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INTRODUCTION

The objective of this thesis is to investigate how lawmakers, at the international, European, and national levels, have undertaken the fight against climate change acting as representatives of society and what tools they have adopted to address one of the greatest challenges of the contemporary era: global warming as a leading cause of climate change. As emphasized by William Nordhaus, the 2018 Nobel laureate in economics, "*what is urgently needed in response to the global warming emergency is not so much a technical and scientific response, but rather the adoption of legal solutions that are as closely aligned as possible with the established empirical evidence regarding the trajectory of greenhouse gas emissions in the atmosphere.*"¹

It is worth noting that the issue of climate change has been under study since as early as 1990 when the first report from the Intergovernmental Panel on Climate Change (IPCC) examined the risks associated with rising global temperatures as a direct manifestation of climate change, which was already underway at that time. In fact, in 1992, a group of prominent scientists declared in a letter that "*Human beings and the natural world are on a collision course. Human activities inflict harsh and often irreversible damage on the environment and on critical resources. If not checked many of our current practices put at serious risk the future that we wish for human society and the plant and animal kingdoms, and may so alter the living world that it will be unable to sustain life in the manner that we know. Fundamental changes are urgent if we are to avoid the collision our present course will bring about.*"²

In a subsequent study, the IPCC highlighted that in order to achieve the goal set then in the Paris Agreement of keeping global temperature growth "well below" 2°C and preferably at 1.5°C above pre-industrial levels, it would be

¹ W.D. NORDHAUS, *Projections and Uncertainties about Climate Change in an Era of Minimal Climate Policies*, National Bureau of Economic Research Working Paper No. 22933, Cambridge (MA), 2016.

² H.W. KENDALL et al., *World Scientists' Warning to Humanity*, Union of Concerned Scientists, Cambridge (MA), 1992.

necessary to gradually phase out fossil fuels by 82% compared to current coal reserves, 49% compared to natural gas reserves, and 33% of oil reserves must remain underground.³

Indeed, policies aimed at reducing pollutant emissions have long been the subject of various international agreements and continuously evolving European regulations, which serve as advanced benchmarks for environmental protection policies today. In this context, to address the threat of climate change, authorities have adopted innovative economic and market-based tools to incentivize environmentally friendly behaviors. These tools complement the traditional approach based on legal prescriptions and related punitive procedures.

As a result, the discussion will begin by analyzing, in the first chapter, how the international community has promoted the use of methods that balance environmental protection with the needs of productive sectors, following the logic of sustainable development. This approach aims to avoid restricting industrial activity while accommodating the specific characteristics of different states based on their stage of economic development. This approach aligns with the theories of law and economics, particularly those developed by R. Coase and later applied in environmental contexts by J.H. Dales and Hardin in "*The Tragedy of the Commons*". The contribution of these economists can be identified in their revolutionary inclusion of environmental goods among those also known as *commons* that have economic value; this means that their use generates rivalry among consumers, resulting in a reduction in the resource's availability. Indeed, changing natural conditions have made environmental goods effectively "scarce," no longer seen as containers of infinite resources. Consequently, we will examine how traditional environmental protection tools based on the command-and-control mechanism, characterized by strong government interference in regulating community behaviors, have proven inadequate in the complex context of climate change. This has necessitated an approach

³ IPCC, *Global Warming of 1.5°C, Summary for Policymakers*, 2018, 33.

based on more flexible market-based in which the public sector sets an overall cap on permits (i.e. emissions permitted), leaving the determination of the price to the market (this mechanism is the so-called "cap-and-trade" mechanism). Within the realm of market-based instruments introduced in recent years, emission trading stands out as the preferred mechanism for promoting the reduction of polluting emissions by producers, through the allocation and exchange of emission rights in a specially established artificial market. The process that led to the adoption of this system can be traced back to the United Nations Framework Convention on Climate Change (UNFCCC), adopted during the Rio de Janeiro conference in 1992, which initiated various Conference of the Parties (COP) that marked the significant milestones in international emission trading. The principles outlined in the convention were then translated into concrete commitments for the Parties with the Kyoto Protocol, developed during the third Conference of the Parties (COP 3) held in Kyoto in December 1997. The Kyoto Protocol was a pivotal moment as it introduced three flexible market mechanisms for the first time while still granting considerable discretion to states regarding the practical execution of reduction obligations. Additional innovations were introduced during the COP 21 in Paris in 2015, with the aim of promoting the reduction of atmospheric pollutant emissions in the most advantageous ways possible.

These international developments were embraced and developed within the European framework, leading to the establishment of a European emission trading system with directive 2003/87/EC. This system, which will be discussed in the Second Chapter, created a genuine artificial market for the exchange of tradable allowances, such as emission quotas, each corresponding to one ton of CO₂. Chapter II will outline the European Union's regulations as pioneering in establishing the largest emission quota exchange market, allowing Europe to assume an undisputed leadership role in the fight against climate change. Indeed, the EU has not only played a crucial role in shaping international agreements and advocating for binding greenhouse gas reduction targets but has also consistently demonstrated its

commitment to climate change mitigation through the implementation of robust domestic policies, such as the European Emission Trading System (EU ETS) mentioned above. Furthermore, when analyzing the choices of the European legislator in building the European emission quota exchange market, we will take into account the various amendments it has undergone over time to the original regulations outlined in directive 2003/57/EC.

In the Third Chapter, the focus will shift to Italian regulations on ETS matters. Specifically, we will analyze how the Italian legislature has aligned itself with the objectives set by the European Union through the implementation of various directives that have modified the emission trading system over time. Finally, in this chapter, the attention will be directed towards the latest legislative developments in national legislation and how the regulations have been most recently amended by Legislative Decree No. 47 of June 9, 2020.

CHAPTER I

THE FIGHT AGAINST CLIMATE CHANGE THROUGH MARKET-BASED INSTRUMENTS

1. Two different regulating methods to tackle the treat of climate change: *command and control* versus a market based approach; **1.1.** The primary hypothesis regarding the utilization of economic instruments in the reduction of pollutant substances: the Coase's theorem. **1.2.** The leading example of the Clean Air Act: the creation of an artificial emission trading market; **1.3.** The *cap and trade* mechanism and the carbon market **2.** The UNFCCC and the third Conference of the Party (COP): the backdrop of the Kyoto Protocol; **2.1.** The Kyoto Protocol: a new way to face the reduction of the CO₂ emission through emission trading mechanisms; **2.1.1.** The other Kyoto Flexible Mechanisms: Joint Implementation and Clean Development. The *baseline and credit* approach **3.** The unification of the Kyoto's flexible mechanisms in the new Sustainable Development Mechanism (SDM): the 2015 Paris Agreement

1. Two different regulating methods to tackle the treat of climate change: *command and control* versus a market based approach

Undoubtedly, one of the most significant challenges that contemporary society has to face in the realm of environmental protection is the fight against climate change and global warming, primarily caused by human activities. To address this issue, policymakers have taken various mitigation measures and actions aimed at reducing anthropogenic pollutant emissions, which are the primary drivers of this phenomenon. However, before delving into the analysis of these measures, it is necessary to make a preliminary distinction between two different regulatory methods used to address the threat of climate change. The first category refers to regulatory instruments,

which are primarily identified by the imposition of standards and regulatory limits. These measures are considered part of the broader category of direct regulatory measures, also known as *command and control* instruments. The second category consists of more flexible market based instruments, which encompass a set of rules and institutions aimed at guiding the preferences of free economic operators towards an abstractly optimal solution, even from the perspective of negative environmental externalities.

Traditionally governments extensively relied on *command and control* approach when it comes to environmental protection. In this approach the public authority establishes the rules that the community must follow supported by a system of monitoring and enforcement to ensure compliance with these regulations.⁴

More specifically, within the framework of the *command and control* the law establishes standards and regulatory limitations, which encompass various measures such as planning acts, imposition of emission limits and *standards*, technical regulations, permits for discharges, and administrative penalties, among others.⁵ These standards aim to regulate human activities in order to minimize their negative impact on the environment. Following the establishment of these standards, public administrations engage in monitoring and control activities to assess compliance with the predefined limits. In case of non-compliance, prohibitive, pecuniary or corrective sanctions are imposed.⁶

When it comes to emissions, a standard sets a maximum permissible level of pollution for all operators, determined by law based on efficiency calculations. While standards can be seen as effective tools, they assume that policymakers possess complete information about all market operators. Additionally, standards cannot be uniformly applied to every company due to variations in their operations and circumstances. This limitation highlights the challenge of implementing a one-size-fits-all approach and

⁴ A.L.OGUS, *Regulation. Legal form an economic theory*, Oxford, 1994, 182 ss.

⁵ R. BALDWIN, M.CAVE, *Understanding regulation. Theory, strategy and practice*, Oxford, 1999; G. TULLOCK, A.SELDON, G.L.BRADY, *Government failure*, 2002, 117 ss.

⁶ P. DELL'ANNO, *Diritto dell'Ambiente*, Milano, 2022, 337 ss.

the need for more flexible mechanisms that can accommodate the diverse characteristics of different businesses.⁷

In fact, over the recent years, the theoretical reflection and institutional debate have highlighted the shortcomings of a public regulation based on rigid *command and control* mechanisms.⁸ For instance, the uniformity of imposed rules leads to inefficiencies as it fails to consider local geographical variations or the specificities of production facilities. In fact, especially regarding pollutant emissions, a maximum allowable pollution standard is imposed to all market operators, because it's very difficult for the regulatory powers to possess a comprehensive knowledge of the specific circumstances that characterize each individual market operator.⁹ The only feasible way for the public authority to acquire comprehensive information is to incur significant costs. Consequently, in the *command and control* mechanism, there may persist an "information asymmetry", wherein operators can gain advantages due to the inherent imbalance of information.¹⁰

This situation is described in the economic model developed by the so called "agency theory", which suggests that the regulator, instead of pursuing the goal of maximizing social welfare as a "benevolent regulator", ends up serving the interests of the companies it is supposed to regulate, acting as a "captured regulator".¹¹

What's more, due to its characteristic of concentrated decision-making authority in the hands of public bodies, the *command and control* approach is associated with excessively stringent constraints and inflexibility. Consequently, this approach tends to discourage the introduction of new products into the market or the adoption of more advanced production

⁷ T.H. TIETENBERG, *Emission Trading, an exercise in reforming pollution policy* Washington D.C, 1985, 14 ss.

⁸ S.BREYER, *Regulation and its reform*, Harvard, 1982, 261 ss.

⁹ T.H. TIETENBERG, *Cap-and-Trade: The Evolution of an Economic Idea*, in *Agricultural and Resource Economics Review*, 2010, vol 39, n. 3, 360.

¹⁰ G.BACCELLI, *Analisi economica del diritto dell'ambiente*, in G. DI PLINIO, P. FIMIANI (edited by) *Principi di diritto ambientale*, Milano, 2008, 116.

¹¹ M.C. JENSEN, W.H. MECKLING, *Theory of the firm: Managerial behavior, agency costs and ownership structure*, Harvard, 1976, vol. 3, n. 4, 305 ss.

techniques, thereby hampering potential investments.¹² Indeed, in a scenario of centralized regulation, companies lack economic incentives to reduce emissions below the threshold set by the policy maker.

Therefore, during the 1990s the theoretical debate surrounding the potential use of market-based instruments for environmental protection has gained momentum both at European Union and international level.¹³ In fact the European Fifth Environmental Action Program raised the awareness that it was necessary to introduce environmental protection instruments in the market, alongside traditional regulatory tools.¹⁴

As already mentioned, these market-based instruments refer to a set of rules and institutions aimed at directing the preferences of independent economic agents towards abstract optimal solutions while also addressing the mitigation of negative environmental externalities.¹⁵ These mechanisms aim to internalize the costs associated with environmental externalities and provide economic incentives for responsible resource use and pollution reduction.¹⁶

Furthermore, unlike traditional *command and control* instruments, market-based mechanisms are characterized by a minimal interference from the public sector, primarily serving an informative and certifying function. Therefore, over the years, there has been a growing recognition that the market can be a crucial ally in environmental regulation.¹⁷

¹² M.CAFAGNO, *La cura dell'ambiente tra mercato ed intervento pubblico. Spunti dal pensiero economico*, in D.DE CAROLIS, E. FERRARI, A. POLICE (edited by), *Ambiente, attività amministrativa e codificazione*, Milano, 2006, 207.

¹³ Communication from the Commission to the Council and the European Parliament, *Reconciling needs and responsibilities: Integrating environmental concerns into economic policy*, 20 September 2000, COM (2000) 576 final.

¹⁴ Resolution of the Council and the Representatives of the Governments of the Member States, meeting within the Council of 1 February 1993 on a Community programme of policy and action in relation to the environment and sustainable development (93/C 138 /01).

¹⁵ E. MEHLING, M.TVINNEREIM, *Carbon Pricing and the 1.5°C Target: Near-Term Decarbonisation and the Importance of and Instrument Mix*, Cambridge, 2018, vol. 12, n. 1, 50 ss.

¹⁶ EUROPEAN COMMISSION, *Green paper on market-based instruments for environment and related policy purposes*, Brussels, 28 March 2007, COM (2007) 140 final

¹⁷ UNEP, *The Use of Economic Instruments in Environmental Policy: Opportunities and Challenges*, Parigi, 2004, 11 ss.

Indeed, in this case, it seems relevant to apply the concept of "subsidiary administration". This concept involves the internalization of public interests that arise from the autonomous and spontaneous interactions of private actors. Public interests are not actively pursued by private entities, nor are they unilaterally imposed by public administrations. Instead, they exist externally to the actions of private actors but coexist alongside them, which sparks the interest and attention of public administrations.¹⁸

In addition, the preference for market-based instruments in environmental regulation can be attributed to the recognition of the environment, and particularly the climate, as common goods or *commons*. Common goods are resources that are shared by multiple individuals or groups and are susceptible to overuse or degradation if not properly managed. These goods cannot be considered private goods as they are accessible to all and not owned by any individual. However, they also do not fit the classification of public goods according to economic categorization. Indeed, public goods are typically characterized by non-excludability and non-rivalry.¹⁹ In contrast, the environment and climate, while non-excludable in terms of access, are rivalrous in their use, as the utilization of these resources by one individual affects the availability for others. This leads to a "tragedy", as described by Hardin, where the collective ownership of common goods leads individuals to exploit them without limit or control, resulting in overconsumption and depletion of resources. In this situation, individuals internalize the benefits of their own choices to exploit the resources, while the external costs of these choices are borne by society, leading to negative externalities.²⁰ For example, in the case of climate change, the phenomenon is caused by those who emit greenhouse gases into the atmosphere, but the

¹⁸ S. VITELLI, *L'amministrazione sussidiaria*, 2009, available at <https://www.labsus.org/2009/02/lamministrazione-sussidiaria/>

¹⁹ *Non-rivalry* refers to the characteristic of goods where an individual's consumption does not limit others from consuming them. *Non-excludability*, on the other hand, refers to the inability of a good's producer to exclude others from benefiting from its production.

²⁰ *Externalities* consist in a misalignment between the costs borne by individuals using resources and the costs borne by society as a whole. This misalignment occurs when the actions of individuals result in negative externalities, meaning that the costs they impose on others are not taken into account in their decision-making process.

costs of their actions, such as environmental damage, are externalized and not directly borne by them. According to Hardin's perspective, the solution lies in privatizing the use of resources by creating property rights over common goods. This would enable the internalization of costs and provide individuals with incentives to manage and conserve the overexploitation of resources' responsibly.²¹ By assigning ownership and establishing market mechanisms, such as tradable permits or property rights, the market can play a role in efficiently allocating and managing these resources, addressing the challenge of overconsumption and externalities associated with common goods.²²

1.1 The primary hypothesis regarding the utilization of economic instruments in the reduction of pollutant emissions: the Coase's theorem

The economists Pigou and Coase were among the first to theorize the possibility of using economic instruments for environmental protection.²³ Pigou's suggestion involves the implementation of taxation as a means of addressing pollution. Under this approach, the public authority sets a tax rate designed to discourage pollution and imposes the external costs directly on businesses. The taxation level should ideally align with the marginal external cost required to mitigate the negative externality. By internalizing the costs associated with pollution, such as greenhouse gas emissions, within their production processes, polluting businesses are incentivized to reduce their emissions and adopt cleaner practices. This taxation-based approach aims to provide economic incentives for businesses to internalize the environmental costs associated with their activities.²⁴

²¹ G. HARDIN, *The Tragedy of the Commons*, 1968, vol. 162, 1243 ss.

²²E. OSTROM, *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge, 1990, 93 ss. However, she concludes by advocating for a third way between the market and the state, namely the direct allocation of the management of common goods and resources to the community.

²³V. JACOMETTI, *Rivalutazione degli strumenti proprietari a tutela dell'ambiente: tradable pollution rights and emissions trading*, in *Riv. Giur. Ambiente*, 2003, 278.

²⁴ A.C. PIGOU, *The Economics of welfare*, London, 1932.

On the other hand, according to Coase's theory, it was necessary to establish a limit on access to scarce resources. Hence, the inadequacy of available resources compels private entities to ascertain both the recipients and the manner in which access can be granted, in accordance with the conventional operations of the market.²⁵

In fact, according to Coase's perspective, the traditional command and control approach did not allow for the resolution of the "externalities problem" since it was unable to gather sufficient economic resources to ensure effective environmental protection. He affirmed the necessity to create property rights over the environment, leaving the market, based on its functioning, to reach the optimal level of pollution and production activities. Therefore, he tried to demonstrate that if exclusive property titles to the environment are defined and it is possible for private actors to transfer these rights to reach the maximization of their utilities, then a bargaining solution among different users of the environment will result in a "Pareto optimal" allocation of the environment's resources.²⁶

In this way the role of the State is limited to the allocation of property rights, as, for instance, the emission rights that can be then transferred within the market. In fact, the Coase's theory has provided a theoretical background for the instrument of tradable permits or emissions rights in the carbon market which have been implemented for the first time with the US *Clean Air Act* and, subsequently, at the international level, with the *Kyoto Protocol*, as will be further explained in the next paragraphs.²⁷

²⁵ J. MUNRO, *Carbon Units and Emissions Trading Schemes*, in *Emissions Trading Schemes under International Economic Law*, Oxford, 2018, 28.

²⁶ H. SIEBERT *Economics of the Environment*, Berlin, Springer 2008, 99.

²⁷ R.B. STEWART, *A new generation of environmental regulation?* in *Cap. U. L. Rev.*, 2001, 1, 21 ss.

1.2 The leading example of the Clean Air Act: the creation of an artificial emission trading market

Building upon the theories discussed earlier regarding the utilization of market instruments to address negative environmental externalities, the concept of "artificial markets for the environment" has emerged.²⁸

The essential feature of artificial markets pertaining to the environment involves the assignment of subjective legal entitlements (such as emission permits in the carbon market) to designated private entities within a predetermined context of limited availability.²⁹ The allocation confers, upon these entities, the power to subsequently distribute the scarce resource based on market dynamics, considering economic feasibility and convenience.³⁰

Indeed, the peculiarity of these markets lies in the fact that they couldn't exist in the absence of a well-defined regulatory intervention that establishes the framework within which transactions between operators take place, adhering to the traditional principle of the supply and demand rule. However, it is crucial to emphasize that this process occurs within an institutional framework that includes strong regulatory authorities and comprehensive regulations. These regulations establish the essential guidelines and oversight required to ensure that the market operates in alignment with environmental goals and societal interests.³¹ In this way the protection of the environment occurs through the market and not "in the market". In fact, in the latter scenario, the market aligns itself with the existing environmental regulations in place. Market participants have to adjust their operations and practices to meet the required environmental

- ²⁸ M. CLARICH, *La tutela dell'ambiente attraverso il mercato*, in *Rivista di Diritto Pubblico*, 2007, 1, 239 ; The concept of "artificial markets" is widely recognized and acknowledged by various authors. See B. GUSTAFSSON, *Scope and limits of the market mechanism in environmental management*, in *Ecol. Econ.*, 1998, 2, 259 ss.; V. JACOMETTI, *Lo scambio di quote di emissione* Milano, 2010, 104 ss.

²⁹ Consistently with Coase's theory. See par. 1.1.

³⁰ G. BAZZANI, *Teorie del denaro e carbon trading. Il frame dell'azione sociale per fronteggiare il riscaldamento globale*, in *Jura Gentium: La crisi dei paradigmi e il cambiamento climatico*, 2019, 86.

³¹ A. LOLLI, *L'amministrazione attraverso strumenti economici: nuove forme di coordinamento degli interessi pubblici e privati*, Bologna, 2008, 38 ss.

standards, ensuring that their activities are in line with the regulations and do not harm the environment. Instead within the case of environmental protection "through the market," the public authority creates artificial markets to safeguard the environment. This approach involves the establishment of market mechanisms, such as emissions trading systems and tradable permits, where the authority sets limits on pollution or resource's use and allocates tradable rights or permits to market participants.³²

These theory on artificial markets have their initial implementation primary rooted in the United States. In fact, at the beginning of the 1990s, a legislative amendment to the Clean Air Act introduced a system for trading pollution allowances associated with sulfur dioxide (SO₂) emissions.³³ This program was established with the aim of reducing acid rain to half of its level observed in 1980.³⁴ In particular, the amendment provided that the United States Environmental Protection Agency (US EPA) allocated a maximum quantity of pollution credit (Emission Reduction Credits or ERCs) to each company on an annual basis. These permits corresponded to a pre-determined amount of annual permissible tonnes of pollutant emissions. Companies had the option to use these permits for their own emissions or trade them on the market. In accordance with the *cap and trade* mechanism, which will be further explained in the next paragraph, the collective allocation of permits established the "emission cap" which served as the overall limit of allowable emissions. The SO₂ allowance trading program performed well since it delivered emission reductions more quickly than expected.³⁵

It is worth noting that the sulphur trading programme, implemented under the 1990 US Clean Air Act, represents the inaugural example of the 'cap and

³² M. CLARICH, *La tutela dell'ambiente attraverso il mercato*, cit. 240.

³³ The Clean Air Act, subject to multiple amendments over time, constitutes the framework established in 1970 to govern air quality regulations in the United States. This document is accessible within the archives of the *United States Environmental Protection Agency* (EPA).

³⁴ R.SCHMALENSEE, N. R STAVINS, *Policy Evolution under the Clean Air Act Journal of Economic Perspective*, United States, 2019 v. 33, n. 4 28 ss.

³⁵ ID. 45

trade' system. This program was hailed as a pioneering model for climate negotiators due to its innovative approach.³⁶

1.3 The *cap and trade* mechanism and the creation of the carbon market

As it was underlined in previous paragraph, the artificial markets serve as the platform for the trading of emissions permit. It's important to notice that the emission trading system can be implemented through both a *baseline and credit* approach and a *cap and trade* one. The flexible mechanisms of the Kyoto Protocol (Joint Implementation and the Clean Development Mechanism) represent an example of the baseline and credit approach, as it will be further explained in the next paragraph.

