National Climate Law

Obligations and opportunities for enterprises of the Chemical Industry

10 most severe risks in global scale

World Economic Forum 2021-2022:

1. Climate action failure	2. Extreme weather	3. Biodiversity loss	4. Social cohesion erosion	5. Livelihood crises
6. Infectious diseases	7. Human environmental damage	8. Natural crises	9. Debt crises	10. Geoeconomic confrontation

Environmental | Societal | Economic | Geopolitical

What is Climate Change?

Climate change refers to long-term shifts in temperatures and weather patterns. But since the 1800s, human activities have been the main driver of climate change, primarily due to burning fossil fuels like coal, oil and gas. Burning fossil fuels generates greenhouse gas emissions that act like a blanket wrapped around the Earth, trapping the sun's heat and raising temperatures.

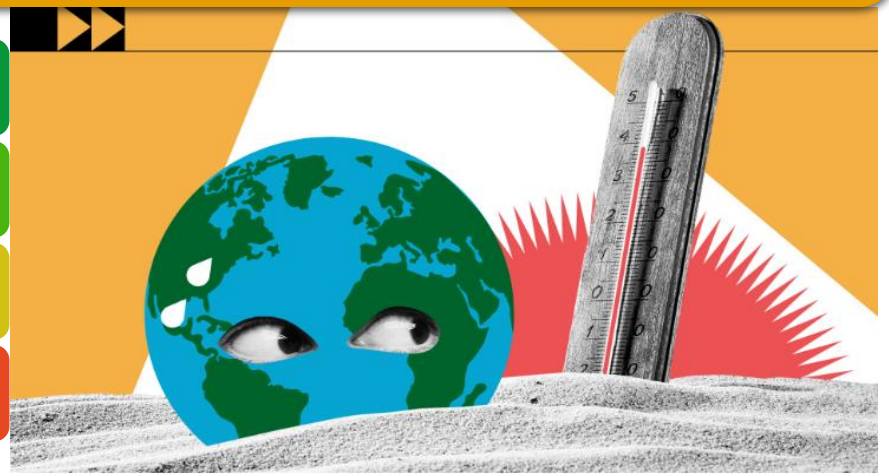
Limiting global temperature rise to no more than 1.5°C would help us avoid the worst climate impacts and maintain a livable climate. Yet based on current national climate plans, global warming is projected to reach around 3.2°C by the end of the century.

The Earth is now about **1.1°C warmer** than it was in the late 1800s

The last decade (2011-2020) was the warmest on record

Climate Change consequences *(droughts, floods, wildfires, biodiversity loss)*

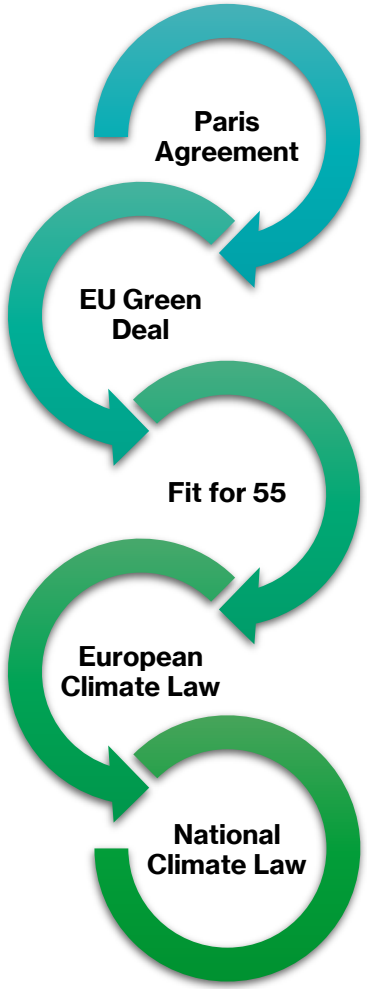
Temperature rise - Earth is a system, changes in one area can influence changes in all others.



Source*: United Nations*

The Framework for Sustainability

Frameworks & Agreements to tackle climate change



Limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels

Striving to be the first climate-neutral continent. Transform the EU into a modern, resource-efficient and competitive economy, ensuring: Net GHG emissions by 2050, economic growth decoupled from resource use, and a fair transition

