Report/Statement

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CARBON FOOTPRINT VERIFICATION REPORT/STATEMENT
(No. 00.22.0148)

EUROCERT, Accredited Verification Body of GHG emissions, accreditation no 875 / ESYD and approved according to the Decision of the Ministry of Development and Investments (Prot. No. 20580 / 11-03-2024), verifies with reasonable assurance that the Carbon Footprint Report of the company:

Independent Power Transmission Operator S.A., with VAT no: **099877486**

with the title "ANNUAL PROGRESS REPORT" and date "16 October 2024"

concerning the following organizational boundaries:

- 18 buildings: Administration, Warehouses, Energy Control Centers (ECC), Regional Sector offices, garages
- 23 High Voltage Centres (HVCs) for 2022 and 22 High Voltage Centres (HVCs) for 2023
- 262 S/S and Terminal Stations

for the following activity:

• Management of the Hellenic Electricity Transmission Network

for the reporting years **2022 & 2023**,

which has been prepared according to **article 20** of **Law 4936 (Government Gazette 105A/27-5-2022)**, using the categorization provided for in ISO 14064-1:2018 and verified according to the emission categories of the EN ISO 14064-3:2019 standard, is satisfactory and there are no material misstatements in the declared total emissions, which are analyzed as follows:

Category	Description	Total Emissions 2022 ($t CO_2e$)	Total Emissions 2023 ($t CO_2e$)
Category 1	**Direct emissions** (Scope 1)	**3,802.757**	**3,914.493**
Category 1.1	Direct emissions from stationary combustion	204.052	140.407
Category 1.2	Direct emissions from mobile combustion	2,218.875	2,731.011
Category 1.3	Direct process emissions and removals from industrial processes	0	0
Category 1.4	Direct fugitive emissions from the release of GHGs in anthropogenic systems	1,379.830	1,043.075
Category 1.5	Direct emissions and removals from land use, land use change and forestry	0	0
Direct CO2 emissions from biomass		0	0
Category 2	**Indirect GHG emissions from imported energy** (Scope 2)	**711,620.740**	**541,594.142**
Category 2.1	Indirect emissions from imported electricity	711,575.267	541,434.165
Category 2.2	Indirect emissions from imported energy, excluding electricity.	45.473	159.977
Direct removals		0	0
Total GHG storage at the end of the year		0	0
Total emissions		**715,423.497**	**545,508.635**

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Information about the verification

The accredited Verification Organization EUROCERT (accreditation number: 875) and approved according to MD F.01.2/56790/DPP1828/31.5.2016, based on the Decision of the Ministry of Development and Investments with no. prot. 20580 / 11-03-2024, has undertaken the verification of the information included on the 1st page of this Statement, in accordance with the requirements of article 20 of Law 4936 (Government Gazette 105A/27-5-2022). Responsibility for the information contained in the Carbon Footprint Report remains solely with the Company. The Verification Body conducted a sample audit of evidence and data, as well as related processes and systems, to verify the Carbon Footprint Report.

For verification purposes, the agreed level of assurance has been set as reasonable, based on the needs of the intended use of the Carbon Footprint Report.

Results / Conclusions

The greenhouse gas emissions reported by the Company, for the aforementioned time period, have been verified by the Verification Organization and are in accordance with those stated on the 1st page of this statement and in sequence with the agreed scope, purposes and criteria verification.

The verification work was in accordance with the requirements of article 20 of Law 4936 (Government Gazette 105A/27-5-2022) and was based on a risk analysis approach, resulting in the use of appropriate sampling schemes on a case-by-case basis to collect the necessary evidence following appropriate traceability to the raw data.

Based on the verification process, related processes and work performed, the greenhouse gas emission claims included in the Carbon Footprint Report:

- are substantially correct and an accurate representation of the greenhouse gas emissions data and information and,
- were prepared and presented in accordance with article 20 of Law 4936 (Government Gazette 105A/27-5-2022).

Statement of Independence, Impartiality and Competence

EUROCERT is an independent accredited verification organization that applies commitments to the Impartiality and Independence of all those working on its behalf. All those involved in the process of this verification have never been involved in other projects with the audited company that would cause a conflict of interest and have never provided consulting services to it.

For EUROCERT,
Athens, 17 October 2024

ATHANASIA CHALKIOPOULOU

ATHI CHALKIOPOULOU
General Certification Director