On the other hand, the *cap and trade* system is drawn on Coase's theorem but deviates from it in a crucial aspect. Unlike Coase's theory, where property rights are assigned for the quality of air, the *cap and trade* system grants rights to pollute within predetermined limits. In fact, the *cap and trade* approach involves public authorities setting a maximum threshold (or target) while allowing market dynamics to govern the allocation of resources through the establishment of artificial markets. The public sector consistently plays a central role by making progressive adjustments to the regulatory framework. However, it is ultimately the market, and thus private entities, that determine the most effective methodology for achieving the objectives set by the public authority. This can be accomplished through the purchase of permits from other operators or through investments in new technologies. The difference with the standard imposed in the *command and control* approach, lies in the freedom given to polluters to devise the most logical approach to accomplish the overarching objective. In fact, rather than dictating specific methods or actions, this system offers flexibility for polluters to explore the most efficient and effective means of attaining the

³⁶ F. YAMIN, J. DEPLEDGE, *The international climate change regime. A guide to rules institutions and procedures*, 2004, Cambridge, 139.

global target.³⁷ As discussed, the *cap and trade* mechanism serves as the underlying framework for the sulfur trading program initiated by the Clean Air Act. This approach was subsequently extended to the International Emission Trading system under the Kyoto Protocol, although its practical implementation took form through the European Directive 2003/87/EC, widely referred to as the Emission Trading System Directive.³⁸

The emission trading system operates through the use of carbon emission permits, and the trading of these permits establishes a functioning *carbon market*. In general terms, the carbon market exhibits distinct characteristics. Firstly, the regulatory authority determines the geographic scope, the activities as well as the specific pollutant substance to be controlled through the carbon market. Additionally, the regulatory body defines and the pollutant-related activities that activities that will be encompassed within the market framework. Secondly, a maximum threshold or *cap* is established for emissions, setting the allowable level of pollution.³⁹ Subsequently, economic entities accountable for the pertinent type of pollution are allotted emission allowances, which directly symbolize the emissions value allocated for their distinct undertakings. Therefore, emissions can only occur if a company possesses permits obtained from the public authority or acquired through market transactions. Since the number of emission allowances is limited by the authority, they become scarce and gain economic value, resulting in a market price.⁴⁰

Another crucial aspect of the carbon market is the requirement for operators to surrender actual emission allowances. If an operator exceeds their allocated permits for a given period, he/she must purchase additional permits from the market to cover the excess emissions. Conversely, compliant operators who reduce emissions below their assigned threshold

³⁷ C.D. MALAGNINO, *L'ambiente sistema complesso L'ambiente sistema complesso. Strumenti giuridici ed economici di tutela*, Padova, 2007, 39.

³⁸ See Chapter II.

³⁹ A.VATN, *Environmental Governance—From Public to Private?* in *Ecological Economics*, 2018, 173.

⁴⁰ J. KNOX-HAYES, *The Architecture of Carbon Markets: Institutional Analysis of the Organisations and Relationships that Build the Market*, Oxford, 2009, 18 ss.

can sell their surplus permits and generate profits. These surplus permits can be traded on the market, providing economic benefits and enhancing the competitiveness of the operators. Consequently, polluters have the freedom to choose their strategies: either adopting measures to reduce pollution levels or purchasing additional permits. The choice depends on the economic viability of pollution abatement compared to the market price of tradable permits.⁴¹ Similar to the Coase theorem, after the establishment of property rights, the rights holders decide whether to use them or sell them to those, based on whichever of the two options proves to be more economically convenient. Similarly, in a *cap and trade* systems, permit holders determine whether to sell or purchase permits on the market.

To conclude, it is important to notice that there has been a preference in the regulatory framework for market based mechanism that involve minimal government intervention, rather than traditional instruments such as taxes, which are still market based instruments but that are considered too invasive.⁴²

2 The UNFCCC and the third Conference of the Parties (COP): the backdrop of the Kyoto Protocol

The international efforts of combating climate change through the reduction of pollutant emissions have mainly relied on market-based instruments, as demonstrated by the Kyoto Protocol. However, before delving into the Protocol and its innovative flexible mechanisms, it is necessary to understand the context in which this agreement was adopted.

In 1992 the United Nations Framework Convention on Climate Change (UNFCCC) was adopted during the United Nations Conference on Environment and Development (UNCED), informally known as the Earth Summit, held in Rio de Janeiro. This landmark conference took place twenty

⁴¹ F. YAMIN, *Climate Change and Carbon Markets: A Handbook of Emission Reduction Mechanisms*, Londra, 2005, 77 ss.

⁴² A. SPISTO, *Diritti negoziabili e protezione ambientale. Un Piano per l'Europa*, Roma, 2007, 10.

years after the Stockholm Conference, which was the first United Nations gathering that placed significant emphasis on environmental issues. The UNFCCC was adopted on May 9, 1992, and entered into force on March 21, 1994. The ultimate goal of the Convention is to stabilize greenhouse gas concentrations in the atmosphere by setting specific targets and timeframes for emission reduction. However, it is important to note that the Convention itself is not legally binding for signatory states.

Additionally, the United Nations Framework Convention on Climate Change (UNFCCC) has established the Conference of the Parties (COP) as its highest decision-making body. The COP brings together representatives from all signatory Parties to the Convention.⁴³ The first COP took place in Berlin in 1995, a year following the entry into force of the UNFCCC as stipulated in Article 7.4 of the Convention.

The Kyoto's Protocol was elaborated during the third COP held in 1997 for a concrete implementation of the UNFCCC. It marked a significant milestone as the first multilateral agreement to include legally binding targets for all 37 Annex I Countries.⁴⁴ Unlike previous declarations, the Protocol set precise binding targets. The primary global objective for the first commitment period (2008-2012) was the collective achievement of an average reduction of 5.2% of combustion gases emissions (carbon dioxide, methane, and nitrous oxide) compared to 1990 levels and for chemical gases (perfluorocarbons, hydrofluorocarbons and sulfur hexafluoride) compared

⁴³ UNCED, UNFCCC, Rio de Janeiro 1992, art. 7.

⁴⁴ According to the principle of common but differentiated responsibilities and respective capabilities (CBDRRC), Article 3 of the UNFCCC recognizes the historical responsibility and differing capacities of nations in addressing environmental challenges, allowing for differentiation in their efforts to combat climate change. This principle takes into consideration the disparities between developed and developing countries in terms of their contributions to global greenhouse gas emissions and their economic capacities. Countries in Annex I comprise industrialized states and those undergoing economic transition (Economies in Transition, EIT), which include members of the former Soviet Union and Eastern European countries. Annex II countries solely encompass industrialized nations burdened with greater responsibilities, particularly towards developing countries, aimed at preventing a slowdown in the industrial progression of the latter economies. The third category encompasses developing countries (non-Annex), not encompassed by the prior two lists. However, once these countries attain a certain level of development, they can voluntarily join the Annex I countries.

to 1995 levels.⁴⁵ The objective for the first commitment period was further revised and increased to 18% for the second commitment period (2013-2020) with the adoption of the Doha Amendment. The overall framework presents a particular challenge scenario for Annex I Countries, which are subject to constraints on greenhouse gas emissions consistently with the CDDRRC principle.

As previously mentioned, the Protocol's innovative feature is the departure from traditional *command and control* approaches towards market-based instruments. Therefore, flexibility is granted to obligated countries in achieving emission reduction targets. This flexibility enables them to devise instruments that fulfil their obligations in the most economically efficient manner. These market-based instruments, also referred as "flexible mechanisms", play a crucial role in stimulating positive global processes. They include the *Joint Implementation* (JI), the *Clean Development Mechanism* (CDM) and the *International Emissions Trading* (IET or ET).⁴⁶ These mechanisms need to represent a *quid pluris* to the command and control action that the national governments have to undertake; indeed, according to article 6 par. 1 (d) and 17 of the Kyoto Protocol "The acquisition of emission reduction units shall be supplemental to domestic actions for the purposes of meeting commitments under Article 3" and "any such trading shall be supplemental to domestic actions for the purpose of meeting quantified emission limitation and reduction commitments under that Article". It is clear that the objective pursued by this provision is to avoid that the developed countries exclusively rely on the carbon credit obtained through the investments in sustainable projects in developing countries, rather than reducing their own internal emissions. What's more, another element that characterized all these three flexible mechanisms is given by the reconciliation of all climate-environmental benefits generated

⁴⁵ Kyoto Protocol 1997, art. 2 and 3.

⁴⁶ D.FREESTONE, C.STRECK (edited by) *Legal Aspects of Implementing the Kyoto Protocol Mechanisms: Making Kyoto Work*, New York, 2005, 107; M. MONTINI, *Le politiche climatiche dopo Kyoto. Interventi a livello nazionale e ricorso ai meccanismi di flessibilità*, in *Riv. Giur. Amb.*, 1999, 1, 135 ss.; ID., *Il cambiamento climatico e il Protocollo di Kyoto*, in *Quaderni della Riv. Giur. Amb.*, 2006.

by flexible mechanisms to tradable carbon credit. Indeed, the reduction of CO₂ emissions achieved through the implementation of flexible mechanisms is rewarded by the issuance of "credits," which are referred to by different names depending on the specific mechanism involved.⁴⁷ Emission Reduction Units (ERUs) if they come from JI projects, Certified Emission Reductions (CERs) if they come from project included in the CDM. Conversely, the Assigned Amount Units (AAUs) are emissions rights outlined within the IET framework.⁴⁸ However, the logic behind these three flexible mechanisms is very different, as it will be explained in the following paragraph.

2.1 The Kyoto Protocol: a new way to face the reduction of the CO₂ emission through emission trading mechanisms

The International Emission Trading differs from the other two flexible mechanisms as it is based on a *cap and trade* approach. Indeed, whereas the JI and the CDM, as will be explain in the next paragraph, focus on natural resources and develop projects to reduce greenhouse gas emission, the purpose of the Emission Trading is to enable Annex II Countries to trade greenhouse gas emission reduction units among themselves. Indeed, according to the cap and trade mechanism, a limit is set on emissions for regulated entities, ensuring that the trading of emission rights occurs within the established limit. These emission rights are commonly referred to as Assigned Amount Units (AAUs).⁴⁹

This facilitates the achievement of their binding reduction targets under the Kyoto Protocol in a more efficient and cost-effective manner. Therefore, the

⁴⁷ E. CICIGOI, P.FABBRI, *Mercato delle emissioni ad effetto serra*, 2007, Bologna, 13.

⁴⁸ All these units correspond to one ton of CO₂ equivalent emitted into the atmosphere. See Decision 9/CMP.1 of March 30, 2006 (FCCC/KP/CMP/2005/8/Add.2).

⁴⁹ M. WEMAERE, *Legal nature of Kyoto Units* in DOUMA et al. (edited by) *The Kyoto Protocol and Beyond*, The Hague, 2007, 71 ss.

use of this mechanisms is restricted to Annex II parties, as explicitly stated in Article 17 of the Protocol.⁵⁰

In fact, the IET allows obligated Countries listed in Annex II of the Protocol to trade carbon credits with other Annex II Countries that have not been able to keep their emissions below the threshold assigned to them by the Protocol. In this way industries might become motivated to reduce their emissions as much as possible in order to sell the excess and generate profits.⁵¹ What's more, if the technological innovations to make the industry more environmentally friendly are more expensive than tradable permits (or *allowances*), it will be more cost-effective for operators to purchase new emissions allowances; this is why the economic value of permits should be established in a way that incentivizes virtuous behavior by market participants.⁵² However, this mechanism cannot effectively replace other types of solutions adopted internally by states to reduce the quantity of emissions.⁵³ It's worth noting that the Kyoto Protocol does not create any rights to emissions or the atmosphere, but it only creates the right for some Parties to a limited pollution for a defined timeframe. Clearly the ability of Annex I Parties to trade AAUs does not create public ownership over the atmosphere.⁵⁴

To take part of the emission trading market it is necessary to satisfy some requirements of eligibility, such as: being a signatory country of the Protocol, have a quantity of emissions allocated under the same Protocol, have access to a precise data collection system on internal emissions that is constantly updated; have a national emissions registry and fulfil the obligations of emissions inventory required by international regulations.⁵⁵ The transfer of the allowances take place through transactions between

⁵⁰ M.MONTINI, *Il Protocollo di Kyoto e il clean development mechanism: aspetti giuridici e istituzionali: l'esperienza nei Balcani*, Milano 2008, 17.

⁵¹ G. ROSSI, *Diritto dell'ambiente*, VI ed., Torino, 2021,336; P.DELL'ANNO, E. PICOZZA (edited by), *Trattato di diritto dell'ambiente*, Padova, vol. I, 2012,58 ss.

⁵² Consistently with the carbon market logic explained in Par. 1.3.

⁵³ Kyoto Protocol, art. 17.

⁵⁴ Decision 2/CMP. 1: Principles, nature and scope of the mechanisms pursuant to Article 6, 12 and 17 of the Kyoto Protocol.

⁵⁵ Decision 13/CMP.1, 30 March 2006 (FCCC/KP/2005/8/Add. 1), par. 2.

national registers, coordinated by the International Transaction Log (ITL) which is administered by the UNFCCC Secretariat.⁵⁶ Ultimately, the implementation of the International Emission Trading does not preclude the adoption of similar internal mechanisms, as long as they aim to achieve the objectives established in the Protocol.⁵⁷ In fact, it is worth noting that this provision was strongly advocated by the European Union precisely for the purpose of creating its own internal market for emission allowances. It is however interesting to underline that the EU's initial attitude on using emissions trading as a tool to combat climate change was sceptical; such opinion changed after the Kyoto Protocol.⁵⁸ In fact, as already mentioned, the concrete implementation of this third flexible mechanism has occurred only within the European Union through the EU Emission Trading System Directive (EU ETS).

2.1.1 The other Kyoto Flexible Mechanisms: Joint Implementation and Clean Development. The *baseline and credit* approach

As already mentioned,⁵⁹ the Joint Implementation (JI) and the Clean Development Mechanism (CDM) are both mechanisms that operate based on a baseline-and-credit approach.⁶⁰

In the *baseline and credit* approach, a reference scenario (*baseline*) is established to assess the reduction of pollutant substances. This *baseline* serve as a benchmark against which emissions reduction are measured. It represents a hypothetical projection of the emission levels that would have been reached in the absence of the project. In fact, for each actual reduction

⁵⁶ S.SIMONETTI, R.DE WITT WIJNEN, *International Emissions Trading and Green Investment Schemes*, in D.FREESTONE, C.STRECK (edited by) *Legal Aspects of Implementing the Kyoto Protocol Mechanism cit.*, 413.

⁵⁷ UNFCCC, art. 4, par. 2, lett. b) and Kyoto Protocol, art 4, par.1.

⁵⁸ J.H.KELLY, *Re-Evaluating the Origins of the European Union's Emissions Trading Scheme: The Europeanisation of Emissions Trading*, in V. SANCIN (edited by), *International Environmental Law: Contemporary Concerns and Challenges*, Ljubljana, 2012, 91 ss.

⁵⁹ See Par. 1.3.

⁶⁰ R. DE WITT WIJNEN, *Emissions Trading under Article 17 of the Kyoto Protocol*, in D.FREESTONE, C.STRECK (edited by), *Legal Aspects of Implementing the Kyoto Protocol Mechanisms: Making Kyoto Work*, cit., 408 ss.

achieved, a credit is issued which is calculated based on the difference between the actual emissions and the baseline emissions. The company has the option to either use the credit for its own activities or sell it to an operator exceeding the reference baseline. The exchange involves reductions in emissions that have already occurred and are certified in the form of emission credits or *offsets*. However, since there is no maximum limit set beyond which the release of pollutant substances is not allowed, concerns may arise regarding the entry of new facilities in the system.⁶¹

The JI refers to projects which are realized by Annex I (UNFCCC) Countries to reduce emissions from human activities or to implement the use of the before mentioned “*carbon sinks*” existing in those countries.⁶² These projects generate Emission Reduction Units (ERUs), which represent the units of emission reductions achieved. ERUs quantify the savings obtained in terms of emissions due to the implementation of these projects and they can be traded among the actors involved.

According to the Protocol, the functioning of the JI is based on a comprehensive process of approval and accreditation.⁶³ This process is tied to verifying whether the requesting country (or countries) meets specific requirements and assessing the intrinsic characteristics of the proposed project. As for the approval mechanism, however, it is structured into two main categories, depending on whether or not the applicant state meets the above eligibility requirements.⁶⁴ In the first case (Track 1) upon successful verification by the Kyoto Protocol Compliance Committee, interested parties send to the UNFCCC Secretariat the documentation outlining national procedures and guidelines for the development of JI projects. If the outcome of the verification is positive, the project can be activated, and the host country can legitimately register and accredit the relevant ERUs. In the absence of the eligibility requirements, there are two main stages which

⁶¹ R. LOSKE, S. OBERTHUER, *Joint Implementation under the Climate Change Convention*, in *Int. Env. Aff.*, 1994, 46 ss.

⁶² Kyoto Protocol, art. 6.

⁶³ Guidelines for implementation of article 6 of the Kyoto Protocol (Decision 9/CMP.1.)

⁶⁴ For the list of the eligibility requirements, see Decision 9/CMP.1 (FCCC/KP/CMP/2005/8/Add.2), Art. 21(a-f).

consists in the project's determination and the verification of its characteristics (Track 2). The activities are carried out under the supervision of the Joint Implementation Supervisory Committee (JISC), which relies on the work of independent entities. These independent entities have to assess the *Project Designed Document* (PDD) within 45 days. If the outcome of the assessment is positive the project can be implemented in the hosting State.⁶⁵

The Clean Development Mechanism (CDM) is a collaborative initiative among Annex II Countries or entities to undertake projects in non-Annex I countries under the UNFCCC. The primary objective of these activities is to promote sustainable development in developing countries while also reducing greenhouse gas emissions. The CDM allows developed countries to invest in emission reduction projects in developing countries and earn Certified Emission Reductions (CERs) as credits for their own emissions reduction targets. This mechanism aims to transfer technology, knowledge, and financial resources to developing countries, helping them to mitigate climate change while promoting sustainable development. Therefore, the ultimate scope of this mechanism, as aligned with the objectives stated in Article 4 of the UNFCCC, is to provide assistance and facilitate the financing of projects aimed at mitigating climate change in developing countries, which are not bound by the obligations of the Kyoto Protocol. Also, in these projects the "Investor States" receive Certified Emission Reductions (CERs) as a form of compensation. These CERs reflect the difference between the emissions generated with the project and the emissions that would have occurred in the absence of the project. Each credit corresponds to one ton of carbon dioxide (CO₂) that has been effectively reduced or mitigated through the project's activities.

In addition, the procedural process that operators must follow to register projects with the Executive Board of the UNFCCC is characterized by its

⁶⁵ J.VÄYRYNEN, F.LECOQ, *Track One JI and "Greening of AAUs": How Could It Work?*, in D.FREESTONE, C.STRECK, *cit.*, 156 ss.

complexity. It involves two main phases: the project development phase and the project implementation phase.

During the project development phase, the following steps are undertaken: the preparation of a Project Design Document (PDD) by the project proponent, which includes all relevant information about the project and the amount of CO₂ to be reduced from the atmosphere; the approval of the document by the designated national authorities (DNAs) of both the host Country and the Annex I Country; then, the selection of an accredited Operational Entity (DOE) is necessary to register the project with the Executive Board of the UNFCCC using the PDD, followed by a formal registration request by the DOE to the Board in a dedicated international registry (CDM registry). Once the project is registered, the second phase may start, which focuses on its implementation, establishing a monitoring plan, and estimating the emissions reduction for verification and certification by the DOE. The certification report includes a request to the Executive Board for the issuance of Certified Emission Reductions (CERs) credits.⁶⁶ The very long procedure that is required for the issuance of the credits might compromise the effectiveness of the mechanism.

In fact, there have been several critics of the CDM projects, particularly regarding the actual benefits for the host countries. Additionally, challenges have arisen in accurately determining the equivalence between the emissions that have been reduced and those that have been compensated. Furthermore, there is a risk, even in the case of Joint Implementation (JI), of attributing more credits to a project than the actual emission reduction that was achieved. This is due to the inherent difficulty of accurately determining the quantity of emissions that would have occurred in the absence of the project.⁶⁷

In conclusion, despite the significant political obstacles and the non-ratification by the United States, which have undermined the effectiveness

⁶⁶ G. D'ANDREA, *La lotta ai cambiamenti climatici*, in R. GIUFFRIDA, F. AMABILI (edited by), *La tutela dell'ambiente nel diritto internazionale ed europeo*, Torino, 2018, 234.

⁶⁷ L. LOHMANN, *Carbon Trading: A Critical Conversation on Climate Change, Privatization and Power*, in *Development Dialogue*, 2006, 55.

of the Protocol's provisions, it is important to highlight that the Kyoto Protocol demonstrated a willingness to address the climate issue through a market-sensitive approach on a global scale. This paved the way for the European Emission Trading System, which will be discussed in the next chapter.

3 The unification of the Kyoto's flexible mechanisms in the new Sustainable Development Mechanism (SDM): the 2015 Paris Agreement

In December 2015, the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) reached a landmark climate agreement known as the Paris Agreement (PA) during the 21st Conference of the Parties (COP21). The Paris Agreement aims to address the global challenge of climate change.

In fact, as Article 2(a) affirms, the aim of the Agreement is “to hold the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above preindustrial levels [...]”. This aim will be pursued through a *top down* approach, which will place the emphasis on State's self-responsibility, applying a low-binding model where the commitments to be pursued are not imposed from above (as in the *bottom up* approach of the Kyoto Protocol) but directly by the States, which adhere to them in good faith. Indeed, Article 4(2) of the PA stipulates that each ratifying Party is required to prepare, communicate, and maintain a list of activities and binding commitments known as National Determined Contributions (NDCs). These NDCs represent the specific climate actions and targets that each Party commits to undertake in order to contribute to the global effort of mitigating climate change. Therefore “The Paris Agreement moves away from mutually negotiated, enforceable reduction requirements. Instead, under the Paris

Agreement, all Parties make reduction pledges and have considerable flexibility to define the stringency of those pledges”.⁶⁸

Given the Paris Agreement complete reversal of perspective, the question arises about the fate of market-based instruments, which were the pillars of the previous system outlined by the Kyoto Protocol.

It is worth noting that the word "market" does not appear in the text of the Agreement. Therefore, it can be inferred that the primary objective of market mechanisms under the Paris Agreement is different from that of the Kyoto Protocol. While the Kyoto Protocol primarily aimed to achieve maximum economic efficiency through market mechanisms, the focus of these mechanisms under the Paris Agreement is primarily on pursuing reduction and mitigation objectives. The market mechanisms, such as emissions trading, serve as tools to support the Parties in achieving their respective NDCs and contribute to the overall goal of limiting global temperature rise. The emphasis is on reducing greenhouse gas emissions and the rise of global temperature together with promoting sustainable development rather than solely maximizing economic efficiency.⁶⁹

Article 6(2) of the Paris Agreement introduces two new mechanisms related to the emission trading. Firstly, although not explicitly referring to market-based instruments, it allows for the use of *Internationally Transferred Mitigation Outcomes* (ITMOs) on a voluntary basis. The aim is to connect national and regional emissions trading systems, as well as various domestic climate policies, in order for the Parties to engage in cooperative approaches to achieve their NDCs.⁷⁰

In addition, the *Sustainable Development Mechanism* (SDM) will be introduced, which is a new flexible mechanism designed to combine the

⁶⁸ C.HOROWITZ, *Paris Agreement*, in *International Legal Materials*, Cambridge, 2016, vol. 55, n. 4, 740 ss.

⁶⁹ D. BODANSKY, *The Paris Climate Change Agreement: A New Hope?* Cambridge, 2016, vol. 110, n. 2, 307.