Reduce net GHG emissions by at least 55% (compared to 1990) by 2030

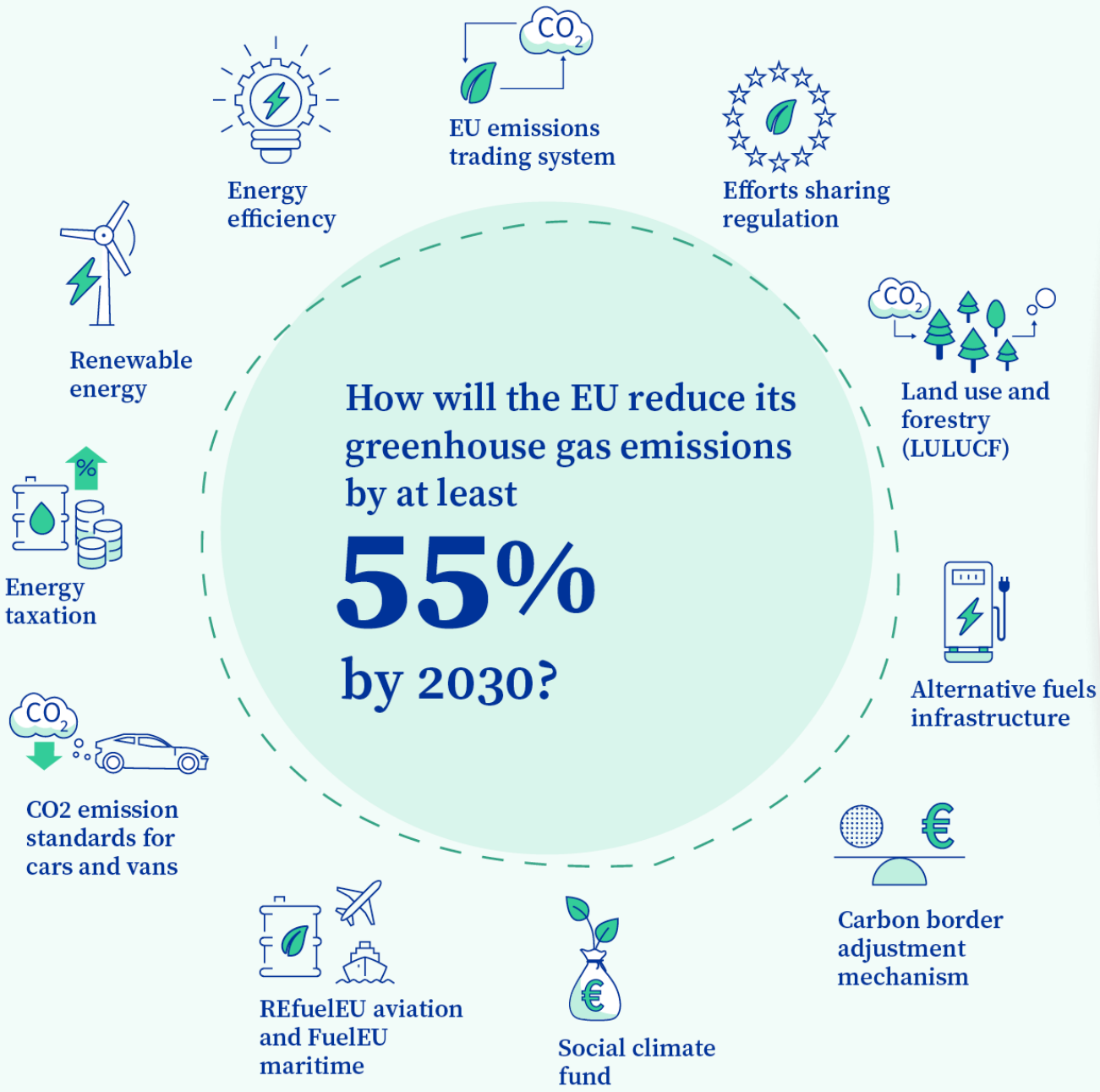
Writes into law the goal set out in the European Green Deal for Europe's economy and society to become climate-neutral by 2050. The law also sets the intermediate target of reducing net greenhouse gas emissions by at least 55% by 2030

Law 4936/2022, transposition of the European Climate Law to the national legislation

The EU Green Deal

Climate change and environmental degradation are an existential threat to Europe and the world. To overcome these challenges, the **European Green Deal** will transform the EU into a modern, resource-efficient and competitive economy, ensuring:

- No net emissions of greenhouse gases by 2050
- Economic growth decoupled from resource use
- No person and no place left behind



Fit for 55

The Fit for 55 package is a set of proposals to revise and update EU legislation and to put in place new initiatives with the aim of ensuring that EU policies are in line with the climate goal of EU's target of reducing net greenhouse gas emissions by at least 55% by 2030.

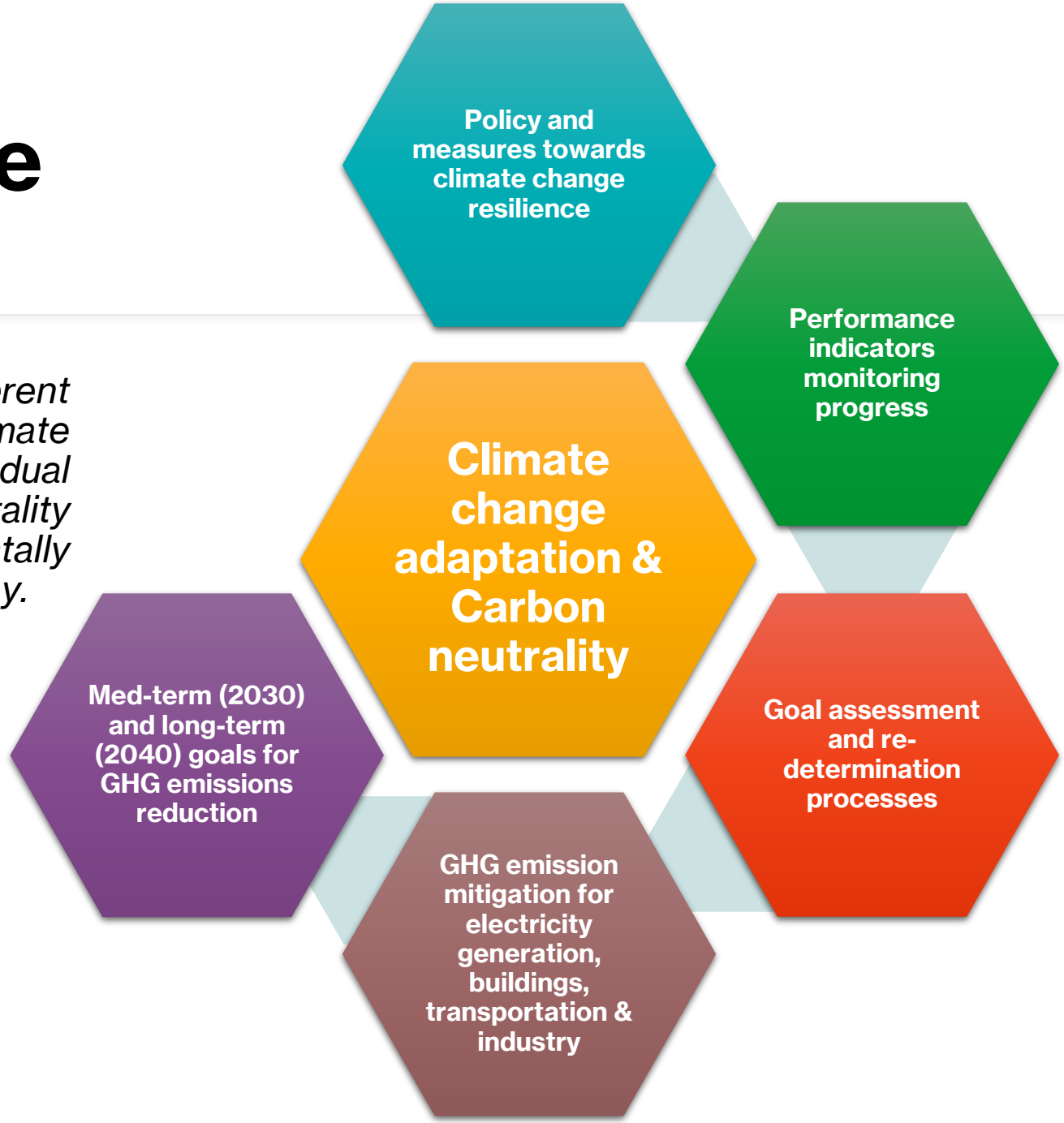
The European Climate Law

The European Climate Law will transform political promises into a binding legal obligation and send a strong political signal to our partners and business. It will write our climate neutrality target for 2050 into law and propose the path to get there. It will give European citizens and businesses the predictability, transparency and accountability which they need for this collective transformation.

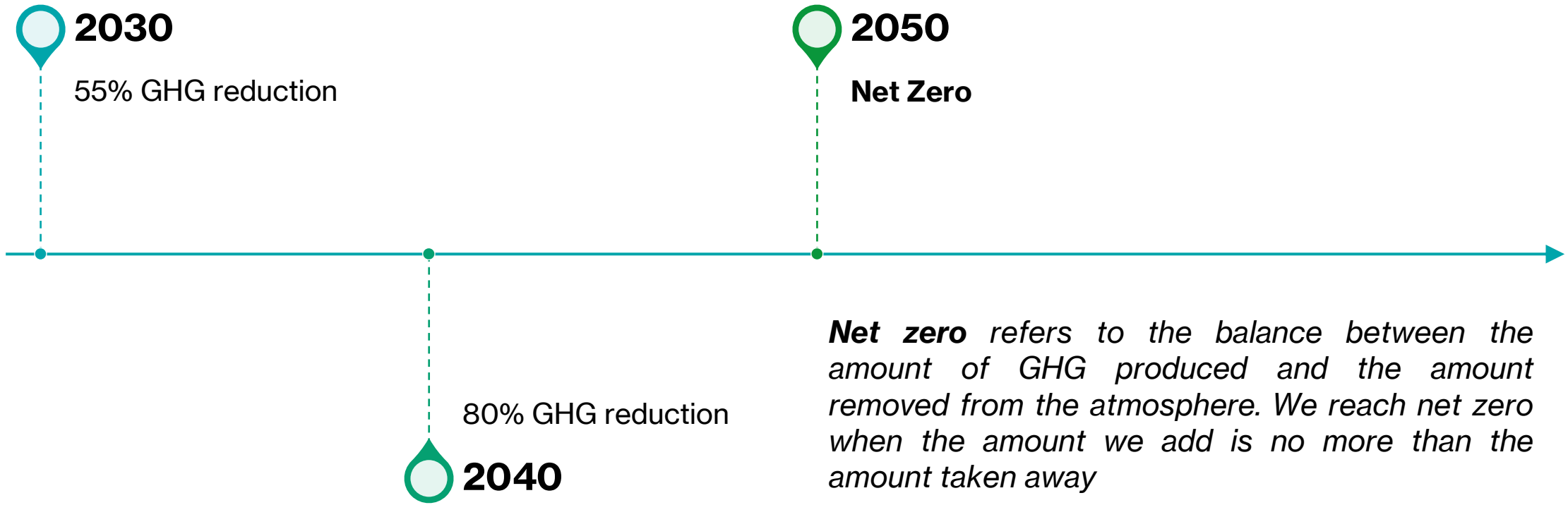
Law 4936/2022
National Climate Law

Scope & Purpose

The purpose of this law is to create a coherent framework for improving adaptability and climate resilience of the country and ensuring the gradual transition of the country towards climate neutrality up to mid-century, with the most environmentally sustainable, socially-fair, and cost-effective way.