⁷⁰ D. BODANSKI, S.A.HOEDL, G.E.METCALF, R.N.STAVINS, *Facilitating Linkage of Climate Policies Through the Paris Outcome*, in *Climate Policy*, 2015, n. 1, 14 ss.

functions of the Kyoto Protocol's JI and CDM. The SDM aims to promote sustainable development while facilitating emissions reductions.⁷¹

A first difference with the Kyoto's mechanisms lies in the surpassed distinction between Annex I and non-Annex I. According to Article 6.4 (d), the new instruments have to deliver an overall mitigation in the global emissions." Indeed, the new formulation of the Paris Agreement introduces a more tangible and ambitious approach compared to the mechanisms of the Kyoto Protocol: indeed, it emphasizes the need for actual emission reductions, rather than simply transferring emissions from non-Annex I Parties to Annex I Parties (as it occurred under the Kyoto mechanisms). This shift aims to avoid a potential "zero-sum game" scenario where emissions reductions in one country are merely offset by increased emissions in another.⁷²

What's more, Article 6.4 mechanism is considered by some parties as highly beneficial and capable of addressing various challenges. One key advantage is the avoidance of the proliferation of different mechanisms. While having multiple options may seem favourable, it can be burdensome for parties with limited resources to evaluate and choose among them. Another benefit of having a UN-run mechanism, as seen by stakeholders in certain jurisdictions, is the assurance of "quality" provided by the UN's "stamp of approval". In the case of the Clean Development Mechanism (CDM), for example, the complexity of the regulatory system was mitigated to some extent by the guarantee of delivery from a UN registry, which was highly valued.⁷³ Additionally, the establishment of an Article 6.4 mechanism could contribute to the prevalence of a single standard, providing stability and liquidity in the market. This would ensure consistency and facilitate smooth trading operations. Overall, the creation of an Article 6.4 mechanism is viewed as a way to address multiple concerns, including resource

⁷¹ Paris Agreement 2015, Article 6.4.

⁷² The implementation rules of Article 6 were only defined during the Glasgow COP26, where the guidelines for a global carbon market were elaborated in the Paris Rulebook.

⁷³ A. MARCU, *Article 6 of the Paris Agreement: Reflections on Party Submissions before Marrakech*, 2017, Geneva, 13 ss.

limitations, quality assurance, and market stability, while promoting harmonization and efficiency in climate action.⁷⁴

⁷⁴ H.OLSENA, C.ARENSBAND, F. MERSMANN, *Learning from CDM SD tool experience for Article 6.4 of the Paris Agreement*, UK, 2016, vol. 18, n. 4, 392 s.

CHAPTER II

THE EUROPEAN EMISSION TRADING SYSTEM (EU ETS): THE COMBINATION BETWEEN THE MARKET AND THE PUBLIC REGULATOR

SECTION I: The Emission Trading Scheme: the cornerstone of the EU's implementation of the Kyoto Protocol; **1.** The ratification of the Kyoto Protocol and the Burden Share Agreement; **2.** The ETS' different phases in the light of the Kyoto commitments

SECTION I: The Emission Trading Scheme: the cornerstone of the EU's implementation of the Kyoto Protocol:

In this chapter, the actions taken by the European Union within the international framework dictated by the Kyoto Protocol will be analysed. The primary focus will be on the European Union's approach to greenhouse gas emissions trading, which is known as the Emission Trading Scheme (EU ETS) embodied in Directive 2003/87/EC.⁷⁵ The directive imposes emission restrictions on approximately 10,000 installations, including those within the energy sector and manufacturing industry. It also extends its application to aircraft operators that fly between these countries or depart for Switzerland and the United Kingdom. As a comprehensive initiative, the EU ETS accounts for approximately 40% of the European Union's total greenhouse gas emissions. Furthermore, starting from 2024, it will additionally encompass emissions from maritime transport activities.⁷⁶ Since the 1990s, the EU has established its leadership in the area of international climate protection through both its domestic and external

⁷⁵ Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, 13 October 2003.

⁷⁶ https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets_en

climate policies,⁷⁷ demonstrating a steadfast commitment to addressing the climate crisis and driving the transition towards a sustainable future.⁷⁸ The emergence of European leadership in global environmental governance can be traced back to the 1992 UN Conference on the Environment and Development, where climate change was given serious attention in a multilateral forum. Both the EU as a whole and its Member States individually became signatory parties to the resulting treaty, known as the United Nations Framework Convention on Climate Change (UNFCCC), which has been already mentioned in the previous chapter.⁷⁹ Subsequently, the EU and its Member States also played a significant role in the adoption of the Kyoto Protocol in 1997.⁸⁰ Indeed, during the negotiations of the Kyoto Protocol in 1997, the EU actively supported stringent international commitments in terms of emission reduction targets. The EU's objective was to reduce its greenhouse gas (GHG) emissions by 20 percent from the 1990 level.⁸¹ Yet, the EU's multilateral efforts in environmental international cooperation have been combined with unilateral efforts to influence and "lead by example" other international actors to embrace more ambitious climate change measures.⁸² In fact, during the year 2000, the Green Book on the emission trading system has been approved in order to create community-based mechanism for emission permit trading.⁸³ Over the past four decades, the European Union's implementation of Environmental Action Programs serves as a testament to its proactive stance and resolute commitment to becoming a frontrunner in the global arena. The EU's initial Environmental Action Program was established as far back as 1973, with

⁷⁷ S. OBERTHUR, C. ROCHE KELLY, *EU Leadership in International Climate Policy: Achievements and Challenges*, in *The International Spectator*, 2008, 44.

⁷⁸ S. OBERTHÜR, C. DUPONT, *The European Union's international climate leadership: towards a grand climate strategy?* in *Journal of European Public Policy*, 2021 28 (7) 1096.

⁷⁹ See Chapter I par. 2.

⁸⁰ V. L. BIRCHFIELD, *Coercion with kind gloves? The European Union's role in shaping a global regulatory framework for aviation emissions*, in *Journal of European Public Policy*, 2021, 22(9) 1276 ss.

⁸¹ S. OBERTHUR C. ROCHE KELLY *EU Leadership in International Climate Policy*, cit, 44.

⁸² *Ibid* 36.

⁸³ EUROPEAN COMMISSION, *Green Paper on greenhouse gas emissions trading within the European Union*, Brussels, COM(2000) 87 final.

the primary objective of establishing the groundwork for environmental policy.⁸⁴ Following the European Climate Change Program (ECCP I) in June 2000, a series of initiatives were subsequently adopted to comply with the obligations imposed by the Kyoto Protocol. These initiatives were aimed at implementing measures to reduce greenhouse gas emissions and achieve the targets set forth in the Protocol, including the proposal for the European Union's ratification of the Kyoto Protocol, which was later achieved through Council Decision 2002/358/EC on 25th April 2002, and the proposal for a directive on emissions trading. In this framework, the ETS Directive was adopted in 2003.⁸⁵ This directive marked a significant milestone in the EU's efforts to address climate change, creating the first international system of emission trading.⁸⁶ The EU ETS mechanism, in contrast to the Kyoto one, focuses not on states but on particular categories of businesses. It implements a centralized system to prevent price variations and, consequently, any imbalances in competition.

1. The ratification of the Kyoto Protocol and the Burden Share Agreement

The European Union formally ratified the Kyoto Protocol in 2002, marking the culmination of a four-year process since the EU's initial signing of the Protocol. This ratification was accomplished through Council Decision 2002/358/EC. By making this commitment, the EU pledged to reduce its emissions by 8% in comparison to pre-industrial levels within the period 2008-2012. Article 4 of the Protocol granted the EU the power to reallocate emission reduction targets among its Member States, provided that the

⁸⁴ The most recent Environmental Action Programme, known as the 8th, became effective in May 2022. This program reinforces the European Union's enduring vision of achieving a sustainable existence within the boundaries of the planet by the year 2050. It outlines crucial objectives to be accomplished by 2030 and lays down the necessary prerequisites to successfully attain these goals. By reiterating its commitment to environmental preservation and sustainable living, the EU aims to pave the way for a better and more environmentally conscious future. F. FONDERICO, *Sesto Programma di azione UE per l'ambiente e "strategie tematiche"*, in *Rivista di Diritto dell'Ambiente*, 2007, 4, 696.

⁸⁵ Directive 2003/87/EC.

⁸⁶ V. L. BIRCHFIELD, *Coercion with kind gloves?* cit, 1278.

overall global reduction target remained unaffected.⁸⁷ On June 16, 1998, the ministers of the European Union signed a significant agreement known as the "Burden Share Agreement," which held legally binding implications and sought to distribute the responsibility of reducing greenhouse gas emissions among all Member States. According to this agreement, each member state would contribute to emission reduction efforts in proportion to their respective levels of emissions. However, the total sum of anthropogenic emissions within the European "bubble" had to be reduced by a minimum of 8% in comparison to the total emissions recorded in 1990. The Burden Share Agreement established specific emission limits for individual states, categorizing them into three distinct groups: Stabilization of emissions, which included Finland and France, aiming to maintain their emissions at the same levels as in 1990; reduction targets, which included Austria (-13%), Belgium (-7.5%), Denmark (-21%), Germany (-21%), Italy (-6.5%), Luxembourg (-28%), the Netherlands (-6%), and the United Kingdom (-12.5%) to whom reduction targets with specific percentage goals were assigned, indicating the extent by which their emissions needed to decrease; controlled increase, that included countries such as Greece (+25%), Ireland (+13%), Portugal (+27%), Spain (+15%), and Sweden (+4%), allowed to a controlled increase in their emissions together with measures to manage and limit this growth. These varied targets were established based on each country's emission historical levels and aimed to work collectively to achieve the overall emission reduction goal.⁸⁸ Indeed, under the Burden Share Agreement, each member state bore individual and joint responsibility for the collective success or failure in achieving the emission reduction target. Considering their emission levels at that time and taking into account their respective economic growth prospects, distinct contributions were established for each state.

It is important to note that certain countries, like Sweden and Germany, already had existing national measures in place that were deemed sufficient

⁸⁷ Kyoto Protocol, Article 4.

⁸⁸ V.JACOMETTI, *Lo scambio di quote di emissione: analisi di un nuovo strumento di tutela ambientale in prospettiva comparatistica*, Milano, 2010, 178.

to meet their Burden Share commitments. However, for other states such as Italy and the Netherlands, the assigned targets were seen as excessively demanding, due to their higher emission levels. This disparity in the ability to meet the reduction targets highlighted the challenges faced by certain countries in aligning their emission reduction efforts with the overarching collective objective.⁸⁹ When the ten new Member States joined the EU in 2004, individual targets were assigned to them without altering the overall 8% reduction objective. It was considered more appropriate to integrate them into the collective emission reduction efforts, commencing from 2013, despite their prior commitment to reducing emissions by ratifying the Kyoto Protocol. Although the burden-sharing agreement did not explicitly mandate Member States or the EU as a whole to implement the flexible mechanisms of the Kyoto Protocol, the European Union took the initiative to enact the legislative framework, specifically the Emissions Trading System (ETS) outlined in Directive 2003/87/EC. The purpose of this system was to facilitate emission reduction endeavours and collaboratively achieve the desired targets as agreed upon.⁹⁰ Indeed, the European emissions trading system was instituted with the primary objective of ensuring the fulfilment of commitments made under the Kyoto Protocol. Its conception involved a comprehensive community-wide approach to prevent any distortions or instances of competitive abuse that might have emerged if fragmentation had occurred. However, due to the delayed implementation of the Kyoto Protocol, with binding obligations for participating states coming into effect only in 2005, a significant period elapsed during which these states experienced a rise in their respective pollutant emissions.⁹¹

2. The ETS' different phases in the light of the Kyoto commitments

⁸⁹ B. POZZO, *Il nuovo sistema di Emission Trading comunitario. Dalla Direttiva 2003/87/CE alle novità previste dalla Direttiva 2009/29/CE*, Milano, 2010, 3.

⁹⁰ C. LEONARDI, *Le emissioni di gas ad effetto serra nelle politiche delle Nazioni Unite e della Comunità Europea*, in *Rivista Giuridica dell'Ambiente*, 2005, 1, 14.

⁹¹ S. NESPOR, *Il Protocollo di Kyoto è entrato in vigore*, in *Riv. giur. amb.*, n. 1, 2005, 1.

Prior to examining the legislative framework of the ETS Directive as envisioned by the European legislator, it is crucial to first explore the different phases of its implementation and how the emission trading system has evolved over time.

First and foremost, it is relevant to focus on the European legislator's decision to employ the instrument of the directive, which, according to Article 288 TFEU, binds the Member States solely concerning the objective to be achieved, while granting autonomy to national authorities regarding the forms and methods of its implementation.⁹² Indeed, the choice of the using a Directive is consistent with the fact that, being an environmental measure, Article 193 TFEU applies, allowing Member States to maintain and enact measures for even greater protection. This aligns with the principle of subsidiarity, which recognizes that certain environmental matters are better addressed at the national level while still pursuing the common objective set out in the Directive. Nevertheless, the institutional autonomy granted to the Member States in their implementation systems has brought about several challenges for countries, including Italy, as will be examined in the third chapter.

The initial phase of implementation, occurring between 2005 and 2007, commonly referred to as the “pilot phase”, was characterized by an experimental “learning by doing” approach. This method aimed to gather valuable insights to improve the system in subsequent stages. The primary objective was to establish and strengthen the system before the commencement of the International Emission Trading, as specified in Article 17 of the Kyoto Protocol.

Throughout this initial three-year period, no obligatory reduction targets were imposed on the Member States. The main emphasis was placed on gaining experience in operating within the new carbon market. The goal was to ensure active participation of states and businesses in the system while maximizing cost advantages.⁹³

⁹² Article 288 of Treaty on the Functioning of European Union (TFEU).

⁹³ C. EGENHOFER, *The making of EU Emission Trading Scheme: status, prospects and implications for business*, in *European Management Journal*, 2007, 258(6) 454.

Concerning the allocation of emission allowances to Member States, quotas were determined based on the self-assessed national requirements. This flexibility in determining the number of allowances resulted in a surplus of allowances in the market, leading to a significant decrease in their prices. By 2007, this surplus had become so pronounced that the prices of allowances plummeted to zero. Additionally, the global economic crisis of 2008 further exacerbated the situation, impacting industrial activities. Beyond the "external" challenges faced by the system, the initial three-year period also encountered internal difficulties stemming from decisions made by the European legislature. One primary concern was the relatively tight timeline set by European legislation to launch the trading system. As a consequence, Member States were ill-prepared to implement the community regulations, which were notably ambiguous and lacked precision.⁹⁴

Moreover, during the initial phase, concerns regarding competition surfaced in relation to the distribution of allowances. Approximately 95% of the total allowances were allocated for free to existing installations, while new entrants were required to purchase their allowances. This resulted in a competitive disadvantage for the new entrants, as they faced higher costs compared to the existing installations that received their allowances without any charge.⁹⁵ It can be asserted that the defining characteristic of this initial period was uncertainty, particularly concerning the obligations resulting from the implementation of the Kyoto Protocol.

As for the second phase, known as the "Kyoto phase" since it aligns with the Kyoto Protocol's period, it spanned from 2008 to 2012 and represented the first true operational period of the system.

The trading of emission rights between facilities located in different countries involved adjusting the permitted emissions from one country to another, without altering the overall number of tons regulated by Kyoto. The adjustment of the allocated tons of CO₂ for each country needed to be recorded by the NAC (National Competent Authority) in a dedicated

⁹⁴ B. POZZO, *Il nuovo sistema di Emission Trading comunitario* cit., 10.

⁹⁵ V. JACOMETTI, *Lo scambio*, cit. 114 ss.

national registry. The interconnection of these registries would subsequently facilitate the verification of compliance with the objectives. During this period, it was evident that there was an excess supply of allowances, leading to price instability. Additionally, Iceland, Liechtenstein, and Norway joined the system during this phase. Furthermore, the scope of the directive was expanded to include the aviation sector through Directive 2008/101/EC, which amended the original provisions of the 2003 directive. The 2008 directive, also known as the Aviation Directive, was part of the broader 20-20-20 package, aimed at reducing greenhouse gas emissions. This package comprised four key measures: 1) The Effort Sharing Decision, which required Member States to reduce greenhouse gas emissions in sectors not covered by the ETS, such as residential, agricultural, and transport sectors; 2) Directive 2009/28/EC, promoting the use of renewable energy sources to achieve the 20% threshold; 3) Directive 2009/31/EC, creating a legal framework for the capture and geological storage of CO₂ (CCS); 4) Directive 2009/29/EC, amending the European greenhouse gas emission trading system with effects starting from 2013.⁹⁶

As mentioned earlier, a significant challenge that affected both the first and second phases was the excessive volatility of emission allowance prices. Additionally, the considerable discretion granted to Member States resulted in substantial heterogeneity in the implementation of the directive, which, in turn, affected the overall effectiveness of the system in achieving CO₂ reduction targets.

Initially, the ETS directive had specified in Article 9 that each member state was responsible for independently formulating its National Allocation Plan (NAP). These plans would include the allocation of allowances for the reference period and their distribution among individual installations. However, as we will explore further, various instances of fraud in the ETS

⁹⁶ A. GERBETI, *La nuova direttiva europea sullo scambio delle quote di emissione: luci ed ombre*, in *Rivista Giuridica dell'Ambiente*, 2010, 1, 184.

market during those years also shed light on issues with the monitoring system as outlined in the directive.⁹⁷

In contrast, the third phase of the European emissions trading system extended from 2013 to 2020. Throughout this phase, a notable change was made in the allocation of allowances, which now spanned an eight-year period instead of the previous five years one. The objective behind this alteration was to offer businesses more stability and predictability in planning their long-term emission reduction investments. It is essential to emphasize that these efforts to reduce emissions are integral to the broader framework of the Seventh Environmental Action Programme (EAP).⁹⁸

Moreover, a significant shift took place during this period, moving from a decentralized cap-setting approach to a centralized one. Under the centralized system, the Commission directly determined a single cap for emission allowances, eliminating the individual discretion of each member state in defining the overall number of allowances to be allocated. Additionally, a noteworthy development during this phase was the transition towards full auctioning of allowances, which aimed to promote greater market competition by moving away from the previous practice of grandfathering allowances.⁹⁹ Indeed, at the start of 2013, the EU ETS system encountered a significant structural imbalance between the demand and supply of emission allowances. To rectify this imbalance, which resulted in an excess of allowances, several corrective measures were devised, one of which was the implementation of the Market Stability Reserve (MSR) in 2019. The Market Stability Reserve serves as an automatic mechanism designed to regulate the supply of allowances in the market based on predefined criteria. Its purpose is to stabilize the market by absorbing surplus allowances during times of excess and releasing allowances when there is a scarcity. This mechanism is geared towards

⁹⁷ S. BORGHESI, M. MONTINI, *The Best (and worst) of GHG emission Trading Systems: Comparing the EU ETS with its Followers*, in *Frontiers in Energy Research*, 2016, 4.

⁹⁸ Decision N.1386/2013/EU of The European Parliament and of The Council on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet', 20 November 2013

⁹⁹ See par. 4.

reducing market volatility and maintaining a more balanced and stable carbon market within the EU ETS.

In 2014, the Climate and Energy Framework 2030 was established, outlining three primary objectives to be achieved by the year 2030: to achieve a substantial 40% reduction in greenhouse gas emissions compared to pre-industrial levels; to ensure that at least 32% of the energy demand is met from renewable sources; to attain a minimum of 32.5% improvement in energy efficiency.

These ambitious targets were set with the purpose of making significant contributions to the global fight against climate change. They aim to facilitate a shift towards sustainable and renewable energy sources while promoting greater energy efficiency, all with the goal of fostering a more environmentally responsible and sustainable future.¹⁰⁰ Indeed, the objectives set in the Climate and Energy Framework 2030 align with the European community's long-term strategy outlined in the Roadmap 2050. This roadmap aims to achieve a substantial reduction of 80% to 95% in greenhouse gas emissions compared to pre-industrial levels. To reach this goal, the roadmap sets intermediate milestones of 40% reduction by 2030 and 60% reduction by 2040.

However, the 40% reduction target was deemed insufficient, particularly when compared to the more ambitious objectives established by the 2015 Paris Agreement. As a response, the Green Deal, which was approved in 2019, incorporates a set of measures aimed at achieving climate neutrality for the European Union by 2050. This ambitious goal seeks to attain net-zero greenhouse gas emissions, effectively balancing the total emissions produced with an equivalent amount removed from the atmosphere or offset through various environmental actions. The Green Deal represents a comprehensive and transformative strategy designed to address climate change, foster the decarbonization of the economy, promote sustainable

¹⁰⁰ EUROPEAN COMMISSION, Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *A policy framework for climate and energy in the period from 2020 to 2030*, Brussel COM (2014) 15 final.

growth, and ensure the European Union's transition towards a climate-neutral future. It serves as a pivotal framework guiding the EU's efforts in combatting climate change and striving for a more environmentally responsible and sustainable future.¹⁰¹ The implementation of the Green Deal has led to the proposal of the "European Climate Law" (Regulation (EU) 2021/1119) by the European Commission, which aims to enshrine the objective of climate neutrality by 2050 into law. This legislation would legally bind both the European Union and its Member States to adopt all necessary measures to achieve this crucial goal. Furthermore, the Commission has exceeded the previous 40% reduction target for greenhouse gas emissions by 2030 and now plans to accelerate decarbonization by achieving a reduction of 50-55%.¹⁰²

The fourth phase of the European Emissions Trading System (ETS) focuses on bolstering regulations to expedite the reduction of emissions. To align with the objectives laid out in the Paris Agreement, the ETS directive underwent the latest revision, which is captured in Directive 2018/410/EU. Moreover, in November 2018, the European Commission adopted a Strategic Reference Framework for the reduction of greenhouse gas emissions. The primary aim of this framework is to facilitate the transition towards a flourishing, contemporary, competitive, and climate-neutral economy by the year 2050.¹⁰³ The strategy encompasses a set of economic and social transformations that, with the involvement of all sectors of the economy and society, must be undertaken to constrain the temperature increase to 1.5° C, as mandated by the Paris Agreement.

¹⁰¹, EUROPEAN COMMISSION *European Green Deal*, Brussel, 11 December 2019, COM(2019) 640 final. The Green Deal aims to achieve an ecological transition that, on one hand, pursues climate neutrality to safeguard citizens' health and, on the other hand, endeavours to modernize the European economy through a new model of competitive and efficient environmental sustainability.

¹⁰² EUROPEAN COMMISSION, *Stepping up Europe's 2030 climate ambition. Investing in a climate-neutral future for the benefit of our people*, 17 September 2020, COM (2020) 562 final, p. 3.

¹⁰³ EUROPEAN COMMISSION, *A Clean Planet for all. A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy*, Brussel, 28 November 2018 COM (2018) 773 def.

SECTION II: The main characteristics of the EU ETS. From Directive 2003/87/EC to the current regulation; **1.** Scope of application of the ETS Directive; **1.2.** The inclusion of the aviation emissions in the ETS scheme with Directive 2008/101/EC **2.**The emissions cap's determination: from the NAP (National Allocation Plans) to the top-down approach of Directive 2009/29/EC; **3.**The uncertainty about the legal nature of the emissions' allowances; **4.**The allowances' allocation methods: grandfathering and auctioning; **4.1.** The Market Stability Reserve (MSR) **5.** The new CBAM Regulation. A new way to solve the problems of free allowances and of carbon leakage; **6.** The monitoring, reporting, verification and accreditation procedures (MRVA) **6.1** The amendments of Directive 2018/410/EU on the MRVA **7.** The enforcement mechanism

SECTION II: The main characteristics of the EU ETS. From Directive 2003/87/EC to the current regulation

As previously indicated in the preceding paragraph, the discipline of the European Union Emission Trading Scheme (EU ETS) is entrusted to Directive 2003/87/EC, which has undergone a complex normative evolution, as will be explored further in subsequent discussions. This Directive governs the emissions' trading within a single internal market at the european level, based on the cap and trade model.¹⁰⁴ The public authority sets a maximum quantity (*cap*) that is divided into a specific number of tradable units (allowances) of equivalent value. These allowances are allocated among different entities that have obtained the appropriate authorization to participate in the system. The participants then use these allowances to demonstrate, through a monitoring and reporting system, that they have complied with the objectives set by the public authority.¹⁰⁵

¹⁰⁴ See Chapter I par. 1.3.

¹⁰⁵ B. ACKERMAN, R.B. STEWART, *Reforming Environmental Law*, in *Stanford Law Review*, 1985, vol. 37, 1333-1347; J. NASH, R. RESEVZ, *Markets and Geography: Designing Marketable Permit Schemes to Control Local and Regional Pollutants*, in *ELQ*, 2001, vol. 28, 575 ss.

Therefore, this chapter will delve into the examination of the European emission trading system legislation by breaking it down into its fundamental components and exploring their historical modifications. These components encompass the scope of application of the Directive, the determination of the emissions cap, the method of allocating allowances, the monitoring, reporting, and verification system (MRV), as well as the enforcement mechanism.¹⁰⁶

1. Scope of application of the ETS Directive

According to Article 1 of the ETS Directive, its primary purpose is to promote emission reduction based on criteria of cost-effectiveness and economic efficiency. Over time, the EU legislator has endeavoured to expand the scope of application to include as many sectors as possible, ensuring the market operates efficiently.¹⁰⁷ It is essential to emphasize that the system established by the ETS Directive is mandatory. Consequently, all installations meeting the criteria outlined in the Directive are necessarily included and must comply with its provisions.¹⁰⁸

Article 2 specifies the scope of the Directive, referring to Annex I for activities and Annex II for greenhouse gases regulated within the system, which closely mirrors Annex A of the Kyoto Protocol.¹⁰⁹ However, when the carbon market was established, it was decided that only carbon dioxide (CO₂) emissions would be targeted for reduction. This is because CO₂ is

¹⁰⁶ The aforementioned mutual division is drawn from the work of E. WOERDMAN, *The EU Greenhouse Gas Emissions Trading Scheme*, cit., 51-52. However, it should be noted that this division excludes the scope of application and solely focuses on the ideal structure of the *cap and trade* mechanism. A similar approach is also suggested by V. JACOMETTI, *Lo scambio di quote di emissione. Analisi di un nuovo strumento di tutela ambientale in prospettiva comparatistica*, cit., 185 ss.

¹⁰⁷ Recital n. 25 of Directive 2003/87/EC.

¹⁰⁸ Specifically, “installations” means “a stationary technical unit where one or more activities listed in Annex I are carried out and any other directly associated activities which have a technical connection with the activities carried out on that site and which could have an effect on emissions and pollution” (Article 3 (e) Dir. 2003/87/EC).

¹⁰⁹ The initial version of the Kyoto Protocol applied to six greenhouse gases: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Subsequently, trifluoromethane (NF₃) was also added to the list of regulated gases.

produced in larger quantities compared to other greenhouse gases and is deemed the main responsible for climate change. Nevertheless, following the amendments introduced in 2009, the EU ETS includes, albeit only for specific sectors, the regulation of nitrous oxide (N₂O) and perfluorocarbons (PFCs).

Regarding the activities listed in Annex I, the initial scope of the directive encompassed specific industrial sectors characterized by high energy consumption, leading to substantial emissions. These sectors include activities related to energy combustion, petroleum refineries, coking plants, production and transformation of ferrous metals (such as cement, glass, ceramics, lime, and glass fibers), mineral product processing, and pulp, paper, and paperboard production. Notably, the selective inclusion of the steel industry in the carbon market, while excluding the chemical and non-ferrous metals sectors, serves as a clear illustration of the considerable discretionary authority vested in the EU legislator. This discretion applies to both the formulation of regulations and the administrative aspects of the emission trading system. Indeed, incorporating the chemical sector from the outset of the system's implementation would have incurred high administrative costs due to the need to oversee a large number of industries.¹¹⁰ The selection of the exclusion of other sectors was primarily driven by practical considerations, particularly the ability to accurately compute, record, and verify emissions. For instance, the waste incineration sector was excluded from the initial phase of the market due to the complexity involved in measuring carbon content in waste.

Furthermore, the original text of the ETS Directive envisioned a progressive extension of the system to other sectors. Starting from 2005, the emission trading system could have been applied, subject to Commission approval, to installations engaging in activities listed in Annex I but with lower capacity. What's more, Directive 2009/29/EC has extended the scope of activities covered by the emission trading system to include the production

¹¹⁰ M. D'AURIA *Il principio di uguaglianza e il mercato comunitario delle emissioni inquinanti*, in *Giornale di Diritto Amministrativo*, 2009, 957.

of aluminum and ammonia, as well as activities related to greenhouse gas capture, transport, and storage. Furthermore, starting from January 1, 2012, the aviation sector has also been included in the emission trading system, as will be explained in the next paragraph. In particular, the decision to include the aluminum sector in the European Union Emission Trading Scheme was the subject of the first preliminary ruling referred to the European Court of Justice in the case *Société Arcelor Atlantique et Lorraine et al. v. Commission*. In this case, the petitioner, a steel producer, contested the exclusion of the aluminum and chemical sectors from the scope of the EU ETS, alleging a violation of the principle of equal treatment. The Grand Chamber, in its judgment of December 16, 2008, acknowledged a disparity of treatment in theory but upheld the approach of the directive based on the potential impact that the extension of the EU ETS to the contested sectors would have had. The Court ruled that "*the inclusion of the non-ferrous metals sector within the scope of Directive 2003/87 would have burdened the management and administrative burdens of the emissions trading system to the point where it could not exclude the possibility of a disturbance to the functioning of the system caused by such inclusion during implementation.*"¹¹¹ So, while acknowledging the unequal treatment in theory, the court justified the exclusion of certain sectors from the EU ETS base" on the potential administrative complexities and operational disruptions that could arise from their inclusion.

Furthermore, since a significant portion of the activities listed in Annex I were already covered by Directive 96/61/EC on Integrated Pollution Prevention and Control (IPPC),¹¹² it became necessary to establish a link between the two systems, explicitly stipulated in Article 8 of the Directive. Unlike the ETS system, the IPPC Directive employed the conventional approach of *command and control*, which granted permits for atmospheric pollution. The scope of the IPPC regulations extended to encompass all

¹¹¹ CJEU, *Société Arcelor Atlantique et Lorraine et al. v. Commission*, C-127/07, par. 65.

¹¹² Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control. Subsequently, Directive 2003/87/EC was repealed by Directive 2008/1/EC of the European Parliament and of the Council dated 15th January 2008, which in turn was later replaced by Directive 2010/75/EU.

types of pollution, including CO2 emissions. However, the directive granted competent authorities the right to set limits on emissions likely to be produced in significant quantities by specific installations. This limit clashed with the flexibility of the ETS system, as the installation would no longer have the freedom to choose whether to increase its emissions by purchasing the necessary allowances on the market. As a result, the ETS Directive stipulated that installations covered by it should not be bound by the limits set by the IPPC permits, unless such emissions led to significant pollution at the local level. This exception allowed ETS-covered facilities to operate under the cap and trade scheme without being subject to the rigid emission limits imposed by the IPPC permitting process.¹¹³ Indeed, the EU legislator clearly expressed a preference for managing CO2 emissions through an economic and environmental instrument, namely the emission trading market, over the traditional *command and control system*.¹¹⁴

In conclusion, according to the decentralized approach that initially underpinned the development of the system and to better align the market with any additional measures adopted at the national level, the directive also includes *opt-in* and *opt-out* procedures. Indeed, Article 24 allows Member States, starting from 2008, to apply the EU ETS to "*activities and greenhouse gases not listed in Annex I*", subject to approval by the European Commission. However, this extension must take into account the potential impacts it could have on the internal market, competition, environmental integrity, and the monitoring and control system.¹¹⁵ Furthermore, Article 30, paragraph 1, empowers the European Commission to present proposals for the same purposes, as well as for expanding the list of greenhouse gases in Annex II. Article 27 allows Member States, starting from 2013, to exclude certain installations from the emission trading market. These installations are those that have reported emissions lower than 25,000 metric tons of CO2 equivalent or have a thermal capacity below 35 MWh. However, this

¹¹³ V.JACOMETTI, *Lo scambio di quote di emissione: analisi di un nuovo strumento di tutela ambientale in prospettiva comparatistica*, cit., 2010, 222.

¹¹⁴ A.LOLLI, *L'amministrazione attraverso strumenti economici: nuove forme di coordinamento degli interessi pubblici e privati*, Bologna, 2008, 84.

¹¹⁵ Article 24, par. 1, Directive 2003/87/EC.

exclusion is contingent on the implementation of "*equivalent measures to achieve emission reductions*" at the national level. In other words, if such installations are subject to other national measures that lead to emission reductions equivalent to what they would have achieved under the EU ETS, they can be temporarily excluded from the market.¹¹⁶

1.2. The inclusion of the aviation emissions in the ETS scheme with Directive 2008/101/EC

The prospect of expanding the emission trading system to encompass the transport sector as a means to substantially curtail greenhouse gas emissions across Europe was already contemplated in the initial development of the Directive. It was acknowledged that during the initial stage of implementing the carbon market, the transport sector accounted for approximately one-third of the overall emissions within the European Union. This substantial contribution was primarily attributed to its significant reliance on fossil fuels, particularly products derived from petroleum.¹¹⁷ Accordingly, to address the issue of international aviation emissions, the European Union extended its emission trading scheme (ETS) to the aviation sector in 2008, with plans to include domestic and foreign airlines' emissions beginning in 2012.¹¹⁸ Seven new articles were introduced, ranging from Article *3bis* to Article *3octies*, and a distinction was made between the aviation sector and all other installations categorized as "fixed installations." Directive 2008/101/EC covered international flights that arrived at or departed from an airport within the EU (except for State, military, and emergency flights,

¹¹⁶ Article 27 Directive 2003/87/ EC.

¹¹⁷ M. NINO, *La politica dei trasporti nell'Unione Europea e le problematiche riguardanti la tutela ambientale e lo sviluppo sostenibile*, in *Rivista del Diritto del Commercio Internazionale*, Milano, 2013, 3-4, 237.

¹¹⁸ Directive 2008/101/EC amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community [2008] OJ L 8 (hereinafter 'Aviation Directive', '2008 Directive'); K. KULOVESI, E. MORGERA, *The Role of the EU in Promoting International Standards in the Area of Climate Change*, Edinburgh, 2013, 13 s; K. KULOVESI, *Addressing Sectoral Emissions outside the United Nations Framework Convention on Climate Change: What Roles for Multilateralism, Minilateralism and Unilateralism*, Cambridge, 2012, 199 ss.

which are exempt from the emission trading system).¹¹⁹ The objective of this directive was to prevent airlines from purchasing emission permits solely for the portion of the journey that occurred within EU airspace.¹²⁰ In fact, the emissions were calculated based on the entire flight, including those emitted outside of the EU airspace.¹²¹ However, the volume of emissions was reduced in an insignificant manner, as operators were allocated a number of allowances equivalent to 97% of their historical emissions for the period between January 1, 2012, and December 31, 2012.¹²² The first significant change introduced by the 2008 Directive was the Commission's approach to the allocation of allowances. Unlike before, where individual Member States determined the quantity of allowances to be distributed (bottom-up approach), the responsibility was now placed on the Commission (top-down approach). Another innovation was the provision for a reserve of allowances for new entrants, but this was applicable only to the aviation sector.¹²³ According to Article 3*octies*, the monitoring responsibility was entrusted to individual operators, who were required to communicate to the relevant National Authority, by March 31 of each year, the measures adopted for the control and reporting of emissions. Additionally, by April 30 of each year, they were obliged to surrender a number of allowances equivalent to the amount of emissions produced and already reported to the competent authority through the aforementioned communication. The standard practice of being able to purchase necessary allowances from other participants to cover any surplus would then apply, with the possibility of sanctions in case of non-compliance with the surrender obligation.¹²⁴ The EU's implementation of Directive 2008/101/EC can be understood as a reaction to the lack of global regulatory progress by

¹¹⁹ Directive 2008/101/EC, Annex I, paragraph 2, letters a) - j).

¹²⁰ J. SCOTT, L. RAJAMANI, *Contingent Unilateralism International Aviation in the European Emissions Trading Scheme*, in *EJIL*, Cambridge, 2012, 23(2) 474 ss.

¹²¹ Directive 2008/101/EC, Articles 3c (1) and (2).

¹²² Directive 2003/87/EC as amended by Directive 2008/101/EC, Article 3 *quarter*.

¹²³ In Directive 2003 the only references to new entrants were found in Article 11, paragraph 3, which stated that "*when deciding on the allocation of emission allowances, Member States shall take into account the need to allow new entrants access to such allowances.*"

¹²⁴ Directive 2003/87/EC as amended by Directive 2008/101/EC, Article 3 *octies*.

the International Civil Aviation Organization (ICAO). The ICAO, as designated by the Kyoto Protocol, is the authority responsible for overseeing the efforts of developed countries in limiting or reducing emissions from international aviation. The EU's 2008 Directive can be seen as a measure taken to address the perceived inertia or lack of action from the ICAO in this regard.¹²⁵

The international community raised concerns regarding the legitimacy of the EU's unilateral approach in reducing the aviation emissions, as it triggered a heated international dispute. A considerable number of third countries, including Brazil, China, India, Russia, South Africa, and the United States, expressed their objections and took retaliatory measures in response to the EU's actions. As a retaliatory measure, a declaration endorsed by 23 countries has been put forth, outlining the possibility of pursuing legal action either before the International Civil Aviation Organization (ICAO) or the World Trade Organization (WTO). This indicated a potential escalation of the dispute and highlighted the countries' intent to challenge the EU's actions through formal legal channels.¹²⁶ Furthermore, certain third countries enacted legislation prohibiting their airlines from participating in the EU ETS. For instance, the Chinese State Council issued a directive prohibiting Chinese airlines from participating in the ETS without prior approval from the government.¹²⁷ Similarly, China Air Transport Association and Indian businesses contested the extraterritorial jurisdiction of the ETS and, as a result, did not fulfil their obligations under the ETS scheme. These actions by China and India exemplified the resistance and opposition to the extension of the EU ETS to

¹²⁵ K. KULOVESI, *Addressing Sectoral Emissions*, op cit. 200 ss; J. SCOTT, *Contingent Unilateralism International Aviation* op. cit. 145s.

¹²⁶ *Moscow Meeting Adopts Declaration on Inclusion of International Civil Aviation in the EU-ETS* <<http://sdg.iisd.org/news/moscow-meeting-adopts-declaration-on-inclusion-of-international-civil-aviation-in-the-eu-ets/>> .

¹²⁷ *China Joins Airlines from Joining EU Emissions Scheme* <<https://www.reuters.com/article/uk-china-eu-emissions-idUKTRE81500Z20120206>> .

the international aviation emissions and its perceived encroachment beyond national borders.¹²⁸

In addition, the incorporation of foreign aviation emissions into the EU ETS has sparked a prolonged debate regarding its compliance with the international legal order. The Court of Justice of the European Union (CJEU) played a significant role in this debate, particularly through its involvement in the Air Transport Association of America (ATAA) case.¹²⁹ Contrary to the arguments put forth by the American Airlines, United Airlines, and the ATAA, the CJEU ruled that the Aviation Directive did not violate the principle of territoriality. The Court's decision was based on the understanding that the EU measure applies solely to aircraft physically present within the territory of one of the EU Member States. As a result, such aircraft fall under the unrestricted jurisdiction of the European Union, and therefore, the directive's application was deemed consistent with the principle of territoriality. Furthermore, the CJEU clarified that even if the event (aviation emissions) being regulated by EU law occurred partially outside the territory of the EU, it could still have an impact on pollution within the European territory. As a result, the Court affirmed that the EU had the authority to take regulatory actions to address such emissions, considering their potential contribution to pollution within EU borders. Therefore, the Court of Justice concluded that the principle of exclusive sovereignty of states over their airspace did not undermine the validity of Directive 2008/101/EC. As a result, the Court's ruling legitimized the European Union's regulatory authority and control over international aviation emissions.

In response to the international backlash and the mounting tensions surrounding the EU ETS, Connie Hedegaard, the European Commissioner for Climate Action, announced in 2012 that the EU would suspend the implementation of the international aspects of aviation under the ETS

¹²⁸ K. KULOVESI, E. MORGERA, *The Role of the EU in Promoting International Standards* op cit. 14.

¹²⁹ CJEU, *The Air Transport Association of America, American Airlines, Inc., Continental Airlines, Inc., United Airlines, Inc. v. The Secretary of State for Energy and Climate Change* C-366/10, 21 December 2011. .

scheme.¹³⁰ This decision effectively “paused the clock” for one year, with the EU choosing to limit the application of the aviation scheme to internal flights. The implementation of the Aviation Directive was put on hold until the end of 2016, contingent upon the ICAO reaching a global agreement by that time.¹³¹ Eventually, this international conflict led the ICAO to act in order to find a global solution for the aviation emissions, and in October 2016, the ICAO Assembly announced the reaching of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) agreement.¹³² As a result of these international commitments, the EU agreed to abandon extraterritoriality and restricted the ETS to intra-EEA flights beginning in 2017.¹³³

Indeed, Regulation (EU) 2017/2392 of the European Parliament and of the Council, adopted on December 13, 2017, introduced amendments to Directive 2003/87/EC. These changes aimed to limit the scope of application to only flights within the EEA (European Economic Area) during the period from 2017 until 2023. Additionally, the Regulation defined a series of activities to prepare for the implementation of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), a global mechanism aimed at stabilizing CO₂ emissions in the aviation sector.¹³⁴ The EU's decision to suspend the international aspects of the aviation scheme under the EU ETS in response to international pressure reflects a willingness to compromise when confronted with significant global opposition.¹³⁵ The CORSIA will be implemented in three phases: the pilot phase (2021-2023), the first phase (2024-2026), and the second phase

¹³⁰ EUROPEAN COMMISSION, *Stopping the clock of ETS and aviation emissions following last week's International Civil Aviation Organisation (ICAO) Council*, Brussel 12 November 2012 MEMO/12/854.

¹³¹A. BRADFORD, *The Brussels Effect: How the European Union Rules the World-Environment* (chapter 7) 2019, New York, 214 ss.

¹³² ICAO, *Historic Agreement Reached to Mitigate International Aviation Emissions* available at < <https://www.icao.int/newsroom/pages/historic-agreement-reached-to-mitigate-international-aviation-emissions.aspx> >.

¹³³ H. J. LUHMAN, *Climb-down in climate protection? EU facing a far-reaching decision in aviation policy*, 2014, Germany 1 ss.

¹³⁴https://climate.ec.europa.eu/eu-action/transport-emissions/reducing-emissions-aviation_en.

¹³⁵ A. BRADFORD, *The Brussels Effect*, cit. 221.

(2027-2035). During the first two phases, offsetting requirements will apply only to flights between States that have voluntarily offered to participate. As of July 16, 2019, it was reported that 81 States, representing 76.63% of international aviation activity, intended to participate voluntarily in the CORSIA right from the beginning.¹³⁶

It is essential to emphasize that the transport sector has experienced a significant increase in emissions from the 1990s to the present day. Despite the COVID-19 pandemic leading to a decrease in the number of flights at EU and EFTA airports, which decreased from 9.3 million in 2019 to 4.12 million in 2020 and 5.07 million in 2021, long-term trends indicate that annual flights in the region could reach 12.2 million by 2050. In this scenario, aircraft CO₂ emissions could reach 188 million tons unless the industry gives further priority to environmental protection measures.¹³⁷

2. The emissions *cap*'s determination: from the NAP (National Allocation Plans) to the *top-down* approach of Directive 2009/29/EC

As previously explained, the definition of the cap, which refers to the maximum quantity of allowances to be allocated to installations within the market, is of crucial importance within the ETS mechanism. The original European legislator sought a constant connection between the EU and the national levels, recognizing that the common reduction target of 8% could only be achieved through the pursuit of individual national targets.

In order to achieve this objective, the ETS Directive outlined that individual Member States would be responsible for defining emission limits that economic entities must abide by, as specified in their respective NAPs (National Allocation Plans). Article 9 of the original 2003 ETS Directive,¹³⁸ in fact, mandated each State to formulate Plans for each trading period,

¹³⁶ <https://www.icao.int/environmental-protection/CORSIA/Pages/state-pairs.aspx>.

¹³⁷ See EUROPEAN AVIATION ENVIRONMENTAL REPORT, *Executive Summary and Recommendations*, 2022.

¹³⁸ According to Article 9 of Directive 2003/87/EC, the allocation of allowances should have been guided by the fundamental criterion of the "potential for reducing emissions from industrial process activities" (as stated in Recital 8 of Directive 2003/87/EC).

encompassing specific regulations for calculating the total allowances allocated for the entire period and the annual distribution of allowances among individual operators of covered installations within the system. The cumulative sum of all National Plans would determine the overall European cap. Nonetheless, the directive also established common criteria in Annex III, which all Member States were required to adhere to when developing their Plans. These criteria ensured transparency, objectivity, and uniformity in the implementation of the NAPs across the European Union.¹³⁹ Once approved by the European Commission, the National Allocation Plans (NAPs) became binding, granting the respective State or competent authority the authority to allocate emission allowances among economic operators.¹⁴⁰ Indeed, the National Allocation Plans (NAPs) were obligated to align with the commitments made under the Burden Share agreement and the Kyoto Protocol. They were also designed to ensure fairness and prevent any discriminatory practices among businesses. The NAPs were required to provide clear guidelines for new entrants seeking to participate in the emission trading system, establish a comprehensive list of regulated installations, and specify the corresponding allocated allowances for each entity. Additionally, the NAPs were expected to consider the impact of previous policy initiatives. To maintain consistency and transparency in the development of NAPs across different Member States, the European Commission implemented a series of guidelines for applying the criteria outlined in Annex III. These guidelines were periodically updated to reflect evolving circumstances and ensure a balanced and effective approach to emission allocation.¹⁴¹ The Plans were required to be submitted to the European Commission before the 31st of March 2004, which marked the

¹³⁹ Directive 2003/87/EC, Annex III, Criteria for National Allocation Plans Pursuant to Articles 9, 22, and 30.

¹⁴⁰ M. E. GRASSO, *Il processo partecipativo in materia di emissioni di "gas serra" nel rapporto di complementarità esistente tra fonti giuridiche europee ed internazionali*, in *Riv. giur. amb.*, 6, 2009, 1039 ss.

¹⁴¹ The Commission's guidelines are outlined in COM (2003) 830 final. These guidelines have been further enhanced through the communication COM (2005) 703 final, titled "*Further guidance on allocation plans for the 2008 to 2012 trading period of the EU Emission Trading Scheme.*"

beginning of the experimental three-year phase. This submission was aimed at evaluating their alignment with the examined criteria. Within three months following the notification, the Commission had the authority to either reject the Plans in their entirety or in part or approve them. This constituted the approval process during the experimental phase,¹⁴² but it turned out to be longer and more complex than anticipated. The Commission's final decision on the Plans was made on the 20th of June 2005, indicating that the approval exercise had extended beyond the initially expected timeframe.¹⁴³ Additionally, the Commission made its decisions regarding the National Allocation Plans (NAPs) during 2006 and 2007, revising downwards the emission caps initially proposed by the Member States. However, as observed during the initial implementation phase of the Kyoto Protocol objectives (2005-2007), certain issues surfaced, particularly with regard to the necessity for enhanced harmonization and reliability in the allocation process.¹⁴⁴ Indeed, in 2009, the emission trading system underwent significant revisions with the approval of the new Directive 2009/29/EC, which was part of the broader Climate and Energy Package. One of the main innovations of the 2009 Directive was the introduction of a single cap for the entire EU. This meant that the responsibility for calculating the total quantity of emission allowances shifted from the Member States to the European Union.¹⁴⁵ Starting from 2013, the Member States are no longer responsible for developing National Allocation Plans (NAPs), and the overall quantity of emission allowances is directly set by the European Commission.¹⁴⁶ As a consequence of this change, Annex III of the Directive, which set out the criteria that Member States had to follow when developing National Allocation Plans, was repealed, along with the

¹⁴² As previously mentioned, the experimental phase spans from 2003 to 2007.

¹⁴³ EUROPEAN COMMISSION, *Further guidance on allocation plans for the 2008 to 2012 trading period of the EU Emission Trading Scheme*, COM(2005) 703 def, 3.

¹⁴⁴ See Par. 1.