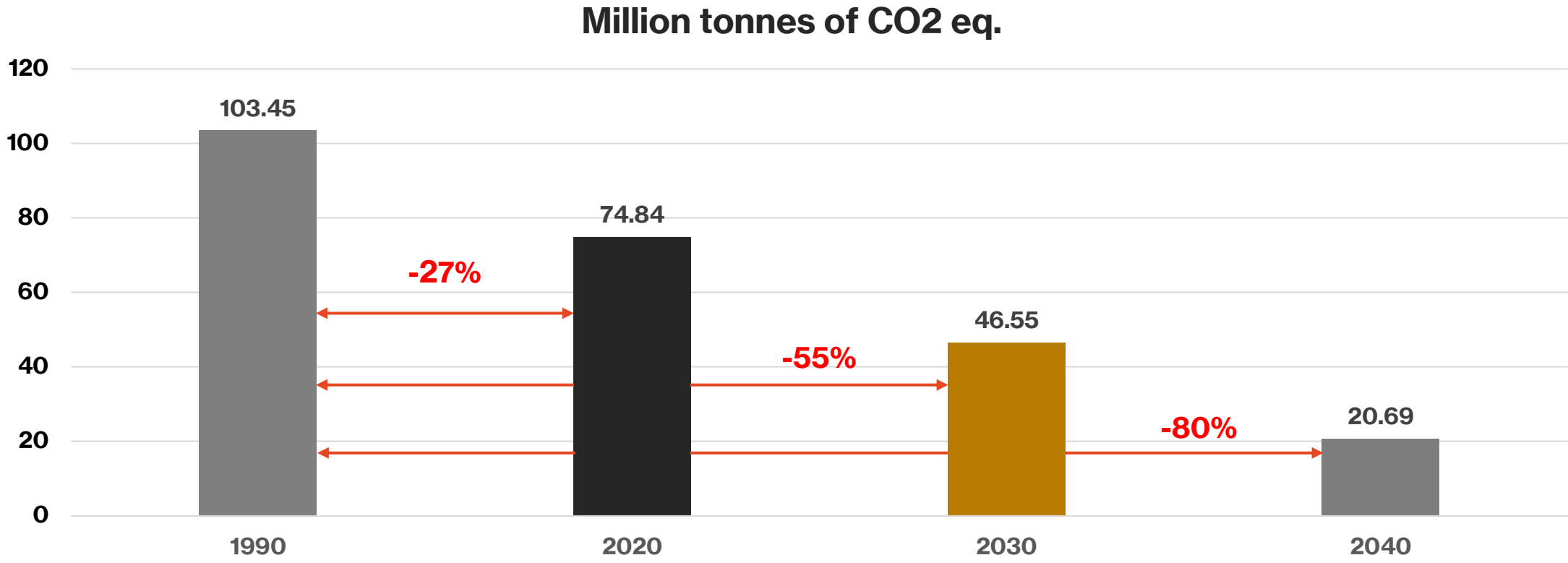


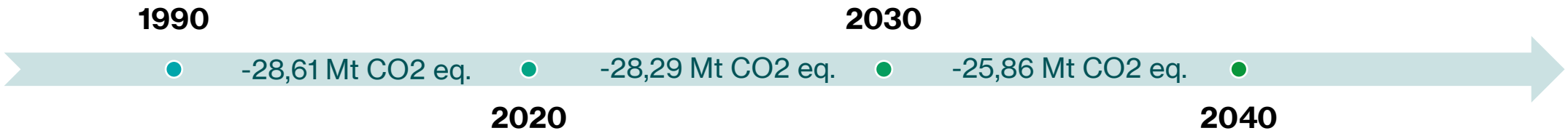
Targets & Timeline



Net zero *refers to the balance between the amount of GHG produced and the amount removed from the atmosphere. We reach net zero when the amount we add is no more than the amount taken away*

Greece Aggregated GHG Emissions





Art. 10 – Policies

Invest in energy saving and energy efficiency	Increase share of Renewable Energy Sources	Gradual elimination of fossil fuels and substitution from RES
Gradual substitution of natural gas from renewable gaseous fuels (H2, bio-CH4)	Electric vehicles promotion	Promote sustainable civil mobility by increasing public transportation
Carbon footprint of buildings reduction	Reduce GHG emissions from waste management and enhance circularity	Increase GHG emissions absorption from natural ecosystems

GHG emissions reduction from facilities

*Industrial Activities and relevant installation that **do not fall within the EU ETS** should reduce their GHG emissions by 2030 by at least 30% compared to 2019 emissions' levels.*

Identify your obligations according to Article 19

- A1 or A2 environmental permission

Quantify GHG emissions for 2019 (baseline)

- Scope 1 & 2

By 01/01/2026, **plan** actions to reduce GHG emissions

- Amendment the Decision on the Approval of Environmental Conditions

From 2026, annual **report** on GHG emissions

- By 31/10 of each year, a report should be submitted to the Environmental Licensing Authority

Reduce GHG emissions by at least 30% by 2030

- Compared to GHG 2019 emissions levels (baseline)

Identify your obligations

Industrial activities and relevant installations that have A1 or A2 environmental permit

Industrial and Medical Gases

Agrochemicals & Plant Protection Products

Paints

Biofuels

Plastics

Polyurethane and Polystyrene

Pharmaceuticals

Detergents & Biocides

Adhesives

Chemicals

GHG Emissions Quantification

Baseline Calculation

GHG emissions quantification

Scope 1

Direct GHG emissions occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.;

Scope 2

Electricity Indirect GHG emissions accounts for GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company

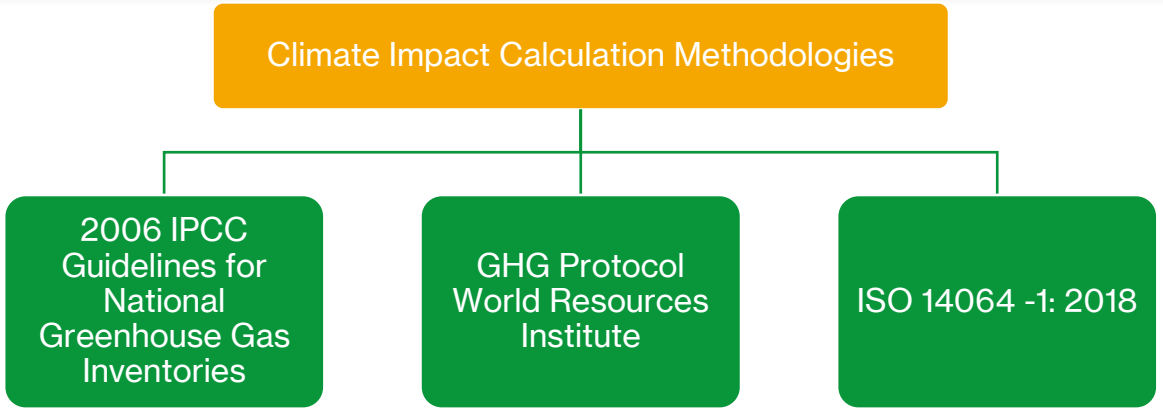
Scope 3

Indirect GHG emissions is an optional reporting category that allows for the treatment of all other indirect emissions. Scope 3 emissions occur from sources not owned or controlled by the company. Some examples of scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; and use of sold products and services