¹⁴⁵ Article 9 and ss. of Directive 2003/87/EC, as amended by Directive 2009/29/EC; G. D'ANDREA, *La lotta ai cambiamenti climatici*, in *Diritto Europeo dell'Ambiente*, Torino, 2012, 241.

¹⁴⁶ D. PAPPANO, *Inquinamento atmosferico e clima*, in ROSSI G. (edited by), in *Diritto dell'Ambiente*, Torino, 2015, 360.

guidelines prepared by the Commission for this purpose. This decision was influenced by the numerous difficulties encountered with the decentralized planning process. Frequently, the Plans drafted by Member States had undergone amendments during the evaluation by the Commission, and subsequently, they faced challenges from other Member States, which brought them before the European courts, arguing that the imposed restrictions were excessive.¹⁴⁷

As a result, the "top-down" approach, previously adopted in the aviation sector, was applied to the entire system. This method entails the direct involvement of the European Commission in establishing the collective emission allowances, bypassing the need for participation from individual Member States that have ceased the development of their respective Plans.¹⁴⁸ This single European cap was established based on the total quantity of allowances allocated to the Member States for the period 2008-2012. It follows a linear, annual downward trend for the cap, specifically for activities carried out by fixed installations.¹⁴⁹ This approach represented a significant shift in the governance of the EU Emission Trading System (EU ETS), introducing a phase of progressive centralization in the decision-making process, moving away from the previous decentralized planning and allocation system.¹⁵⁰

¹⁴⁷ As of today, there have been more than 70 decisions issued by the Court of First Instance and the European Court of Justice concerning Directive 2003/87/EC and its subsequent amendments. The majority of these rulings pertain, in various aspects, to the approval and implementation of National Allocation Plans (NAPs).

¹⁴⁸ J. VAN ZEBEN, *Implementation Challenges for Emissions Trading Schemes: The Role of Litigation*, in S.E. WEISHAAR (edited by), *Research Handbook on Emissions Trading*, Cheltenham, 2016, 244 ss.

¹⁴⁹ Article 9 of Directive 2003/87/EC, as amended by Directive 2009/29/EC, introduced the reduction factor. Currently set at 1.74%, it is scheduled to increase to 2.2% starting from 2021, as outlined in the proposal for the fourth phase of the EU ETS (COM (2015) 337 final).

¹⁵⁰ J. SCOTT, *The Multi-Level Governance of Climate Change*, in *CCLR*, 2011, 1, 25 ss.

3. The uncertainty about the legal nature of the emissions' allowances

The issue regarding the legal qualification of emission allowances and energy certificates has only partially attracted the attention of scholars so far. The interpretative efforts of the doctrine have, in fact, led to different and even radically opposite solutions. Among these, a proposal supported by strong argumentative force aims to categorize these entities as credit instruments, emphasizing their potential for circulation and transferability.¹⁵¹ As they can be traded separately from the underlying quantity of greenhouse gases, emission allowances could potentially lead to a distinction in absolute terms between the owner of the obligated installation and the legal position of the holder of the allowance. However, as emission allowances represent "the right to emit one tonne of carbon dioxide equivalent (CO₂) for a specific period,"¹⁵² the allowances gain significance based on their potential correspondence with a specific quantity of greenhouse gases released into the atmosphere as a result of industrial activity. Consequently, these allowances explicitly circulate contingent upon the precise fulfillment of the legislatively mandated obligation imposed on the obligated entities. Furthermore, the existence of these allowances is subject to potential subsequent decrees or modifications by the Public Administration, depending on the developments that influence the market, encompassing both demand and supply aspects. Therefore, there is no complete abstraction of the "documentary relationship" from the "fundamental one,"¹⁵³ as the circulation of the former can only occur due to exact compliance with the latter. Consequently, any defects in the fundamental relationship could not be considered exempt from affecting the

¹⁵¹ E. PICOZZA, S.M. SAMBRI, *Il diritto dell'energia*, in E. PICOZZA, E. GABRIELLI (edited by), *Trattato di diritto dell'economia*, Padova, 2015, 240 ss.

¹⁵² Definition of Article 2, paragraph 1, letter a) of Directive 2003/87/EC

¹⁵³ In the context of negotiable instruments, the fundamental relationship refers to the causal legal connection that accompanies the issuance of the instrument, from which the right originates. This fundamental relation represents a distinct legal situation in itself, separate from the one that gives rise to the right.

same documentary relationship, as it occurs with the negotiable instruments. As a result, this interpretation of emission allowances as credit instruments tends to be excluded.

On the other hand, another part of the scholarly community has considered emission allowances as goods, given their utility and exchange value. The French legal system, for instance, has categorized emission allowances as intangible movable assets whose genesis is identified at the moment of registration in the personal registry of the participant in the market.¹⁵⁴ Indeed, emission allowances represent the limits on emitting greenhouse gases and hold economic value due to their scarcity. They constitute intangible assets represented by the right to emit greenhouse gases.¹⁵⁵ Therefore, the emission allowances can be considered as "regulated property" since private law rules are employed to efficiently pursue public interests related to emission reduction.¹⁵⁶

In Italy, it has been preferred to maintain the same silence of the directive related to the legal nature of allowances, which, however, has led to various doctrinal interpretations. Initially, emission allowances were categorized as administrative concessions or authorizations.¹⁵⁷ Indeed, considering the nature of emission allowances, their correlation with administrative authorizations appears questionable. Emission allowances do not remove an obstacle to the exercise of a right, as the emission of pollutants was already subject to restrictions even before the implementation of emission trading schemes.¹⁵⁸ As a result, some scholars have considered it more appropriate to link emission allowances to concessions, attributing to the holder a new right that finds its sole source in the administrative act.¹⁵⁹ Indeed, the qualification of emission allowances as concessions or authorizations

¹⁵⁴ Article in. L 229-15 del Code de l'environnement

¹⁵⁵ F. GASPARI, *Tutela dell'ambiente, regolazione e controlli pubblici: recenti sviluppi in materia di EU Emissions Trading Scheme (ETS)*, in *Riv. it. dir. pubbl. com.*, 2011, 1149 ss.

¹⁵⁶ M. CECCHETTI, F. GRASSI, *Le quote di emissione*, in F. GRASSI, M.A. SANDULLI (edited by), *Trattato di diritto dell'ambiente*, II, Milano, 2014, 308 s.

¹⁵⁷ C. TOSELLO, *Effetto serra ed Emissions Trading: il commercio dei diritti di emissione*, in *Riv. dir. agr.*, 2005, 463 e ss.

¹⁵⁸ F.L. GAMBARO, *Emissions Trading tra aspetti pubblicistici e profili privatistici*, in *Contr. Impresa/Eur.*, 10(2), 2005, pp. 855-888.

¹⁵⁹ V. JACOMETTI, *Lo scambio*, cit., 425.

remains problematic due to the absence of discretion of public authorities at the time of allocation, which appears to be a mandatory act. Additionally, the possibility of free circulation and transfer of allowances to other entities raises questions about the traditional concept of concessions or authorizations, which typically involve specific obligations and restrictions tied to a particular holder.

Regardless of the allocation method (auction or free allocation), emission allowances have a public nature since their allocation is governed by an administrative decision. Nevertheless, the authority does not conduct a prior assessment of the private entity's ability to pursue the public interest or the compliance of the activity with the public interest.¹⁶⁰ Indeed, emission allowances are autonomous and dissociated from individual plant emission authorizations, as they can be freely transferred without discretionary intervention from the public authority. While initially transferred by a public authority, emission allowances do not confer any real rights over the natural resource (i.e., air), which remains a *res communes omnium* and thus excluded from individual appropriation. Consequently, the possibility of establishing a genuine subjective right to pollute within the legal system is ruled out.

It was only with Directive 2014/65/EU (so called MiFID II) concerning the regulation of financial markets, Regulation No. 2014/596/EU on market abuse (Market Abuse Regulation or "MAR," which replaces the previous Directive No. 2003/6/EC, the Market Abuse Directive or "MAD"), and Regulation 2014/600/EU on financial instruments markets (MiFIR) that the European legislator qualified emission allowances as financial instruments, starting from 3 January of 2018. The purpose of including emission allowances among financial instruments is to enhance the security of ETS (Emissions Trading System) transactions by bringing them under the purview of financial intermediaries and banks. This move aims to prevent the occurrence of past fraudulent practices that could undermine trust in the

¹⁶⁰ V. JACOMETTI, *Lo scambio*, cit, 426.

emission allowance trading system within the secondary markets.¹⁶¹ The intervention, accompanied by a consistent modification of the regulatory framework concerning market abuse (MAD/MAR), is in clear continuity with the trend already demonstrated through the modification of regulations related to the auctioning of allowances (Regulation No. 1031/2010, the "Auctioning Regulation" which instituted a shared European auction platform had been instituted, and introduced a singular supervisory entity with the role of oversee auction proceedings across all trading platforms existing within Europe.)¹⁶² and with the registry system for allowances (Regulation No. 389/2013). Both of these measures aimed to align emission allowances as closely as possible with the characteristics of financial instruments.

Indeed, the directive does not define the rights held by the holders of emission allowances, focusing primarily on the modalities of their use within the market. As a result, the persistent gap in this regard within the European emissions trading framework remains, as the European legislator refrains from providing a specific definition of the term "financial instrument," leaving it to individual national legislators.¹⁶³

4. The allowances' allocation methods: grandfathering and auctioning

Regarding the allocation process of allowances, two different methods can be employed: the so-called "grandfathering," which involves a method of free allocation based on historical emission levels, or a paid method through auctioning. In the initial phase, the EU ETS regulation relied on the free

¹⁶¹ Recital 11 of Directive 2014/65/UE. The reference pertains specifically to three types of phenomena: IVA fraud, phishing attacks, and the resale of already utilized certified emission reduction units (ERUs, CERs, or EUAs) within the community system..

¹⁶² The Regulation 2010/1031/ EU will be further analysed in paragraph 4.

¹⁶³ Both MiFID (Markets in Financial Instruments Directive) and MiFID II do not go beyond an explicit reference to the list contained in Annex I, Section C, of the same directives. Indeed, in Annex I, Section C, which enumerates financial instruments, appear, in box 11, the "emission allowances, consisting of any unit recognized in accordance with the requirements of Directive 2002/87/EC (emissions trading system)." F. MOCCI, J. FACCHINI, *La nuova disciplina delle quote di emissioni tra MiFID II e MAR*, in *Diritto Bancario.it*, 13 luglio 2015;

allocation method of allowances to operators based on their historical emissions. Article 10 of the 2003 Directive specified that during the first three-year period, at least 95% of the allowances would be allocated by Member States for free, and in the subsequent five-year period, this percentage would decrease to at least 90%.¹⁶⁴

Indeed, with the aforementioned 2009 Directive, the free allocation method was gradually phased out in favour of allocating allowances through auctioning. This change in direction was prompted by the numerous issues related to the price volatility of allowances and the unexpected windfall profits observed during the initial two trading phases.¹⁶⁵

Indeed, Article 10 was amended to stipulate that Member States would auction all allowances not allocated for free, in accordance with Articles 10 *bis* and 10 *ter*.¹⁶⁶ The auctioning of allowances represents a greater incentive for environmental efficiency as the allowances become a cost that companies must internalize, leading them to adopt sustainable management solutions for their facilities. The detailed regulation of auctions was subsequently ruled by EU Regulation 1031/2010. Currently, auctions take place on three markets: the European Energy Exchange (EEX DE) based in Germany, with the participation of 26 Member States, ICE Futures Europe (ICE) located in London, which won the tender for all auction platforms established by the aforementioned Regulation, as well as the European common platform (EU t-CAP 2). Regarding the criteria for distributing the total quantity of allowances to be auctioned, Member States primarily relied on three factors: 88% of the allowances were based on historical emissions from the year 2005 or the average emissions in the initial three-year period of implementation; 10% was distributed to certain Member States through a solidarity-based approach and in accordance with percentages defined in Annex II bis of the Directive; the remaining 2% of allowances for auctioning

¹⁶⁴ Art. 10, Directive 2003/87/ EC.

¹⁶⁵ E. WOERDMAN, A. ARCURI, S. CIÒ, *Emissions Trading and the Polluter-Pays Principle: Do Polluter Pay Under Grandfathering?*, in *Review of Law and Economics*, 2008, 4(2) 565-590.

¹⁶⁶ Article 10, paragraph 1, Directive 2003/87/EC, as amended by Article 1, number 11 of Directive 2009/29/EC.

were assigned as a "Kyoto bonus," distributed among nine central and eastern European Member States whose greenhouse gas emissions in 2005 had already decreased by at least 20% compared to the reference year or period applicable under the Kyoto Protocol, as stated in Annex II *ter* of the Directive.¹⁶⁷

On the other hand, the free allocation of allowances can be carried out not only through the *grandfathering* method, as previously explained, where permits are allocated based on past emissions. Indeed, the second approach involves free allocation based on an efficiency standard or *benchmark*, calculated by relating the emissions of the installation to the final output produced by it. This latter method was the basis for permit allocation starting from 2013, thus rewarding more efficient installations. Specifically, the modalities of allowance allocation are governed by Article 10 *bis* of the ETS Directive. According to this article, the quantity of allowances allocated for free in 2013 would have been 80%, while in 2020 this percentage would decrease to 30% and would eventually cease entirely in 2027. The objective is, as mentioned earlier, to gradually and differentially phase out free allocation of allowances. The selection of sectors eligible for free allowances was based on their higher exposure to the risk of carbon leakage. Conversely, sectors such as electricity and other installations for carbon capture and storage (CCS) were excluded from free allocation as they were responsible for a significant portion of emissions.¹⁶⁸

The term "carbon leakage" refers to the phenomenon where productions or activities in Europe subject to emission limits are transferred to countries with less stringent environmental obligations. As a result, the allocation of free allowances is aimed at mitigating the risk of relocating facilities and the subsequent increase in emissions on a global level. By providing free allowances to certain sectors that are particularly exposed to carbon leakage, the EU ETS seeks to prevent them from relocating their operations to

¹⁶⁷ See Article 10, paragraph 1, letter c), Directive 2003/87/EC, as amended by Directive 2009/29/EC. The nine beneficiary states were Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, and Slovakia.

¹⁶⁸ V. JACOMETTI, *Lo scambio di quote cit.*, 274.

regions with lower environmental regulations, thus maintaining emission reductions within the EU while avoiding an increase in global emissions. As already mentioned, the legal basis for the allocation of free allowances is found in Articles 10 bis and 10 ter of the ETS Directive. The criterion used to determine whether a sector is more exposed to the risk of carbon leakage was directly indicated by the ETS Directive, specifying a precise formula based on a quantitative and qualitative analysis of exposure to the risk of relocation. Moreover, according to Article 10 *bis*, paragraph 13, the European Commission was tasked with preparing a list of sectors that are most exposed to carbon leakage, with a validity period of five years. The first list was adopted through Decision 2010/2/EU on 24 December 2009.¹⁶⁹ While the second in 2014.¹⁷⁰ Originally, the second list was intended to apply to the period 2015-2019. However, Directive 2018/410/EU, which will be discussed later, extended its validity until December 31, 2020. As a result, businesses that are more exposed to the risk of carbon leakage continued to receive free allowances throughout the third phase of the EU ETS. The latest list of sectors excluded from the auctioning of emission allowances was approved by the Commission's Decision in February 2019 and it will be applicable for the period from 2021 to 2030.

In accordance with Article 10 *bis*, paragraph 5, the allocation of allowances to all installations covered by the EU ETS was uniformly reduced by through the application of a Cross-Sectional Correction Factor (CSCF) which was of 6% in 2013 to be gradually increased each year, reaching a level of 18% by the year 2024.¹⁷¹ This measure was implemented to address concerns about the risk of carbon leakage and to ensure fair treatment among

¹⁶⁹ Decision 2010/2/EU establishes, in accordance with Directive 2003/87/EC of the European Parliament and of the Council, a list of sectors and subsectors considered to be exposed to a high risk of carbon emission leakage, 24 December 2009.

¹⁷⁰ Decision 2014/746/EU, establishes, in accordance with Directive 2003/87/EC of the European Parliament and of the Council, a list of sectors and subsectors considered to be exposed to a high risk of carbon emission leakage for the period from 2015 to 2019, 27 October 2014.

¹⁷¹ Annex II Decision 2013/488/EU; However, following the ruling of the European Court of Justice upon the appeal by Italy, Austria, and the Netherlands, the new correction values for the years 2018-2020 are those specified in Decision 2017/126/EU (CJEU Grand Chamber, 28 April 2016, joined cases C-191/14, C-192/14, C-295/14, C-389/14, and from C-391/14 to C-393/14).

installations within the EU ETS. By applying the CSCF, a consistent reduction in allocation was carried out, thereby promoting a more balanced and equitable distribution of allowances across the sectors covered by the system.¹⁷² The Commission determined in Annex II of Decision 2013/448/EU that the correction factor would be set at 6% in 2013, with a gradual increase each year, reaching approximately 18% by 2020.¹⁷³

Another important element within the allocation mechanism of allowances is the principle of the reserve, which was initially introduced with the 2008 Directive for the aviation sector and later incorporated into Directive 2009/29/EC, establishing the "New Entrants Reserve" (NER), a free reserve of allowances to be allocated to new entrants. New entrants are defined, from 2009, as installations that received authorization to emit greenhouse gases for the first time after June 30, 2011. Article 10 *bis*, paragraph 7 specified that the reserve amounted to 5% of the total allowances distributed annually with the underlying purpose of ensuring more fairness for new entrants. In fact, if the Reserve was not fully distributed among new entrants, the remaining portion would be subject to auctioning.

What's more this revision in the timing of auctions, known as "backloading," was carried out through the modification of certain articles of Regulation 1031/2010 and the addition of Annex IV to the same Regulation¹⁷⁴

The Directive 2018/410/EU, which governs the current emissions trading system, confirmed the preference for the auctioning of allowances. As of 2020, 57% of allowances will be allocated through auctions. The total quantity of allowances each Member State puts up for auction consists of 90% of verified historical emissions for the year 2005 or the average for the period 2005-2007. The 10% of the allowances to be auctioned by the

¹⁷² Decision 2017/126 amending Decision 2013/448/EU as regards the establishment of a uniform cross-sectoral correction factor in accordance with article 10a of directive 2003/87/EC, 24 January 2017.

¹⁷³ EUROPEAN COMMISSION, *Report on the functioning of the European carbon market*, COM (2020) 740 final.

¹⁷⁴ Regulation 176/2014/EU, amending Regulation 1031/2010/EU, 25 February 2014; in order to determine, notably, the volumes of greenhouse gas emission allowances to be auctioned during the period 2013-2020.

Member States is distributed among those Member States whose gross domestic product (GDP) per capita at market prices did not exceed 90 % of the Union average in 2013 in a spirit of solidarity.¹⁷⁵ The remaining allowances will be allocated for free, mainly in favor of sectors at high risk of carbon leakage. The new rules for calculating the free allocation of allowances are outlined in Delegated Regulation 331/2019/EU for Phase IV, which provides Member States with updated reference benchmarks. For sectors at high risk of carbon leakage, the rule of full free allocation of allowances remains in place. Article 10 *ter*, as amended by the 2018 Directive, introduces the so-called “carbon leakage indicator,” which is calculated by multiplying the trade intensity of a specific sector with third countries by its emission intensity, measured in kgCO₂.¹⁷⁶ A sector is considered at risk of carbon leakage if its Carbon Leakage Indicator exceeds the threshold of 0.2. For sectors that are considered less exposed to carbon leakage, the free allocation of allowances will be set at 30% until 2026, and it will then be gradually phased out, reaching complete elimination by 2030¹⁷⁷ in accordance with Article 11 of the 2018 ETS Directive, which stipulates the provisional nature of free allocation of allowances. Furthermore, the 2018 Directive has stipulated that auction revenues are intended to offset those indirect costs incurred by the most energy-intensive industries due to their inclusion in the EU ETS (indirect carbon leakage).¹⁷⁸ In conclusion, to complete the allocation mechanism of emission allowances, it is important to refer to Article 12 of the Directive, which addresses the transfer, surrender, and cancellation of emission allowances. The Directive allows for the possibility of transferring (selling on the market) allowances to other EU Member States or to companies located in

¹⁷⁵ Recital 8 of Directive 2018/ 410/EU.

¹⁷⁶ EUROPEAN COMMISSION, *Delegated Decision 2019/708/EU supplementing Directive 2003/87/EC of the European Parliament and of the Council concerning the determination of sectors and subsectors deemed at risk of carbon leakage for the period 2021 to 2030*, 15 February 2019.

¹⁷⁷ Article 10 *ter*, paragraph 4 of Directive 2018/410/EU.

¹⁷⁸ *Indirect carbon leakage* refers to a high risk of relocating carbon emissions due to the rise in carbon costs associated with emissions. Consequently, businesses may be compelled to shift their production to countries or regions with less stringent carbon emission regulations, resulting in an indirect "carbon leakage."

third countries listed in the Kyoto Protocol. By March 31st of each year, companies are required to report to the National Competent Authority (NCA) the number of emissions produced in the previous year. The obligation of surrendering allowances involves comparing the quantity of allocated allowances with the actual emissions emitted in the previous calendar year. By April 30th of each year, the installation operator must surrender and cancel as many allowances as were the emissions produced in the previous calendar year. Any surplus of saved allowances can be sold, whereas if emissions exceed the allocated allowances, the operator must purchase allowances from those offering them on the market. In any case, the Directive offers a third option, represented by the possibility of banking the excess allowances and using them in the subsequent reference period. Originally, companies could only bank allowances within the same reference period and not between the first and second phases. This led to the cancellation of unused allowances at the end of 2007. Consequently, there was an increase in the supply of allowances at the end of the period, as operators preferred to offer the excess allowances on the market rather than cancel them. This decision was driven by the potential loss of profits resulting from the sale of allowances if they were cancelled.¹⁷⁹ Another complementary technique is the borrowing of allowances, meaning the borrowing of permits from future allocations for use during the current period, exceeding the number of current allocated emissions. In such a case, the quantity of permits available for the subsequent period is reduced by an amount equal to the increment allowed in the previous phase.

4.1 The Market Stability Reserve (MSR)

As previously highlighted, one of the issues concerning the ETS system lies in determining the appropriate quantity of allowances to allocate in order to achieve emission reductions. Indeed, overly lenient assessments resulted in an oversupply of allowances in 2009, surpassing the actual demand and

¹⁷⁹ A. SPISTO, *Diritti negoziabili e protezione ambientale. Un Piano per l'Europa*, Roma, 2007, 69.

leading to a decline in prices. Consequently, this discouraged companies from reducing their emission levels. To address this problem, the European Commission has adopted a series of short and long-term measures. Regarding short-term measures, to modify the allocation of allowances from 2013 onwards, the auctioning of 900 million allowances was postponed until 2019-2020. However, this modification did not involve reducing the overall quantity to be auctioned or affecting the level of free allocation. The adjustments to the auction volumes for the period 2013-2020 entailed reductions of 400 million allowances in 2014, 300 million in 2015, and 200 million in 2016, in total 900 million allowances. However, to equalize the total amount of allowances, in 2019 and 2020, the total auctioned allowances were increased by an equivalent amount of 300 million and 600 million, respectively. According to the report prepared by the EU Commission on the functioning of the carbon market for the year 2016, the implementation of the backloading technique resulted in a reduction from approximately 2.1 billion allowances in 2013 to 1.69 billion in 2016.¹⁸⁰ Regarding the long-term strategy, the Market Stability Reserve (MSR) was devised through Decision 2015/1814/EU.¹⁸¹ Based on this mechanism, 900 million permits are set aside in reserve to withdraw from the market the excess allowances that could lead to a decline in prices and imbalances. A fundamental aspect for the functioning of the Market Stability Reserve (MSR) is the Total Number of Allowances in Circulation (TNAC). When the TNAC exceeds a predetermined upper threshold of 833 million allowances, the MSR is automatically activated, and emission allowances are added to the Reserve. On the other hand, if the number of allowances falls below a predefined lower threshold of 400 million allowances, allowances are released from the Reserve.¹⁸²

¹⁸⁰ EUROPEAN COMMISSION, *Report on the functioning of the European carbon market*, 23 November 2017, COM (2017) 693 final.

¹⁸¹ EUROPEAN PARLIAMENT, *Decision 2015/1814/EU concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and amending Directive 2003/87/EC*, 6 October 2015.

¹⁸² Forthcoming publication of the annual surplus indicator (total number of allowances in circulation) for the EU ETS Market Stability Reserve < <https://climate.ec.europa.eu/news->

The Reserve comprises not only the 900 million emission allowances that were postponed but also the allowances reserved for new entrants. Furthermore, the Reserve encompasses a proportion equating to 12% of the overall count of allowances in circulation during the preceding year. Additionally, the Reserve includes allowances from installations that have ceased or partially reduced their activities as specified in Article 10 *bis*, paragraphs 19 and 20 of the ETS Directive. The 2018 Directive introduced an increase in the capacity of the MSR to absorb excess allowances in the market. Specifically, it mandated a temporary doubling (from 12% to 24%) of the rate at which allowances are allocated to the Reserve between 2019 and 2023. Consequently, 24% of excess allowances each year from 2019 to 2023 will be directed to the Reserve. To enhance the operation of the EU ETS, starting from 2024, the number of emission allowances held in the MSR will be limited to the auction volume of the previous year. Any allowances exceeding this amount will lose their validity, except for modifications to be adopted during the first review of the MSR in 2021.

5. The new CBAM Regulation. A new way to solve the problems of free allowances and of carbon leakage

On 10 May 2023, the Council and European Parliament adopted the EU's CBAM (Carbon Border Adjustment Mechanism) Regulation.¹⁸³ This Regulation has been conceived as a part of the European Fit for 55 package in order to contribute, along with other legislative initiatives to reaching the EU's carbon neutrality by 2050.¹⁸⁴ The measure in question aims to address the risk of carbon leakage by introducing a carbon price on energy-intensive products imported into the EU that are associated with carbon emissions produced abroad.

[your-voice/news/forthcoming-publication-annual-surplus-indicator-total-number-allowances-circulation-eu-ets-market-2023-05-10_en.](#) >

¹⁸³ Regulation 2023/956 establishing a carbon border adjustment mechanism, 10 May 2023, OJ L 156/1. (hereinafter 'CBAM Regulation' 'EU CBAM' or 'CBAM').

¹⁸⁴ S. SCHLACKE AND OTHERS, *Implementing the EU Climate Law via the 'Fit for 55' package*, Oxford, 2021, 3 s.

This Regulation requires that importers of targeted products into the EU must purchase and surrender CBAM certificates to cover price difference with the EU producers subject to the ETS allowances.¹⁸⁵ To comply with the new CBAM Regulation, importers of the covered goods would need to obtain authorisation from a newly created CBAM authority and purchase certificates, the prices of which would be equivalent to the weekly price of ETS allowances.¹⁸⁶ Indeed the CBAM Regulation aims to replace the existing mechanism of free allowances established in the ETS Directive 2003/87/EC for addressing the risk of carbon leakage. As it has been already explained, this mechanism involves the free allocation of EU ETS allowances to sectors mostly exposed to the carbon leakage risk, whereas the CBAM seeks to ensure equivalent carbon pricing for imports and domestic products.¹⁸⁷ The CBAM was originally presented in the European Green Deal as an alternative to the existing system of free allocation of EU ETS allowances. Nevertheless the Regulation envisages them functioning together even after the transitional phase, from 2023 to 2025 during which the CBAM will be gradually phased in.¹⁸⁸ Although the Commission explains this choice as a way to ‘ensure a prudent and predictable transition for businesses and authorities’, the co-existence of CBAM and ETS might raise some issues, especially from the compatibility with international trade law (WTO rules).¹⁸⁹ Indeed, free allowances and the carbon tax will provide domestic industries with double protection.¹⁹⁰ On one hand they would be exempted from purchasing ETS allowances. At the same time they would benefit from foreign producers' competitive disadvantage as a result of the carbon price imposed on imports. What's more this double protection will

¹⁸⁵ Under The EU ETS a “cap” is imposed on the total amount of certain greenhouse gases that can be emitted by the operators included in the system. Within this cap, operators are required to purchase or receive emission allowances. At the end of each year, operators must surrender enough allowances to fully offset their emissions.

¹⁸⁶ CBAM Regulation, Articles 20-24.

¹⁸⁷ CBAM Regulation, Recitals 11 and 12.

¹⁸⁸ https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_3661

¹⁸⁹ EUROPEAN PARLIAMENT, *Report on the proposal for a regulation establishing a carbon border adjustment mechanism*, COM(2021)0564.

¹⁹⁰ I.ESPA, J.FRANCOIS, H.VAN ASSELT, *The EU Proposal for a Carbon Border Adjustment Mechanism (CBAM): An Analysis under WTO and Climate Change Law* in *World Trade Institute*, 2022, 8 ss.

not encourage domestic producers to invest in new sustainable technologies to decarbonise their industries. Therefore from a climate perspective it would be necessary the introduction of the CBAM with the simultaneously replacement of free allowances with auctions. As a result, this gradual phase in of the CBAM might lead to think that the avoidance of the carbon leakage risk for environmental reasons might lose priority due to the strong protectionist nature of this feature of the proposal. What's more, the current Regulation excludes the possibility of export's rebates because, according to the European Commission "*the inclusion of refunds of a carbon price paid in the EU would undermine the global credibility of EU's raised climate ambitions*".¹⁹¹ However, the exclusion of export rebates might impact the scheme's ability to counteract carbon leakage. Furthermore, a peculiar feature of this measure is its geographical scope, since some countries are exempted from the CBAM's application. In fact, imports coming from countries with an trading system linked to the EU ETS are excluded from the scope of the EU CBAM. This includes all the countries within the European Economic Area (EEA) namely Iceland, Liechtenstein, Norway and Switzerland.¹⁹² The rationale behind this exclusion can be attributed to the fact that all these countries already implement the same carbon price as the EU. As a result, the risk of carbon leakage in these countries is considered minimal, thus justifying their exclusion from the scope of the Regulation.¹⁹³ Another relevant design feature of the CBAM Regulation is the decision to credit the climate policies of third countries. Through this crediting mechanism, the CBAM Regulation will consider any carbon price already imposed on imported products in the country of origin. This ensure that there is no double charging for the carbon content in the goods covered by the measure, thus avoiding the duplication of the carbon

¹⁹¹EUROPEAN COMMISSION, *Impact Assessment Report Accompanying the document Proposal for a regulation establishing a carbon border adjustment mechanism*, 2021 COM (2021) 564 final.

¹⁹² CBAM Regulation, Annex III. This annex also excludes the following territories: Büsingen, Heligoland, Livigno, Ceuta and Melilla.

¹⁹³ A. MARCU AND OTHERS, *Guide to the European Carbon Border Adjustment Mechanism in ERCST*, 2021,28.

costs.¹⁹⁴ However, choosing which third countries' climate policies to account for, has presented challenges from both technical and administrative perspectives. Therefore, the EU's Regulation has only considered third countries' climate policies with explicit carbon pricing, as estimating the effects of implicit carbon pricing policies is extremely difficult.¹⁹⁵

6. The monitoring, reporting, verification and accreditation procedures (MRVA)

In order to provide market participants in the emissions trading system with confidence in its transparency and reliability, the ETS Directive has established a comprehensive framework of compliance and enforcement measures.¹⁹⁶ In this context, one can indeed allude to the intriguing paradox known as the "striking paradox" that defines the ETS (Emissions Trading System) since, despite its foundation on the principles of a free market, the ETS is dependent on a meticulous and comprehensive regulatory framework to ensure its effective operation.¹⁹⁷

Specifically, Article 4 of Directive 2003 stipulated that starting from January 1, 2005, all the installations enumerated in Annex I of the Directive must obtain a permit issued by a competent authority, in accordance with Articles 5 and 6, if they wish to continue their emission-producing activities.¹⁹⁸ This authorization aimed to certify the compliance of the enterprise with the parameters outlined in the Directive. The permit was required to be granted to the facility operator, who had to demonstrate the

¹⁹⁴ I. ESPA, *The EU Proposal for a Carbon Border Adjustment Mechanism*, cit., 25.

¹⁹⁵ A. MARCU, *Guide to the European Carbon Border Adjustment Mechanism*, cit. 37.

¹⁹⁶ V. J. KRUGER, C. EGENHOFER, *Confidence Trough Compliance in Emissions Trading Markets*, in *SDLP*, 2006, 2, 2 ss.

¹⁹⁷ F. FLEURKE, J. VERSCHUUREN, *Enforcing the European Emissions Trading System within the EU Member States: a Procrustean bed?*, in T. SPAPENS, R. WHITE, W. HUISMAN (edited by), *Environmental Crime in Transnational Context*, New York, Routledge, 2016, 208 ss.

¹⁹⁸ According to Article 18 of Directive 2003/87 Members States are required to designate the "appropriate competent authorities for the implementation of the rules of the directive."

ability to monitor, report, and return emissions allowances corresponding to the actual emissions released by the plant in the previous year. According to Article 5 of the 2003 Directive, the minimum required content for the application included details about the installation, the conducted activities, the primary and secondary raw materials used, emission sources, and the measures implemented to control them. On the other hand, the EU legislator explicitly states in Article 6 that the competent authority can issue the permit, granting authorization to emit greenhouse gases, solely if it is assessed that the operator has the capability to monitor and report emissions. In light of this provision, the competent authority is obligated to conduct a "compliance assessment" of operators. This assessment ensures that the permit is only issued after verifying the operator's capability to effectively monitor and report emissions.¹⁹⁹ Indeed, the operator's monitoring plan must undergo approval, encompassing a comprehensive description of the technical specifications of the installation and the methodologies to be employed for monitoring emissions. Furthermore, as stipulated in Article 6(2)(d), the permit must include the reporting requirements, in addition to the monitoring obligations. This necessitates outlining the specific procedures and guidelines for reporting emissions data to the relevant authorities. According to article 15 the ETS Directive The individual operator of the facility is required to submit, by April 1st of each calendar year, a report on the emissions, certified by an accredited independent external auditor and verified by the competent authority of the member state to which they belong.²⁰⁰ Failure to obtain approval for the communication or its non-submission results in the suspension of market operations and the consequent inability to engage in transactions.²⁰¹

With the exception of these provisions, the Directive does not establish an extremely detailed system of controls. In fact, many of the monitoring activities are delegated to the national governments, which are responsible

¹⁹⁹ EUROPEAN COURT OF AUDITORS, *The integrity and implementation of the EU ETS*, 2015,31.

²⁰⁰ Article 15, paragraph 1, Directive 2003/87/EC. The report is assessed based on the criteria outlined in Annex V of the Directive.

²⁰¹ Article 15, paragraph 2, Directive ETS as amended by Directive 2009/29/EC.

for designating a competent national authority, as we have seen. Moreover, to prevent excessive fragmentation of the system, the Commission released a set of Guidelines for the monitoring and reporting of emissions from activities listed in Annex I, based on the principles outlined in Annex IV.²⁰² Despite the fact that the guidelines hold interpretative and informative value, without implying a strict obligation for Member States to adhere to them verbatim, the Commission strategically retained a certain degree of influence over individual state decisions. Nevertheless, with the 2009 Directive, the monitoring system underwent reform under Article 14, entailing the Commission's adoption of a dedicated Regulation on emissions monitoring and reporting. This marked a departure from the previous use of Guidelines as an instrument.²⁰³

Currently, the rules governing operators' monitoring, reporting, and verification activities are provided in both the Monitoring and Reporting Regulation (MRR)²⁰⁴ and the Accreditation and Verification Regulation (AVR).²⁰⁵ As a result, it can be argued that the Directive and subsequent Regulations have achieved a harmonized approach to inspection duties by primarily promoting a self-monitoring, reporting, and verification-based framework. However, it is important to note that the EU ETS Directive, MRR, and AVR do not specifically define the type of controls that the Competent Authority should conduct on installations to assess the implementation of monitoring plans and the reliability of verified emissions reports. The principle of subsidiarity establishes that the directive does not dictate how each country should organize its inspection duties, meaning that

²⁰² Article 14, paragraph 1, Directive 2003/87/EC. The Guidelines were established through Commission Decision 2004/156/EC, which was later replaced by Decision 2007/589/EC on July 18, 2007. Currently, the provisions are incorporated within Regulation (EU) No. 601/2012 dated June 21, 2012, last amended by Implementing Regulation (EU) 2018/2066 on December 19, 2018.

²⁰³ Article 14, "Monitoring and Reporting of Emissions," Directive 2003/87/EC as amended by Directive 2009/29/EC.

²⁰⁴ Implementing Regulation (EU) 2018/2066 of 19 December 2018 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council and amending Commission Regulation (EU) No 601/2012.

²⁰⁵ European Commission, *Implementing Regulation (EU) 2018/2067 on the verification of data and on the accreditation of verifiers pursuant to Directive 2003/87/EC*, 19 December 2018.

national governments have the discretion to determine how they will inspect the self-monitoring and reporting behavior of industries. The rationale behind decentralizing monitoring and enforcement duties lies in the cost advantages that individual states may have. Member States are given significant flexibility in establishing domestic compliance procedures, considering the different national traditions and the participation of countries with varying institutional strength in the system. Consequently, this leads to differences in inspection frequency, procedures, and overall enforcement rigor, due to variations in legal systems, enforcement approaches among Member States, and administrative capabilities.

In addition, an integral part of the monitoring system devised by the EU ETS Directive is the establishment and management of a standardized electronic registry system (*tracking system*) that has undergone several modifications over time. This registry system is designed to record and track the allowances issued, held, and retired within the emissions trading market.²⁰⁶ For the initial two phases of the EU ETS Directive's implementation, reference was made to national registries that were required to be established by the Member States.²⁰⁷

At the European level, there was a provision for a central registry called the Community Independent Transaction Log (CITL), which was formed by connecting all the national registries. This supranational registry was managed by the Commission, which conducted regular and automated checks on emissions allowances transfers at the European level. The regulations governing the functioning of the CITL can be found in Regulation 2216/2004.²⁰⁸

Starting from the third phase, in line with the centralizing tendency that, as we have seen, also characterized the cap determination mechanism, the national registry system was replaced by the adoption of a unified European registry known as the Union Registry, adopted with Regulation No.

²⁰⁷ Article 19, paragraph 1 of Directive 2003/87/EC.

²⁰⁸ Regulation 2216/2004/EC for a standardised and secured system of registries pursuant to Directive 2003/87/EC of the European Parliament and of the Council and Decision No 280/2004/EC, 21 December 2004, 1 ss.

389/2013/EU. The Union Registry tracks all installations included in the EU ETS, all accounts of market participants, all transactions made, and all verified emissions from installations and aircrafts. The CITL (Community Independent Transaction Log) has so been replaced by the European Union Transaction Log (EUTL), which oversees and authorizes transactions between accounts registered in the Union Registry.²⁰⁹

6.1. The amendments of Directive 2018/410/EU on the MRVA

Directive 2018/410 EU has once again modified the functioning of the European Emission Trading System in Phase IV (2021) to effectively contribute the achieving of the 40% reduction target of greenhouse gas emissions by 2030. The proposed amendment to the 2003 Directive is part of the broader "2030 Climate and Energy Package" approved by the European Council in October 2014, aiming to align with the international objectives set forth in the 2015 Paris Agreement.²¹⁰ The Directive introduces a series of noteworthy innovations, among which the following deserve particular mention: the increase of the so-called "linear reduction factor" to achieve an annual reduction of 2.2% in the total volume of emissions; the revision of the modalities for the free allocation of allowances and the temporary doubling (until 2023) of the number of allowances to be placed in the market stability reserve; the modification of rules for "new entrant" installations and the granting of funding by the EU. Specifically, the Monitoring, Reporting, Verification, and Accreditation (MRVA) framework has been updated to enhance and clarify the existing regulations based on the experience gained during Phase III implementation.²¹¹ The

²⁰⁹ Regulation 2013/389/EU establishing a Union Registry pursuant to Directive 2003/87/EC of the European Parliament and of the Council, Decisions No 280/2004/EC and No 406/2009/EC of the European Parliament and of the Council and repealing Commission Regulations (EU) No 920/2010 and No 1193/2011, 2 May 2013, Article 41.

²¹⁰ Directive 2018/410/EU of the European Parliament and of the Council amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814, 14 March 2018.

²¹¹ L. MASSAI, C. BEYET, *European union. Carbon & Climate Law Review in CCLR*, 2013, 12(3), 272 ss.

detailed provisions regarding the MRVA are currently contained in the Implementing Regulation 2018/2066. The core of the Regulation lies in the strengthening of the monitoring plan discipline. The monitoring plan must provide a detailed, comprehensive, and transparent description of the monitoring methodology employed for a specific installation or aircraft operator. Additionally, the Regulation mandates periodic updates to this plan, both to incorporate the findings of verifiers and at the initiative of the facility or aircraft operator. The facility or aircraft operator should remain primarily accountable for the application of the monitoring methodology.²¹² Furthermore, the Regulation calls for the development of monitoring methodologies that minimize the burdens on facility operators and aircraft operators. According to the Regulation, it is essential to avoid imposing a monitoring effort that is disproportionate for facilities emitting lower annual quantities of emissions, which exert comparatively minor effects in contrast to larger emitters. This must be achieved while ensuring an acceptable level of accuracy is maintained.

Moreover, facilities are required to establish monitoring rules for the transfer of N₂O (nitrous oxide) similar to the existing rules for the transfer of CO₂ (carbon dioxide), given that it is possible for facilities to transfer not only CO₂ but also N₂O among them. This measure aims to ensure comprehensive monitoring of all relevant greenhouse gas emissions and their transfers within the system.²¹³ The organizational structure of the competent national authority is rationalized and strengthened due to the complexity and specificity of the tasks at hand, which necessitate the employment of personnel with the required expertise in the field and dedicated full-time involvement in these activities. This measure is aimed at ensuring that the competent authority can effectively carry out its responsibilities and efficiently address the intricacies of its assigned tasks.²¹⁴ In conclusion, the Regulation stipulates that facility operators should be

²¹² Implementing Regulation, 2018/2066, Recitals 7 and 8.

²¹³ Implementing Regulation, Recital 18.

²¹⁴ M. NARDINI, *L'evoluzione dell'emission trading system europeo e l'impiego dei proventi delle aste CO₂ in Amministrazione in Cammino*, 2020, 16 ss.

obliged to periodically review the monitoring methodology with the aim of enhancing its effectiveness and taking into account the recommendations provided by verifiers during the verification process. This requirement ensures a continuous improvement approach and responsiveness to feedback, promoting the reliability and accuracy of the monitoring system over time.²¹⁵

7. The enforcement mechanism

In conclusion, the description of the European ETS system would be incomplete without addressing the enforcement mechanism, which serves as a crucial element in the monitoring and verification system. It can be regarded as an integral part of the "compliance cycle," as discussed in the preceding section.²¹⁶ The rationale behind the sanctioning regime of the ETS is twofold. On the one hand, it aims to ensure certainty in sanction enforcement, while on the other hand, it aims to identify types and levels of sanctions that align with market dynamics.. By setting appropriate and proportional sanctions, the ETS encourages companies to comply with their emission obligations while avoiding excessive penalties that could hinder market efficiency and participation.²¹⁷ The regulations encompass four types of sanctions. Firstly, a monetary penalty is imposed, proportionate to the emissions exceeding the authorized quantity. Initially, a fine of 40 euros per excess ton of emissions was set, which was increased to 100 euros by the end of the first triennium. This penalty maintains the obligation for exact quota restitution while avoiding undue financial burden on companies, ensuring it remains within their financial capacity.²¹⁸

²¹⁵ Implementing Regulation, Recital 25.

²¹⁶ V. JACOMETTI, *cit.*, 131.

²¹⁷ T.H. TIETENBERG, *Emissions Trading: Principles and Practice*, Washington D.C., Resources for the Future, 2006, 171.

²¹⁸ M. PEETERS, *The Enforcement of Greenhouse Gas Emissions Trading in Europe: Reliability Ensured?*, in L. PADDOCK ET AL., *Compliance and Enforcement in Environmental Law: Toward More Effective Implementation*, Cheltenham, 2011, 426.

The second sanction involves a reduction in the allocated allowances for the subsequent compliance period, proportionate to the excess emissions. Additionally, there is the possibility of exclusion, even temporarily, from the market until the irregular situation is rectified. Lastly, as an additional punitive measure, the publication of the names of transgressors (the so called “naming and shaming”) was implemented, serving as a deterrent against engaging in improper behaviour, as it led to negative publicity for the company.²¹⁹ Indeed, the ETS Directive grants individual Member States the freedom to choose the specific methods of publication, even though the measure itself is mandatory for all states. However, this discretionary approach can lead to a significant lack of efficacy in the sanction, as the publication is carried out in national official gazettes and may be challenging to access and comprehend for stakeholders from other countries.²²⁰

Unlike the centralized monitoring and control system, the enforcement mechanism is primarily delegated to individual Member States, which are responsible for establishing sanctions and identifying “*effective, proportionate, and dissuasive*” measures.²²¹ This has led to a significant heterogeneity in the adopted solutions, influenced by varying legal traditions, the underlying principles of the sanctioning strategy, and the available administrative resources.²²² The only exception provided for in this context concerns the violation of the obligation under Article 12, paragraph 3 of the 2003/87/EC Directive, concerning the periodic surrender of allowances corresponding to the verified and certified actual emissions. In this case, Article 16 adopts two of the four solutions mentioned earlier: a

²¹⁹ Article 16, paragraph 2, Directive 2003/87/EC; V. JACOMETTI, *Lo scambio di quote di emissione*, cit., 198; M. PEETERS, *Enforcement of the EU Greenhouse Gas Emissions Trading Scheme*, in K. DEKETELAERE, M. PEETERS (edited by), *EU Climate Change Policy: The Challenge of New Regulatory Initiatives*, Cheltenham, 2006, 169 ss.

²²⁰ M. PEETERS, H. CHEN, *Enforcement of Emissions Trading: Sanction regimes of greenhouse gas emissions trading in the EU and China in Maastricht Faculty of Law Working Paper*, 2015, 16 ss.

²²¹ Art. 16, par. 1, Directive 2003/87/EC.

²²² F. FLEURKE, J. VERSCHUUREN, *Enforcing the European Emissions Trading System within the EU Member States: a Procrustean bed?*, in T. SPAPENS, R. WHITE, W. HUISMAN (edited by), *Environmental Crime in Transnational Context*, New York, 2016, 5.

monetary penalty of €100.00 per excess ton of equivalent greenhouse gas emissions, without exempting the obligation to surrender all allowances corresponding to such emissions in the following calendar year.²²³ Regarding this matter, it is worth noting that the European Court of Justice has interpreted the Directive provisions in a very strict manner, affirming their applicability even in cases where non-compliance is due to a mere technical error on the part of the facility operator.²²⁴ Additionally, for aircraft operators specifically, there is the possibility of an operational ban, which can be imposed by the Commission upon the request of an individual Member State.²²⁵ However, despite the complex sanctioning mechanism described earlier, it is important to note that the EU ETS is sometimes prone to being exploited for IVA fraud or money laundering.²²⁶

²²³ Art. 16, par. 3, Directive n. 2003/87/EC.

²²⁴ C-203/12, *Billerud Karlsborg AB e Billerud Skärblacka AB c. Naturvårdsverket*.

²²⁵ Art. 16, par. 5 and following, Directive 2003/87/EC.

²²⁶ As documented in the INTERPOL report titled "Guidance to Carbon Crime" from 2013, there has been a significant increase in criminal activities related to carbon since 2009.