GHG emissions quantification

Scope 1	Fuel combustion in stationary sources Fuel combustion in mobile sources Emissions from releases (leaks)		**9%**
Scope 2	Generation and consumption of purchased electricity		**11%**
Scope 3	Extraction and production of raw materials Extraction and production of fuels Use of sold products Waste disposal Transportation of purchased goods, sold products, and waste Transportation of employees Business travel		**80%**

GHG emissions calculation methodology



Emission factors used to calculate the eq. CO2 emissions are taken from the latest **National Inventory Report** https://unfccc.int/documents/461961

Table 3.23 Implied emission factors for CH_4 and N_2O per fuel type

IEFs CH_4 kg/TJ				IEFs N_2O kg/TJ			
Fuel type	2018	2019	2020	Fuel type	2018	2019	2020
Gasoline	20.77	20,52	20.44	Gasoline	1,70	1,71	1.66
Diesel	4,91	4,46	4.55	Diesel	2,10	2,11	2.14
Liquefied Petroleum Gases (LPG)	8,71	8,71	8.71	Liquefied Petroleum Gases (LPG)	1,65	1,64	1.64
Gaseous fuels	102,22	102,22	102.22	Gaseous fuels	3,33	3,32	3.33
Biomass	5,34	5,42	7.02	Biomass	2,10	2,09	2.04

Global Warming Potential

1 kg CH4 = 25 kg CO2 eq.

1 kg N2O = 298 kg CO2 eq.

Case Study: Stationary Combustion

Table 3.13 *Carbon dioxide emission factors (in t CO_2 / TJ), net calorific value (in TJ / kt) and other parameters by fuel type (2020)*

Fuel type	Net calorific value (TJ/kt)	Carbon content. CC (tC/TJ)	Oxidation factor. OF (%)	EF (tCO_2/TJ)
Liquid fuels				
Refinery gas	17.68[1]	17.47	100	64.05[1]
LPG	47.30	17.21	100	63.10[2] , 64.34[3]
Gasoline	42.79	19.98	100	73.26
Kerosene	43.80	19.61	100	71.90
Diesel oil	42.80	20.12	100	73.78
Heavy fuel oil	40.14	21.38	100	78.40
Naphtha	45.01	19.80	100	72.60
Petroleum coke	32.33[4], 31.52[5]	27., 25.86	100	99.72[4], 94.80[5]
Other oil products	40.20	20.0	100	73.30
Solid fuels				
Steam coal	25.88[6]	25.24	100	92.55[6]
Lignite				
Electricity generation	4.857	36.00	98.0[10]	129.364
Industry	9.002	27.05	100	99.18
Other sectors	4.857	36.00	100	129.364
Oven and gas coke	29.31	28.91	100	106.00
BKB / Patent fuel	14.20	25.28	100	92.71
Gaseous fuels				
Natural gas – Domestic		15.68 – 16.30	100	57.82[7]
Natural gas – Imports		15.14, 15.19	100	55.52[8], 55.69[9]
Gas works gas		12.11	100	44.4

Monitor fuels (e.g., natural gas, heating diesel, etc.) quantities consumed in stationary machinery (expressed in Lt or MJ)

Apply the appropriate Emission Factor, and calculate the CO2 emissions associated with fuel combustion

Fuel: *Mass or volume of fuel combusted*

Emissions = Fuel (x) EF

EF: *CO2, CH4, N2O emission factor*

Sum up all the CO2 eq. emissions

DO NOT forget the rest GHG emissions

Scope 1 & 2 GHG emissions calculations

3rd Party Verification

Annual Reporting, starting by 2026

Deadline by 31/10 each year

Environmental Permitting Authority

Report GHG emissions

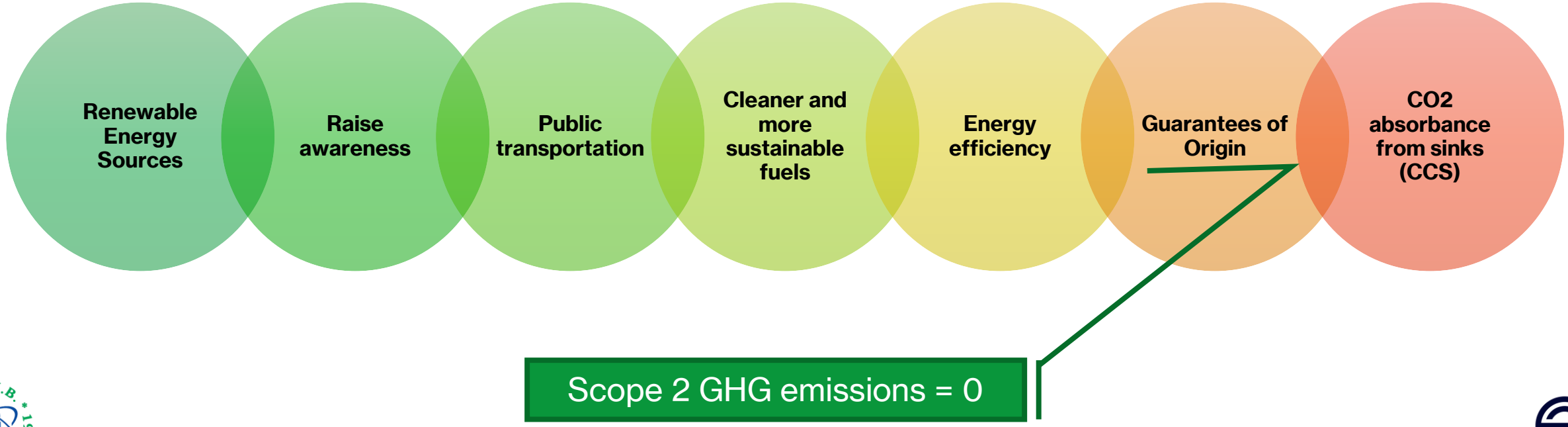
Fines

- In case of late submission of the GHG emissions report, relevant fines will be imposed. More particularly, **100 €/ delayed day** will be charged
- In case of deviation from the achievement of the GHG emissions reduction goal, **relevant penalty** will be charged, not exceeding 0.5% of annual turnover


Reduce
GHG emissions
by at least 30%
by 2030

Plan actions to reduce GHG emissions

- *By 1st January 2026, the Decision on the Approval of Environmental Conditions should be amended and include actions to reduce GHG emissions:*



Art. 20: GHG emissions reduction

Who?