CHAPTER III

THE CHALLENGES OF THE ITALIAN LEGISLATOR IN THE IMPLEMENTATION OF THE ETS DIRECTIVE

1. The delay of Directive 2003/87/EC's implementation during the "pilot phase" and the National Allocation Plan 2005-2007 2. The original structure of the Italian ETS and the D.Lgs. n. 216/2006 3. The National Allocation Plan 2008-2012 4. The inclusion of the aviation sector with the D.Lgs. n. 257/2010; 5. The ETS amendments made with the D.Lgs n. 30/2013: the extension of the mechanism; 6. The monitoring and control system 6.1. The National *Emission Trading System* Registry 6.2. The National Registry of Small Emitters (RENAPE) 7. The Italian legal framework within which the D.lgs 47/2020 was adopted 7.1. The novelties introduced by the D.Lgs. n. 47/2020; 7.2. The establishment of effective compliance mechanisms and sanctions

1. The delay of Directive 2003/87/EC's implementation during the "pilot phase" and the National Allocation Plan 2005- 2007

Until now, the subject of the emission trading scheme mechanism has been addressed solely within the framework of European regulations, namely the Directive ETS 2003/87/EC. However, this chapter will delve into an analysis of how Italy has aligned itself with the provisions set forth by the European legislator in implementing this directive and, consequently, fulfilling the obligations imposed by the Kyoto Protocol. It is crucial to recall that Italy, as a party to the United Nations Framework Convention on Climate Change (UNFCCC) and its subsequent implementing protocols, is internationally bound in this context.²²⁷ Specifically, through the ratification

²²⁷ Italy signed the UNFCCC on June 5, 1992, and subsequently ratified it through Law No. 65 of January 15, 1994. This ratification pertains to the United Nations Framework Convention on Climate Change and was published on 29 January 1994.

of the Kyoto Protocol, Italy committed to reduce greenhouse gas emissions by 6.5% compared to 1990 levels within the period spanning from 2008 to 2012.²²⁸ Indeed, on June 1, 2002, Italy enacted Law n. 120 titled "*Ratification and Implementation of the Kyoto Protocol to the United Nations Framework Convention on Climate Change, adopted in Kyoto on 11 December 1997*"²²⁹ through which, the Italian legislature aims to provide tangible implementation of the protocol, collectively fulfilling, along with other Member States, the reduction obligations outlined in the political agreement for burden sharing at the European level, namely the Burden Sharing Agreement discussed in the preceding chapter.²³⁰

However, notwithstanding the initial endorsement by the Italian government for the creation of a European market designed to facilitate the trade of emission allowances, a notable degree of skepticism emerged when it came to assimilating the regulations stipulated by the European legislature. In particular, this skepticism was directed towards the ETS and its practical efficacy in achieving emission reductions through this mechanism. Unavoidably, these reservations transformed into inertia, resulting in a belated adoption of the European regulations concerning the ETS within the European market, as well as in terms of the measures essential for the development of *Joint Implementation* and *Clean Development Mechanism* projects, for which Italy seemed to hold a more positive disposition. In fact, as of November 2003, Italy had not yet transposed Directive 2003/87/EC into its national framework, despite the aforementioned directive, as discussed in the preceding chapter, stipulating that Member States were required to implement these measures by 31 December 2003.²³¹ It is worth noting that, although the timelines provided by the European Commission for the implementation of the ETS Directive proved to be quite inadequate for prompt adoption of the regulations by the member states, the Italian

²²⁸ The percentage of 6.5% does not directly stem from the Protocol itself but rather from the European Union's Burden Sharing Agreement, which allocates responsibilities among EU Member States.

²²⁹ G.U. 19 June 2002 n. 142.

²³⁰ See Chapter II Section I par. 1.

²³¹ Article 31 par.1 Directive 2003/87/EC.

government also displayed limited effort in adhering to these deadlines.²³² Consequently, the European Commission issued a formal notice of non-compliance to Italy, accompanied by an opinion setting a new deadline (September 2004) for the fulfilment of all provisions outlined in the European regulations. To prevent facilities within the emissions trading system from operating illegally, since the ETS system was already in force, Italy enacted Decree-Law n. 273 of 2004, titled "*Urgent Provisions for the Implementation of Directive 2003/87/EC on Greenhouse Gas Emission Allowance Trading within the European Community*."²³³ This decree was later converted into Law n. 316 of 30 December 2004, "*Conversion into law, with amendments, of Decree-Law No. 273 of 12 November 2004, containing urgent provisions for the implementation of Directive 2003/87/EC on greenhouse gas emission allowance trading within the European Community*."²³⁴

However, the transposition of the 2003 Directive by the Italian legislature occurred partially and belatedly in relation to the assigned deadline. In fact, since the Decree-Law n. 273/2004 was adopted in November rather than the required September, Italy became subject to an infringement procedure by the European Commission.²³⁵ The procedure culminated in the condemnation of the country for failing to adopt all the necessary provisions to conform to the ETS Directive.²³⁶

Indeed, apart from the delay, the adopted measures proved to be fundamentally incomplete. Specifically, the Decree n. 273/2004 reiterated that starting from 1 January 2005, the facilities falling under the scope of the directive could not emit CO₂ or operate without a specific authorization, providing directions solely in relation to the deadline by which the operators of the facilities listed in Annex I of the ETS Directive were required to

²³² V. JACOMETTI, *Lo scambio di quote di emissione*, Milano, 2010, 410.

²³³ G.U. 15 November 2004 n.268

²³⁴ G.U. 4 January 2005 n.2.

²³⁵ E. CICIGOI, P.FABBRI, *Mercato delle emissioni ad effetto serra*, Milano, 2007, 48.

²³⁶ Court of Justice (Sec. V.) "Non-compliance of a state, Directive 2003/87/EC; greenhouse gas emission allowance trading system; failure to transpose within the prescribed deadline, *Commission v. Italia*, 18 May 2006, C-122/05.

submit authorization applications (December 5, 2004) and report emissions from their respective facilities (December 30, 2004). Additionally, it designated the Ministry of the Environment and Territory Protection – Directorate for Environmental Research and Development (- *Ministero dell’Ambiente e della Tutela del Territorio– Direzione per la ricerca ambientale e lo sviluppo - RAS*) as the competent authority until the transposition of the Directive. The authorizations were subsequently issued by the Ministry of the Environment and the Ministry of Productive Activities between December 2004 and January 2005, cumulatively.²³⁷

Furthermore, the Italian national plan was submitted to the Commission in two parts: the first part in July 2004, prior to the adoption of Decree 273/2004, and the second part in February 2005.²³⁸ This occurred despite the requirement set by the European legislation for communicating the National Allocation Plan (NAP) by 31 March 2004. It should be noted that Article 9 of the Directive mandated each Member State to develop a National Allocation Plan (NAP) for each compliance period, outlining emission reduction measures. This plan was to be based on the criteria outlined in Annex III of the directive and include details about the total allowances to be assigned as well as the specific methods for allocation.²³⁹

The initially formulated plan by Italy did not specify the facilities to which emission allowances would be allocated, nor did it provide information on the total number of allowances to be distributed or details about the operation of the national emissions trading market.²⁴⁰

Consequently, the Commission requested the plan to be revised, and the enterprises involved in the ETS mechanism (approximately 1200) provided

²³⁷ V. JACOMETTI, *Lo scambio di quote di emissione*, Milano, 2010, 412; See also C. TOSELLO, *Effetto Serra ed Emission Trading: il commercio dei diritti di e-missione*, in *Riv. dir. agr.*, 2005, 463-477; G. BELOTTI, F.P. BELLO, *Il nuovo sistema comunitario per il commercio delle quote di CO2 (U’ben s’impingua se non si vaneggia)*, in *Dir. scambi int.*, 2006, n. 3, 595-607.

²³⁸ The integrated document is available on the website of the Ministry of the Environment and Protection of Land and Sea <https://www.minambiente.it/sites/default/files/archivio/allegati/autorizzazioni/pna_italia_integrazione.pdf>

²³⁹ See Article 9, Directive 2003/87/EC.

²⁴⁰ M. D’AURIA, *La Direttiva europea «emissions trading» e la sua attuazione in Italia*, in *Giornale di Diritto Amministrativo*, 2005, n. 4, 457.

the necessary information to the Ministry of the Environment by December 30, 2004. The Commission approved the plan on May 25, 2005, on the condition that Italy “*reduced the overall average annual allocation of allowances by 23.0 million tons compared to what was initially indicated in the notified Plan. This adjustment brought the maximum annual emissions of the sector involved in trading to 232.5 million tons.*”²⁴¹

The responsibility for authorizing operators to emit CO₂, providing guidance for emissions monitoring, and, following the final approval of the Plan by the EU Commission, for the actual allocation of quotas for the years 2005 and 2006 was entrusted to the Ministry of the Environment through various directorial decrees as outlined in the Decree of 2004.²⁴² Specifically, the decision regarding the allocation of quotas was carried out through the Ministry of Environment's Decree of 23 February 2006, titled “*Allocation and Issuance of CO₂ Allowances for the 2005-2007 period as stipulated by Article 11, paragraph 1 of Directive 2003/87/EC.*” This decree assigned the tasks of preparing, maintaining, and administering the national registry of emissions and emission allowances to the Agency for Environmental Protection and Technical Services (APAT), now known as ISPRA (Institute for Environmental Protection and Research). Operators of the relevant facilities were required to apply for registration within 10 days from the publication of this decree.²⁴³ Additionally, the responsibility of overseeing the issuance of allocated allowances through the previously mentioned Registry was entrusted to APAT.

²⁴¹ Binding Decision C (2005) 1527 def of the European Commission, 25 May 2005. <https://www.minambiente.it/sites/default/files/archivio/allegati/autorizzazioni/nap_it.pdf>

²⁴² Decrees DEC/RAS/2179/2004, DEC/RAS/2215/2004, and DEC/RAS/013/2005 were adopted in accordance with Decree-Law n. 273 12 November 2004, converted into law with amendments by Law of 30 December 2004, n. 316. These decrees were subsequently replaced by Ministerial Decree, 16 February 2006, published in the Official Gazette, General Series, No. 57, 9 March 2006.

²⁴³ F. GASPARI, *Tutela dell'ambiente, regolazione e controlli pubblici: recenti sviluppi in materia di EU Emission Trading Scheme (ETS)*, in *Rivista Italiana di Diritto Pubblico Comunitario*, 2011, n. 5, 1156.

2. The original structure of the Italian ETS and the D.Lgs. n. 216/2006

Italy conformed to European Union framework pertaining to emissions trading with significant delay, ultimately incorporating both the ETS Directive and the Linking Directive.²⁴⁴ This conformation led to the abrogation of previously cited directorial decrees that had enabled the system's initiation. The comprehensive integration of European guidelines was realized through Legislative Decree n. 216 of 4 April 2006, titled *"Implementation of Directives 2003/87 and 2004/101/EC concerning the exchange of greenhouse gas emission allowances within the Community, with reference to the project mechanisms of the Kyoto Protocol."*²⁴⁵ The Legislative Decree consisted of 28 articles and 8 annexes, encompassing a comprehensive system of public law regulations designed to facilitate the establishment of the proper functioning of the artificial emissions allowance market in Italy.²⁴⁶

The system outlined in the legislative decree of reception is founded upon the same pillars as the European regulatory framework, encompassing the concept of a *permit*, namely the authorization to emit greenhouse gases. This system also involves the National Allocation Plan (PNA) and the subsequent allocation of allowances to various authorized operators. Additionally, it encompasses the dynamic aspect of the system, which pertains to the trading, sale, and redemption of allowances recorded in the Registries.

In accordance with Article 4 of Directive 2003/87/EC, legislative decree n. 216 stipulated that no facility could engage in activities listed in Annex A without possessing the corresponding authorization. With exemptions for authorizations issued prior to the enactment of the 2006 Decree, or those adopted in the interim under the provisions of Decree n. 273/2004 converted

²⁴⁴ Directive 2004/101/EC amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms, 27 October 2004.

²⁴⁵ Subsequently amended by d.lgs.51/2008, Law of 23 July 2009 n. 99, Law 20 November 2009 n.166, and d.lgs.257/2010.

²⁴⁶ G. GARZIA, *Il recepimento delle Direttive Emission Trading e Linking: D.Lgs. n. 216/2006 e problemi di attuazione nell'ordinamento interno*, in *Ambiente e Sviluppo*, n. 9, 2006.

into Law of 30 December 2004, n. 316, facility operators were required to submit their applications to the Competent National Authority for greenhouse gas emission authorization at least 90 days before the facility's operational commencement. Without this authorization, the operation of the facility would have been prohibited.

Indeed, Article 27, paragraph 4 of Legislative Decree n. 216 established that the authorizations granted under Article 1 of Decree n. 273 of 12 November 2004, would be deemed equivalent to those specified in Article 4 of Directive 2003/87/EC²⁴⁷ until 31 December 2007.²⁴⁸ Once the Competent National Authority (ANC) had verified the accuracy and completeness of the operator's application in accordance with the stipulations outlined in Annex C, it would proceed to issue the authorization within 45 days thereafter. Article 6 prescribed the specific content that the authorization decision should embody, aligning it with the authorization request. Notably, the legally assigned threshold for each operator could vary based on the company's commercial transactions in the market.²⁴⁹ Furthermore, according to Article 7, authorizations can be amended in the event of changes to the facility, the identity of its operator, or alterations in both European and national regulations.

Given the discretionary power entrusted to national legislators in implementing the directive, the Legislative Decree opted for a primarily centralized approach concerning the Competent National Authority (ANC). Indeed, this role was assumed by the National Management and Implementation Committee for Directive 2003/87/EC²⁵⁰, established within the then Ministry of Environment, specifically under the Directorate for Environmental Research and Development (RAS). In fact, the prevailing

²⁴⁷ Article 4, Directive 2003/87/EC provides that “*Member States shall ensure that, from 1 January 2005, no installation undertakes any activity listed in Annex I resulting in emissions specified in relation to that activity unless its operator holds a permit issued by a competent authority in accordance with Articles 5 and 6, or the installation is temporarily excluded from the Community scheme pursuant to Article 27.*”

²⁴⁸ Article 27, D.lgs 216/2006.

²⁴⁹ S. NESPOR, A. L. DE CESARIS, *Codice dell'Ambiente*, Milano, 840.

²⁵⁰ The National Management and Implementation Committee for Directive 2003/87/EC (*Comitato nazionale di gestione e attuazione della Direttiva 2003/87/CE*) operates nowadays under the designation of the “ETS Committee”.

approach for supervising emissions trading activities involved the adoption of a centralized authority to consolidate competencies.²⁵¹ The Committee underwent alterations in both its composition and functions as a result of the ministerial decree dated 26 January 2012, which led to the transformation of the Committee into an entity operating within the Ministry of Environment. Presently, the Committee comprises three entities: the executive council, responsible for decision-making functions; the Technical Secretariat, primarily engaged in investigative activities; and the Technical Secretariat for CO₂ storage, focusing on the aforementioned domain. The subject of CO₂ storage is governed at the European level by Directive 2009/31/EC, transposed into Italian law through Legislative Decree n. 162 of 2011.

The national Committee was intended to fulfill all the functions that EU regulations attributed to the National Competent Authority (NCA), including the preparation of the National Allocation Plan, its notification to the European Commission following approval by the Minister of Environment and the Minister of Economic Development, allocation of allowances to new entrants, determination of allowance distribution, issuance of greenhouse gas emission authorizations and emission allowances, as well as the imposition of sanctions. Furthermore, this Committee was designated as the "*point of contact for JI activities and National Designated Authority for CDM activities*."²⁵² As a result, the ETS Committee was designated as the authoritative body for the implementation of both Directive 2003/87/EC and for the project activities under the Kyoto Protocol. However, the centralized administrative organization of the system was offset by the provision allowing any entity, whether public or private, such as local authorities (Regions) and environmental associations, to participate as operators in the Emission Trading market.²⁵³ Article 15 of

²⁵¹ Article 8, D.Lgs. 216/2006.

²⁵² F. GASPARI, *Tutela dell'ambiente, regolazione e controlli pubblici: recenti sviluppi in materia di EU Emission Trading Scheme (ETS)*, in *Rivista Italiana di Diritto Pubblico Comunitario*, 2011, n.5, 1159.

²⁵³ Article 14 par.3 and par. 15 which establishes the individual freedom of acquisition and sale of quotas.

Decree 216/2006 also governed the activities of trading, surrender, and cancellation, to be conducted for the purpose of fulfilling prescribed reduction obligations. In fact, paragraph 1 introduced the foundational principle of exchanges, which was the "*subjective freedom to purchase (and subsequently sell) emission allowances by any entity (individual or legal person), even in cases where they are not an operator within the allowance allocation system (consider, for example, an environmental association or a private citizen).*"²⁵⁴ Moreover, paragraph 5 stipulated that each year, by March 31st, every facility was required to submit a declaration detailing the activities carried out in the previous calendar year. This declaration had to be accompanied by a reliability, credibility, and accuracy attestation for the systems used as the basis for monitoring emissions. As per the subsequent paragraph 7, by April 30th of each year, every operator was obligated to surrender all emission allowances recorded in the Registry, corresponding to the quantities of emissions released by the facility in the preceding calendar year.

Furthermore, the 216/2006 decree was amended by Legislative Decree n. 51 of 7 March 2008, which introduced Article 14*bis*, establishing a national system to create the inventory of greenhouse gases.²⁵⁵ Nevertheless, given that the decree was issued in 2008, during the ETS's second phase of implementation when the primary role of the ANC was the preparation of the National Allocation Plan (PNA), the introduced regulatory innovation partially proved to be redundant.²⁵⁶

Regarding the scope of application, the provisions outlined in Decree No. 216/2006 were to be applied to the activities listed in Annex A and the greenhouse gases identified in Annex B. Annex A of the decree encompassed, in line with Directive 2003/87/EC, significant energy

²⁵⁴ G. GARZIA, *Il recepimento delle Direttive Emission Trading e Linking: D.Lgs. n. 216/2006 e problemi di attuazione nell'ordinamento interno*, cit., 2006, 877.

²⁵⁵ Legislative Decree n. 51, 7 March 2008, "*Amendments and Additions to Legislative Decree n. 216 of 4 April 2006, implementing Directives 2003/87/EC and 2004/101/EC concerning the exchange of greenhouse gas emission allowances within the Community, with reference to the project mechanisms of the Kyoto Protocol.*" G.U. n. 82, 7 April 2008.

²⁵⁶ A. MURATORI, *Emission Trading: mentre l'Europa guarda avanti, l'Italia affina gli strumenti ma si interroga sul domani*, in *Ambiente e Sviluppo*, 2008, n. 8, p. 760.

installations, activities related to the production and transformation of ferrous materials, mining industry activities, and paper and cardboard manufacturing facilities. Likewise, concerning the gases regulated by Annex B of the decree, they aligned with those listed in Annex II of the 2003 Directive (which, in turn, were aligned with those of the Kyoto Protocol). However, it is important to note that within the emissions trading scheme, only emissions related to carbon dioxide would be effectively regulated.²⁵⁷ Furthermore, according to Article 12 of the 2006 Legislative Decree, facility operators, for the purpose of allocation of emission allowances, were required to provide the Committee with the minimum information specified in Annex H within the timelines and procedures established by the Committee. As for the third pillar of the ETS system, namely the accounting of issued, held, transferred, and cancelled allowances through the National Registry, its regulations were outlined in Article 14. As mentioned earlier, the Registry had already been established by a Directorial Decree in 2006 and was entrusted to the management of APAT. However, it officially became operational on April 21, 2006.

Moreover, the centralization of the Registry system at the European level occurred only in 2009 with Directive 2009/29/EC. Prior to that, as elucidated in the preceding chapter, the system consisted of aggregating information from individual National Registries into the CITL (Community Independent Transaction Log).²⁵⁸

Finally, in accordance with European provisions, Article 20 addressed the establishment of the enforcement system. Administrative pecuniary sanctions were outlined for individuals who engaged in activities regulated by the decree without the authorization as stipulated in Article 4. The pecuniary penalty ranged from 2,500 euros to 50,000 euros, with an additional amount of 40 euros for each ton of carbon dioxide emitted in violation of the regulations. Similar sanctions would be applied to facility

²⁵⁷As elucidated in Chapter II, Section II, paragraph 1, this choice is justified by the increased certainty surrounding measurements of CO₂ emissions and the greater impact of carbon dioxide in terms of the quantity of emissions generated.

²⁵⁸ See Chapter II par.6.

operators who failed to comply with the obligations outlined in Articles 12 and 15. The authority to impose these sanctions rested with the ETS Committee.²⁵⁹

3. The National Allocation Plan 2008-2012

As previously mentioned, Italy was obligated to reduce its emissions by 6.5% during the period 2008-2012 in compliance with the Burden Sharing Agreement. In absolute terms, this meant not exceeding 485.7 MtCO₂eq (million metric tons of CO₂) over the 2008-2012 period. Thus, the approval process for the National Allocation Plan (NAP) commenced, initiated by the public consultation procedure on the draft National Allocation Plan. This was notified through an announcement published in the Official Gazette of the Italian Republic (*Gazzetta Ufficiale*).²⁶⁰ In December 2006, the National Allocation Plan (NAP) for the second phase of the Emissions Trading System (ETS) implementation, covering the period 2008-2012, was approved. It was annexed to the Decree of the Minister of Environment and Sea Protection and the Minister of Economic Development. Subsequently, this plan was officially communicated to the European Commission by the ETS Committee.²⁶¹ The Plan evaluated the total average annual allocation for the reference five-year period to be 209 MtCO₂/year (including 18.25 MtCO₂/year reserved for new entrants and the rest for existing installations). This calculation was based on subtracting the allocation value from the previous period (2005-2007), which was 223.11 MtCO₂/year, from the required reduction effort for the current ETS sectors in the period 2008-2012, which amounted to 14.1 MtCO₂/year.

It was envisaged that credits from other Kyoto mechanisms - Clean Development Mechanism (CERs), and Joint Implementation (ERUs) - could be utilized to a maximum of 25% relative to the allowances allocated

²⁵⁹ Article 20, D.lgs 216/2002.

²⁶⁰ GU n. 168 of 21 July 2006 e GU n. 183 8 August 2006.

²⁶¹ DEC/RAS/1448/2006.

to each installation to meet the annual emission containment obligation. However, the European Commission noted various inconsistencies in this NAP with the criteria specified in Annex III of the ETS Directive for the drafting of plans, as highlighted in its Decision dated 15 May 2007.²⁶² Firstly, a reduction in the annual allowances allocation was mandated, concurrently demanding a heightened effort from the sectors regulated by the Directives. The quantity of allowances was decreased by 6.3%, diminishing from 209 to 195.8 million metric tons of CO₂eq.²⁶³ Secondly, the Commission raised objections to the percentage of credits derived from the Clean Development Mechanism (CDM) and Joint Implementation (JI) systems, considering it excessively high for fulfilling the annual obligation of emissions allowance surrender. This discordance with the supplementary obligations established for Italy under the Kyoto Protocol and UNFCCC led to a reduction in the utilization of project credits to approximately 15%. This ten-percentage-point reduction was deemed necessary due to the potential for an excessive use of CERs and ERUs to further exacerbate the already significant supply-side imbalance of allowances, thus precipitating a collapse in the value of emission rights. Finally, the Commission sought clarification regarding the treatment of new entering installations. Additionally, it required the inclusion of combustion plants and the elimination of provisions mandating ex post adjustments, as the Plan allowed for later adjustment of permit allocations based on the actual operation of the installation, employing a mechanism that was deemed to lack transparency.²⁶⁴ After drafting the NAP, the allocation of allowances to installations occurred by February 28th of each year. Through Resolution No. 33 in July 2007, the national ETS Committee commenced the data collection process for the parameters essential for allocation decisions. Within 30 days of the Resolution's publication, the operators submitted the

²⁶² EUROPEAN COMMISSION, *Decision regarding the national allocation plan for greenhouse gas emission allowances notified by Italy in accordance with Directive 2003/87/EC of the European Parliament and of the Council*, Brussels, 15 May 2007.