- Listed companies, Financial institutions, Insurance companies, Investment companies, telecommunication companies, Water supply companies, Courier companies, Electricity and natural gas supply companies, Retail companies (>500 employees), Supply chain companies

What?

- Submit Report on GHG emissions for the year 2022 to the OFYPEKA portal

When?

- By 31st of October 2023
- Annual reporting onwards

How?

- GHG emissions report must comply with the requirements of ISO 14064-1, GHG Protocol, or 2006 IPCC Guidelines for National GHG Inventories
- GHG emissions report must be externally validated by a 3rd party

Very small and small companies **are not** within the scope of Article 20

Art.18: Integrating Climate Change dimension in environmental permitting

*Starting **from 1/1/2024**, the content of the Environmental Impact Assessments will include various the climate impact factors.* Description of the severe potential impacts to the environment from the project, caused from:

Climate impact

- Quantitative estimation of direct and indirect GHG emissions associated with the construction and operation of the project shall be included in EIA
- Quantitative estimation of the contribution of the project towards national climate goals

Vulnerability to climate change

- EIA includes information related to risks, risks estimation, impact assessment analysis, and measures application to increase climate change resilience

The Great Roadmap to Compliance

National Climate Law (L. 4936/2022)
The Roadmap to Compliance

2023

31/10: Annual GHG Emissions Report (scope 1 & 2) for listed companies

2024

01/01: Environmental Impact Assessment Studies integrate climate change impact data

2025

End of 2025: Inclusion of actions to reduce GHG emissions to the Decision on the Approval of Environmental Conditions to include

2026

31/10: Annual GHG Emissions Report (scope 1 & 2) for A1 & A2 companies

2030

30% reduction of scope 1 & 2 GHG emissions in comparison to 2019 levels

In the Context of the EU Green Deal

In relation to the National Climate Law

Chemicals Strategy for Sustainability

The EU's CSS towards a toxic-free environment by boosting innovation for safe and sustainable chemicals

- Banning the most harmful chemicals in consumer products
- Establishing a simpler "one substance one assessment" process
- Increasing capacity for production and use of chemicals that are safe and sustainable by design, and throughout their life cycle

Eco-design for Sustainable Products Regulation

Commission's approach to more environmentally sustainable and circular products. Enable the setting of **performance requirements** for almost all categories of physical goods placed on the EU market

- Product durability and reusability
- Energy and resource efficiency
- Recycled content
- Carbon and environmental footprints
- Information requirements, including a Digital Product Passport

Corporate Sustainability Reporting Directive

Requires certain companies to disclose information on the way they operate and manage social and environmental risks

This helps investors, civil society organizations, consumers, policy makers and other stakeholders to evaluate the **non-financial performance** of those companies and encourages them to develop a responsible approach to business

The CSRD will amend the existing Non-Financial Reporting Directive (NFRD) and will substantially increase reporting requirements on the companies falling within its scope in its efforts to expand the sustainability information availability

Corporate Sustainability Reporting Directive (Proposal)

A report published by a company or organization about environmental, social and governance (ESG) impacts. It enables the company to be more transparent about the risks and opportunities it faces

ESG reporting encompasses both qualitative disclosures of topics as well as quantitative metrics used to measure a company's performance against ESG risks, opportunities, and related strategies

Enhanced ESG performance leads to better stock performance and increased reliability in investor ratings – ensures more favorable financing and lending terms (low interest rate)

- Materiality assessment & Double materiality
- Appropriate indicators selection (Core, Advanced & Sectoral) to monitor and communicate ESG performance

>250 employees

>40m € turnover

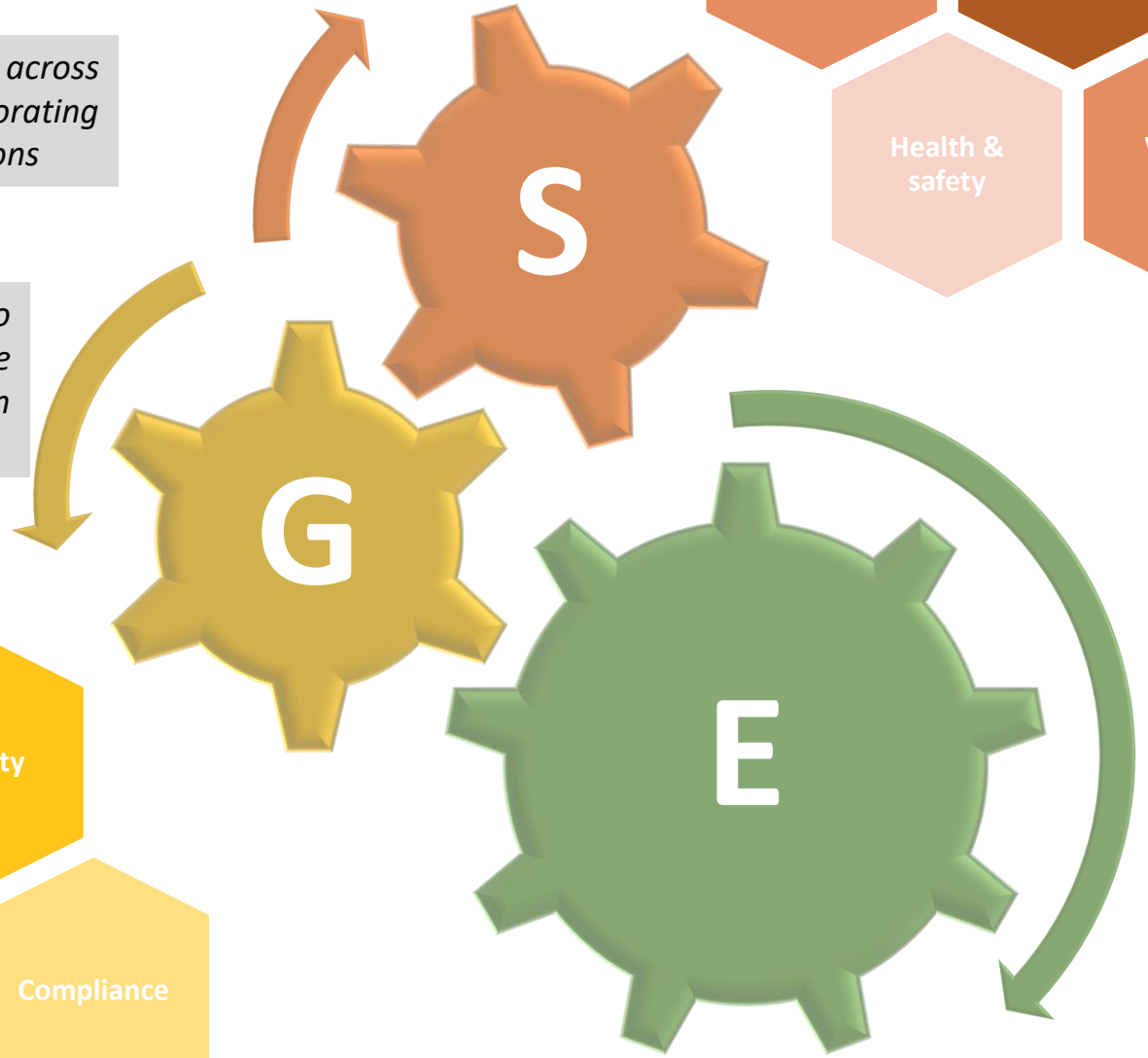
1st January 2024

Κατηγοριοποίηση ESG	ID	Ονομασία Δείκτη
Περιβάλλον	C-E1	Άμεσες εκπομπές (Scope 1)
	C-E2	Έμμεσες εκπομπές (Scope 2)
	C-E3	Ενεργειακή κατανάλωση και παραγωγή
Κοινωνία	C-S1	Συμμετοχή ενδιαφερόμενων μερών
	C-S2	Γυναίκες εργαζόμενες
	C-S3	Γυναίκες εργαζόμενες σε διευθυντικές θέσεις
	C-S4	Κινητικότητα προσωπικού
	C-S5	Κατάρτιση εργαζομένων
	C-S6	Πολιτική ανθρωπίνων δικαιωμάτων
	C-S7	Συλλογικές συμβάσεις εργασίας
	C-S8	Αξιολόγηση προμηθευτών
Εταιρική Διακυβέρνηση	C-G1	Σύνθεση Διοικητικού Συμβουλίου
	C-G2	Εποπτεία βιώσιμης ανάπτυξης
	C-G3	Ουσιαστικά θέματα
	C-G4	Πολιτική βιωσιμότητας
	C-G5	Πολιτική επιχειρηματικής δεοντολογίας
	C-G6	Πολιτική ασφάλειας δεδομένων

Environmental – Social – Governance

85% of investment managers across countries are increasingly incorporating ESG criteria into investment decisions

The volume of ESG-linked loans to companies in Europe has more than quadrupled from €27 billion in 2017 to €102 billion in 2019



Human Rights
Equal opportunities
Health & safety
Working place

Business Ethics
Diversity
Corruption
Compliance

Environment protection
Climate change
Decarbonization
Air & Water pollution
Resources preservation
Waste management

With an increasing number of companies for which ESG reporting is already mandatory, it is probably just a matter of time until your business will have to start reporting on ESG-related matters as well

Sustainable Finance

Greece 2.0
NATIONAL RECOVERY AND RESILIENCE PLAN

Funded by the European Union
NextGenerationEU

Sustainable finance refers to the process of taking **environmental, social and governance (ESG) considerations** into account when making investment decisions in the financial sector, leading to more long-term investments in sustainable economic activities and projects.

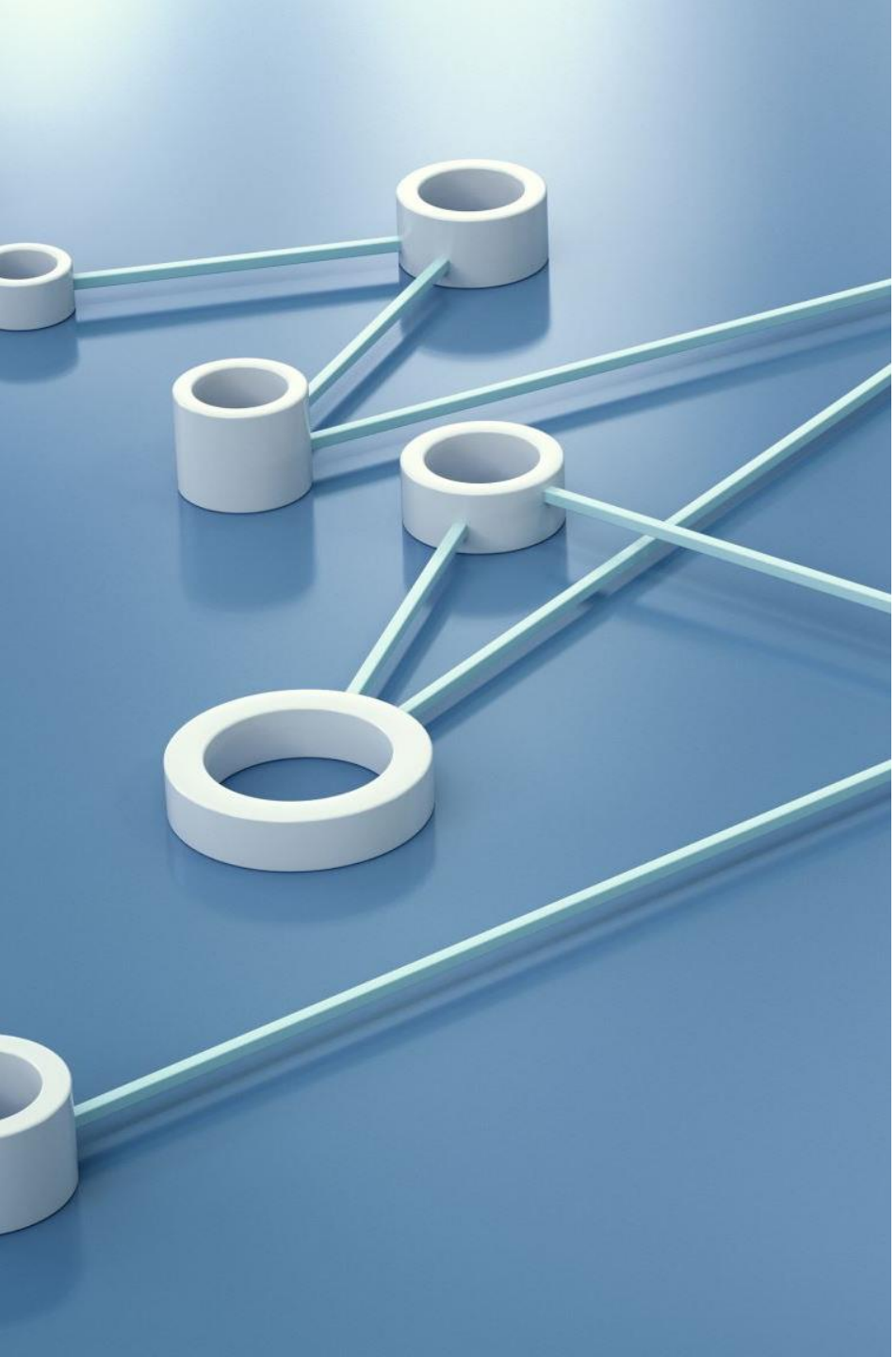
Environmental considerations might include **climate change mitigation and adaptation**, as well as the environment more broadly, for instance the preservation of biodiversity, pollution prevention and the circular economy.

Why monitor and report ESG performance?

Investors, funds and financial institutions are increasingly taking into consideration the ESG performance of companies. As a result, companies that demonstrate transparency, and good performance in ESG related matters achieve higher ESG ratings and enjoy better access to funding as well as more favorable financing terms.

The **Greece 2.0 – National Recovery and Resilience Plan** was endorsed by the European Commission in June 2021, signaling a new era for Greek businesses. With funding from the **NextGenerationEU fund** of the European Union, the Recovery and Resilience Facility (RRF) will make €12.7 billion available in loans. By supporting eligible investments, it will give businesses the boost they need to become more sustainable, resilient, green and digital.

Through a comprehensive package of services for small and large businesses, and a wide partner ecosystem, banks offer co-financing along with the RRF, effectively supporting productivity and innovation in Greece. This helps turning your investment plans into a reality through the RRF and grow your business.



In Conclusion

- The difficulty in determining the Organizational Carbon Footprint lies in **data gathering and assessment**, and not in applying the most appropriate methodology and calculating the GHG emissions

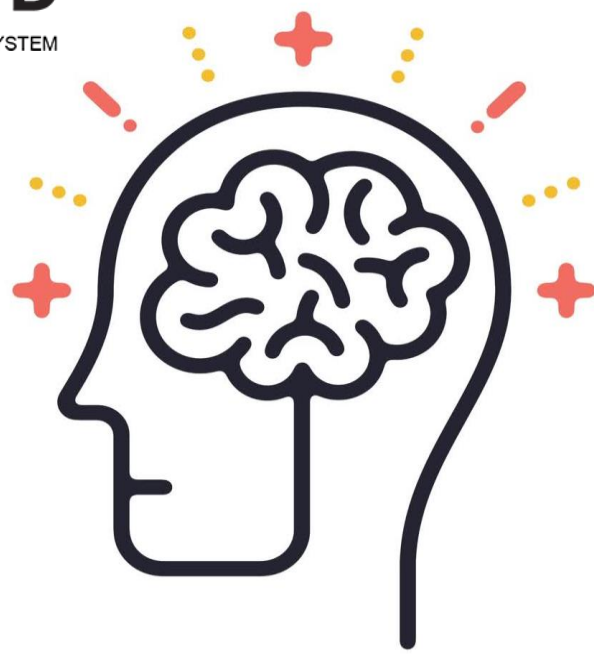
- GHG emissions report **validation** will add extra value and will ensure conformity, transparency, and a unified approach

- It is all about the **mentality**!

Don’t waste time. Start now!

It is all about the mentality!

- Holistic Approach
- Navigate through the various requirements
- Integrate ESG criteria
- Develop a Corporate Sustainability Strategy
- Make use of Sustainable Funding



Any Questions?

Good for your business, good for the planet

Engineering-based solutions that can help you achieve your ESG & Sustainability goals.

CONTACT US

Greece

A: 3rd Septemvriou 144, 112 51 Athens
W: www.sustchem.gr
E: info@sustchem.gr
T: +30 210 8252510

Cyprus

A: Acropoleos 66, 2012 Nicosia
W: www.sustchem.gr
E: info@sustchem.gr
T: +357 226 00 898