²⁶³ V. JACOMETTI., *Lo scambio di quote di emissione*, Milano, 2010, 419

²⁶⁴ ID,420.

requisite information.²⁶⁵ On February 20, 2008, the Allocation Decision was issued, and it was made enforceable by the Committee on November 27, 2008. Once again, this was delayed in comparison to the European Union's prescribed timeline. The allocation process for the year 2008 was effectively concluded on December 3, 2008. As per Article 9 of Directive 2003/87/EC, the National Allocation Plan (NAP) should have been notified to the European Commission eighteen months before the start of the reference period (thus by the end of June 2006).²⁶⁶ Undoubtedly, this delay in the approval of the Plan primarily disadvantaged domestic economic operators in devising effective market strategies for leveraging the ETS system and generating profit.

4. The inclusion of the aviation sector with the D.Lgs. n. 257/2010

Directive 2008/101/EC, as discussed in the previous chapter, encompassing the aviation sector within the European Union Emissions Trading System (EU ETS), was transposed into Italian law through Law n. 166 of 20 November 2009²⁶⁷, and Legislative Decree n. 257 of 30 December 2010, amending Legislative Decree n. 216/2006.²⁶⁸ Indeed, both in Italy and across the EU, the aviation sector was experiencing significant growth, thereby necessitating the extension of the tradable permit system to encompass this sector. This move was driven by the sector's substantial contribution to greenhouse gas emissions, aligning with the broader goal of

²⁶⁵Resolution 33/2007, available on the website of the Ministry of the Environment at https://www.minambiente.it/sites/default/files/archivio/allegati/emission_trading/delibera_zione_n._033-2007.pdf; The Committee's Resolution was published in the Official Gazette (GU) n. 202 on 31 August 2007. As a result, installations were required to submit updated information by 30 September 2007.

²⁶⁶The provision stipulated that "*For subsequent periods, the Plan is published and notified to the Commission and other Member States at least eighteen months before the start of the relevant period.*"

²⁶⁷Law n. 166, Conversion into law, with amendments, of D.lgs n. 135 of September 25, 2009, containing urgent provisions for the implementation of EU's obligations and the execution of judgments of the Court of Justice of the European Communities, 20 November 2009.

²⁶⁸Legislative Decree n. 257, Implementing Directive 2008/101/EC amending Directive 2003/87/EC in order to include aviation activities in the European Union Emissions Trading System, 30 December 2010.

addressing environmental concerns.²⁶⁹ As observed in the preceding chapter, in 2020, the annual global emissions from international air transport were approximately 70% higher than those in 2005. The international civil aviation organization has projected that, if these trends persist, emissions could increase by over 300% by 2050. The domestic context follows a similar trajectory, although it does not encompass emissions from international transport, thus rendering terrestrial transportation modes of greater relative magnitude.²⁷⁰

Prior to delving into an examination of the new developments related to the aviation sector, it is noteworthy to specify that Legislative Decree n. 257/2010 also introduced further amendments regarding the designation of the relevant Directorate within the Ministry of the Environment. This designation changed from the Directorate for Environmental Research and Development (RAS) to the Directorate for Sustainable Development, Climate, and Energy (SSCE). Additionally, all competences explicitly related to APAT were transferred to ISPRA (Italian National Institute for Environmental Protection and Research). Lastly, the Management and Implementation Committee for Directive 2003/87/EC transitioned into the National Committee for the Management of Directive 2003/87/EC and for providing support in the management of Kyoto Protocol project activities. Regarding matters concerning the aviation domain, starting from 2012, all flights arriving at or departing from an airport located within Italian territory became subject to the emission limits set forth by the ETS Directive. An addendum labeled "Annex *Abis*" was appended to D.lgs n. 216/2006, enumerating activities excluded from the ETS regulation. These encompassed State and military flights, flights conducted for research and rescue purposes, or for aircraft testing, corresponding to the same activities outlined in the EU regulations. Notably, this list included a "de minimis" clause, whereby a commercial aviation operator that conducted "*fewer than 243 flights per period for three consecutive four-month periods or flights*

²⁶⁹ See Chapter II, Section II Par. 1.2.

²⁷⁰ ICAO, Trends in Emissions that Infect Climate Change, available at <www.icao.int>

*with total annual emissions below 10,000 tons per year" could be exempted from the system.*²⁷¹

Furthermore, for participation in the system, it was required that by February 28 of each year, the Committee would issue to each airline operator administered by Italy the number of allowances allocated for that year in accordance with Article 3^{ter} and subsequent provisions. The Committee would also communicate the allocation of emission allowances to the Italian airline operator and to the Administrator of the registry as stipulated in Article 14, paragraph 2.

The Italian airline operator would be obligated to surrender, by April 30 of each year, a number of allowances corresponding to the total emissions produced in the preceding calendar year.²⁷²

Concerning the compliance requirements pertaining to monitoring, verification, controls, and penalties, the provisions mirrored what was established for installations already regulated by the legal framework.

Furthermore, with the approval of European Regulation 421/2014²⁷³ the regulatory framework underwent several modifications in anticipation of the International Civil Aviation Organization (ICAO), adopting a unified measure to globally regulate CO₂ emissions in the aviation sector. As elucidated in the previous chapter, in 2016, the ICAO Assembly announced the establishment of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) agreement, which was applied and integrated at the European level through Regulation 2392/2017/EU. In Italy, the ETS Committee will manage the implementation of CORSIA with the technical support of the Ministry of Infrastructure and Transport and the National Civil Aviation Authority (ENAC).²⁷⁴

²⁷¹ See Annex *Abis* letter (j).

²⁷² P. SIMONE, *L' "European Union Emissions Trading Scheme" (EU ETS) e la navigazione aerea*, in *Riv. dir. nav.*, 2015, 1, 193 ss.

²⁷³ Regulation (EU) n. 421/2014, establishing a scheme for greenhouse gas emission allowance trading within the Community, in view of the implementation by 2020 of an international agreement applying a single global market-based measure to international aviation emissions, 16 April 2014.

²⁷⁴ F. SALERNO, *Le recenti misure per contrastare l'impatto ambientale del trasporto aereo*, in *Il Diritto marittimo*, 2017, 1, 68 ss.

In June 2018, the ICAO Council approved the CORSIA Standards constituting Volume 4 of Annex 16 to the Chicago Convention, which delineates the detailed rules of the scheme. The initial obligation for aircraft operators administered in Italy is to submit their emissions monitoring plan for approval by the ETS Committee, using the new format established by the European Commission and adopted through specific Resolution 10/2019.²⁷⁵ Furthermore, it is envisaged that as of 1 January 2019, aircraft operators are required to monitor and subject to verification their CO2 emissions even for routes outside the EEA that fall within the CORSIA framework.²⁷⁶ Moreover, with Resolution n. 162/2019 of 18 November 2019, the ETS Committee compiled the list of national airline operators included in the CORSIA system.²⁷⁷

Lastly, noteworthy among the recent legislative developments in emissions reduction within the aviation sector are the provisions outlined in the National Recovery and Resilience Plan.²⁷⁸ Notably, there is a section explicitly dedicated to the digital innovation of airport systems, further subdivided into three objectives. Of particular significance is the digital innovation applied to the aviation transport sector, aimed at enhancing aircraft sequencing both in en-route airspace and during approach to airports. This is anticipated to result in optimization and fuel consumption reduction.²⁷⁹

²⁷⁵ Resolution n. 10/2019, Update of the monitoring plan template for aircraft operators administered by Italy, in accordance with Article 34, paragraph 2 of Dlgs. 30/2013. Available at <https://www.mase.gov.it/sites/default/files/archivio/allegati/emission_trading/deliberazione_10_2019.pdf>

²⁷⁶ <https://www.mase.gov.it/pagina/corsia-carbon-offsetting-and-reduction-scheme-international-aviation>.

²⁷⁷ Available at <https://www.minambiente.it/sites/default/files/archivio/allegati/emission_trading/deliberazione_162_2019.pdf>

²⁷⁸ Reference is made to the National Recovery and Resilience Plan in the version approved on April 27, 2021, by both the Chamber of Deputies and the Senate. Subsequently, it was transmitted to the European Commission, which on June 22, 2021, published the draft implementing decision of the Council, providing an overall positive assessment of the Italian NRRP. On July 13, 2021, the national NRRP was definitively approved with the implementing decision of the Council, which adopted the European Commission's proposal.

²⁷⁹ S. PEDRABISSI, *Il trasporto aereo nazionale nel Piano Nazionale di Ripresa e Resilienza in Rivista Quadrimestrale di Diritto dell'Ambiente*, 2021, 1, 563 ss.

5. The ETS amendments made with the D.Lgs n. 30/2013: the extension of the mechanism

As we have seen in the previous chapter, the experience gained during the initial years of implementing the EU regulation of the greenhouse gas emissions trading system proved to be quite burdensome for both the participating operators and the competent authorities. This led the EU legislator to recognize the need for simplifying the allocation process. In fact, the ETS Directive underwent certain amendments through Directive 29/2009/EC, which was included in the legislative measures outlined in the 20-20-20 Climate and Energy Package. This directive was transposed into Italian law through Legislative Decree n. 30 of 13 March 2013.²⁸⁰

It is worth noting that in the year 2009, the Interministerial Committee for Economic Planning (CIPE) established the Technical Committee for Greenhouse Gas Policies (CTE). This committee was tasked with preparing an annual report on greenhouse gas emissions and proposing potential modifications to the prescribed maximum emission cap. The objective was to ensure that the Plans closely aligned with the national emissions, reflecting the dynamic nature of emissions over time.²⁸¹

Concerning the 2009 Directive, it will be briefly revisit the innovations introduced by this new legislation at European level, which have been already extensively examined in Chapter II.

First of all, it expanded the ETS system to encompass new industrial sectors, such as aluminum and ammonia production plants, and included two additional gases (nitrous oxide and perfluorocarbons). Furthermore, the directive established a fixed total number of emission allowances (cap) at the European level, subject to an annual reduction linearly set at 1.74%. The 2009 directive definitively favoured the auctioning method for allowance

²⁸⁰ D.Lgs. 13 March 2013, n. 30, Implementation of Directive 2009/29/EC amending Directive 2003/87/EC with the aim of enhancing and expanding the European Union emission trading system for greenhouse gas emissions trading, G.U. n. 79 of 4 April 2013.

²⁸¹ CIPE Resolution n. 16, 8 May 2009.

allocation, reducing the proportion of allowances granted for free. Moreover, it granted individual EU Member States the discretion to exclude so-called small installations from the system, provided that such exclusions were accompanied by equivalent emission reduction measures.²⁸²

In light of these European-level amendments, the Italian legislature opted to comprehensively revise Legislative Decree n. 216 by abrogating it and replacing it with Decree n. 30 of 2013. The new Decree proved to be a structurally intricate document, composed of forty-six articles distributed across six chapters and supplemented by eight annexes.

Concerning its scope of application, Article 2 referred to the activities listed in Annex I, which could be categorized into two main sectors: activities carried out at stationary installations. This sector, in turn, was divided into three categories detailed as follows: *a) Production activities at stationary installations involving emissions of carbon dioxide alone. The individual entries were specified and integrated through Legislative Decree No. 30/2013, encompassing a total of twenty-one activities; b) Production activities at stationary installations involving emissions of carbon dioxide and other greenhouse gases (currently perfluorocarbons for primary aluminum production and nitrous oxide for other activities in the category), newly brought into the ETS system by Legislative Decree No. 30/2013, in line with the provisions of Directive No. 2009/29/EC; c) Activities related to the capture and geological storage of CO₂, comprising three types of activities subject to the emissions trading system.*²⁸³ Furthermore, a notable exclusion from the scope of the Decree pertained to waste incineration plants with thermal capacity exceeding 20 MW. Instead, they fell under the category "*Combustion of fuels in installations with a total nominal thermal output exceeding 20 MW,*" which is the first and most comprehensive classification among those listed in Annex I. These installations annually process more than 50% by weight of the following types of waste: “a)

²⁸² A. MURATORI, *Emission Trading: mentre l'Europa guarda avanti, l'Italia affina gli strumenti ma si interroga sul domani*, in *Ambiente e Sviluppo*, 2008, 8, 756; see also Chapter II Section II par. 2.

²⁸³ A. MURATORI, *Emission Trading 2020: le nuove regole per il terzo periodo*, in *Ambiente e Sviluppo*, 2013, 6, 544.

*municipal waste; b) hazardous waste; c) non-hazardous special waste generated by waste treatment plants, which, in turn, are annually supplied with municipal waste for over 50% by weight.*²⁸⁴

The second major sector encompasses aviation activities, and the exclusions from the new decree in this domain align with those already established by Legislative Decree n. 257/2010. Continuing with the scope of application, Annex II identifies the gases encompassed within the system, including not only CO₂ emissions but also those of nitrous oxide (N₂O) and perfluorocarbons.²⁸⁵

Furthermore, the Legislative Decree of 2013 reiterated several of the fundamental obligations placed upon facility operators and aviation operators as envisaged by the 2006 decree. For instance, it once again established the mandatory requirement for a prior authorization request. This request, necessary for releasing greenhouse gases into the environment, was to be submitted to the ETS Committee at least 90 days before the commencement of the facility's operation. The Committee would then make a decision within the subsequent 45 days. Additionally, the application had to be accompanied by documentation pertaining to the monitoring plan.²⁸⁶ Failure to comply with these provisions would result in the sanctions outlined in Article 36. Specifically, this article stipulated the imposition of an "*administrative pecuniary penalty ranging from 25,000 euros to 250,000 euros, increased by 100 euros for each ton of carbon dioxide equivalent emitted without authorization, as well as an amount corresponding to the purchase and transfer cost to the Union Registry of a quantity of emission allowances equal to: a) the difference between the emissions released into the atmosphere without authorization and the amount of allowances that would have been allocated free of charge, in case the operator has received free allocation of allowances; b) the emissions released into the atmosphere without authorization, in case the operator has not received free allocation*

²⁸⁴ Article 2 par. 2, D.lgs. n. 30/2013.

²⁸⁵ Consistently with Directive 29/2009 scope of application

²⁸⁶ The authorization aspects within D.lgs 30/2013 are governed by Articles 13 and following in Chapter IV concerning stationary installations, while the authorizations for aviation operators are regulated in Chapter III by Articles 6 and following.

of allowances." ²⁸⁷ Furthermore, through the Decision n. 27/2012, the ETS Committee had already established the obligation for operators to prepare and submit a Monitoring Plan for significant changes to the monitoring system. ²⁸⁸

The most innovative aspects arising from the transposition of Directive 2009/29/EC were found in the provisions related to the allocation of allowances, which shifted towards a greater emphasis on auctioning. In fact, according to Article 21 of the Decree, the electricity production sector and the infrastructure for the capture, transport, and storage of CO₂ (CCS) were completely exempted from free allocation, while other activities would continue to receive decreasing amounts of free allocation over time through the application of the linear reduction factor stipulated by Article 9 of Directive 29/2009/EC. ²⁸⁹ According to the European legislator, sectors most exposed to the risk of carbon leakage were intended to benefit from free allocations. In this context, the Italian regulations only provided for the Committee's ability to request the inclusion of additional sectors deemed susceptible to the risk of relocation in the list prepared by the European Commission. Regarding the allocation of allowances through auctions, it was stipulated that these auctions would be conducted by the *Gestore dei Servizi Energetici* (GSE). ²⁹⁰ According to Article 19, indeed, the proceeds resulting from the sale of allowances were required to be allocated to finance additional measures in the realm of reducing climate-altering emissions and enhancing energy efficiency. ²⁹¹

Chapter V of the decree, on the other hand, addressed the provisions related to the management of the Registry system, the use of international project credits, the transfer, surrender, and cancellation of allowances, the provisions for verifying reported emissions, the sanction framework, as well

²⁸⁷ Article 36 comma 1. D.lgs 30/2013.

²⁸⁸ Resolution of ETS Committee, 27 July 2012 n.27.

²⁸⁹ Article 21, D.lgs 30/2013.

²⁹⁰ The GSE is responsible for the placement (*Auctioneer*) of Italian emission allowances on the common European platform EU CAP2 (D.lgs 30/2013, subsequently amended by D.lgs 111/2015).

²⁹¹ Article 19 par.6, D.Lgs. 30/2013.

as special rules for small-scale installations. In essence, this chapter outlines the regulations dedicated to the general operation of the ETS system, applicable to both stationary installations and aviation sector operators.

Article 28, for instance, established that the functions of the national administrator of the Registry and the Italian section of the Union Registry would be assigned to ISPRA (formerly APAT), whose operations will be examined in detail in subsequent sections. It also reiterated the option to use ERUs and CERS to fulfill the surrender obligations for the period 2021-2030 credits up to approximately 15%, as previously established by Regulation (EU) n. 1123/2013.²⁹²

Regarding the sanction framework, the Decree introduced a range of administrative penalties that vary based on the type of violation. In addition to the penalties for conducting activities without authorization (mentioned earlier), penalties are also imposed for violations such as failing to meet the deadlines for submitting monitoring data or providing false or misleading information, not adhering to the obligation of surrendering used allowances by April 30th or exceeding the limit of allocated allowances. Failure to inform about the complete or partial cessation of activities is also subject to penalties.²⁹³

Furthermore, Article 38 bestowed a significant function upon the ETS Committee, granting it the authority to exclude, upon request from the concerned parties, small-scale installations and evaluate equivalent measures for emissions reductions that these installations committed to implementing (the so-called opt-out clause). This possibility was granted alternatively to: a) installations that had emitted less than 25,000 tons CO₂eq. during the period 2008-2010, duly reported and verified by the Committee; b) thermal installations (engaging in fuel combustion activities) with a nominal thermal capacity of less than 35 MW, excluding emissions from biomass; c) thermal installations serving hospital facilities.²⁹⁴

²⁹² Article 28, D.lgs 30/2013.

²⁹³ Article 36 par. 13, D.lgs 30/2013.

²⁹⁴ Article 38, par. 1, D.lgs. n. 30/2013.

Additionally, each "small installation" would have been allowed to emit each year a quantity of CO₂eq. lower or equal to the permitted emissions. For each ton of CO₂eq. emissions exceeding the allowed limit, the installation operator could either choose to pay the average price of allowances in the previous year exchequer determined by the GSE in accordance with Article 38(4) of Legislative Decree n. 30/2013, or alternatively, at its discretion, it returns an equivalent quantity of emission allowances valid for the relevant reference period.²⁹⁵ Article 4 of the decree reestablished the tasks of the ETS Committee, designated as the competent National Authority as mentioned earlier. This committee is responsible for determining the list of installations eligible for the free allocation of emission allowances and for issuing permits for emissions to the atmosphere. The preparation of the National Allocation Plan (NAP) and the allocation of allowances, based on the new 2009 regulations, reside within the purview of the European Commission. As a result, the national committee approved the NAP with resolution n. 29/2013 for the third trading period for stationary installations and aviation. Finally, the Decree required the ETS Committee to annually send a report on the implementation status of the Decree to the European Commission. In addition, two infringement procedures were initiated against Italy: n. 2010/0124 regarding the "*Failure to implement Directive 2009/29/EC amending Directive 2003/87/EC in order to perfect and extend the European scheme for greenhouse gas emission trading,*" and n. 2013/0041 concerning the "*Failure to transpose Directive 2009/29/EC of the European Parliament and of the Council amending Directive 2003/87/EC to improve and extend the European scheme for greenhouse gas emission trading.*"²⁹⁶ Indeed, Directive 2009/29/EC stipulated in Article 2 that EU Member States should align their respective regulations by December 31, 2012, and the Italian decree, as we've seen, was enacted in March 2013. However, due to the adoption of the corresponding implementing measure within the

²⁹⁵ Article 38 par. 4, D.lgs 30/2013.

²⁹⁶ A. MURATORI, *Emission Trading 2020: le nuove regole per il terzo periodo*, in *Ambiente e Sviluppo*, 2013, cit.

subsequent three months, the two infringement procedures were closed by the European Commission on 26 September 2013.²⁹⁷

Indeed, for a more comprehensive understanding, it's important to mention that the presented regulations were partially amended by Legislative Decree July 2, 2015, No. 111. Additionally, with the Effort Sharing Decision 406/2009 dated April 23, 2009, EU Member States allocated the European target for greenhouse gas emission reduction to the non-ETS sectors not covered by the 2009 directive. Italy was assigned a reduction target of 13% compared to the 2005 levels by the year 2020.

6. The monitoring and control system

As seen in the previous chapter,²⁹⁸ integral to the effective functioning of the ETS mechanism, there is an equally effective system of compliance and enforcement, aimed at instilling confidence in operators regarding the reliability and operation of the emission trading system. In this regard, the monitoring and reporting mechanism assumes particular significance. Despite the centralizing tendencies evident in the post-2012 structural amendments brought about by the *Amending Directive*, the European legislator left a notable margin for national implementing legislation in this realm. It is worth emphasizing that, in addition to the monitoring and control apparatus, another aspect that is believed to significantly influence the development of the system is the enforcement apparatus in case of non-compliance, as will be discussed in the following paragraphs.

In addition to the authorization procedure, as outlined in the preceding section, which is delegated by Legislative Decree 30/2013 to the ETS Committee, responsible for verifying the accuracy and completeness of applications within 45 days of their submission, control and monitoring

²⁹⁷ Report of the Ministry of the Environment and Protection of the Territory and the Sea, *Analysis of relevant european and national legislation for the impacts, vulnerability, and adaptation to climate change*, 78. Available at <https://www.minambiente.it/sites/default/files/archivio/allegati/clima/snacc_2014_rapporto_analisi_normativa.pdf>

²⁹⁸ See Chapter II par. 6.

functions are also assigned to the Committee. The Committee operates based on the Monitoring Plan prepared by the operator in accordance with the provisions outlined in Annex IV of the 2013 decree and approved pursuant to Article 15. The Committee receives the annual actual emissions communication by installation operators, due by March 31st of each year, verified and certified by an accredited third party. These emissions are simultaneously recorded in the national registry and managed by the Administrator of the Italian section, ISPRA. In the event of non-submission of the communication or identified non-conformity in the monitoring procedure, the Committee has the authority to conservatively estimate the actual emissions by April 15th of the subsequent year. This estimate becomes binding for the purpose of quota restitution in the following year.²⁹⁹ Until that moment, or until full recognition of the communication's conformity, the transfer of emission allowances by the operator or the airline operator is prohibited.³⁰⁰

6.1 The National Emission Trading System Registry

As we have seen, the registry system plays a crucial role in terms of the control and monitoring mechanism outlined in the ETS framework. Therefore, this section will delve into how the national legislature has chosen to configure this pivotal institution.

First and foremost, it is essential to clarify what is meant by "Registries." Registries are electronic databases in which all commercial transactions involving emission allowances are recorded. These allowances can only circulate in electronic format, allowing for comprehensive oversight of each transaction. Thus, the term does not refer to the physical location where allowance trading occurs.³⁰¹

²⁹⁹ Article 34, par. 3 D.lgs n. 30/2013.

³⁰⁰ Article 35, par. 2 D.lgs. n. 30/2013, in accordance with what is already provided for in Article 15 par. 2, Directive 2003/87/EC.

³⁰¹https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/union-registry_en#a-single-eu-registry

The initial decentralized approach of the 2003 Directive required each Member State to develop its own monitoring and control system. Consequently, Italy established a national registry. At the European level, a dedicated registry was also established (the CITL, *Community Independent Transaction Log*), which essentially acted as the result of interconnecting various national registries. This arrangement facilitated the monitoring of compliance with both the EU and, indirectly, the international emission reduction objectives. As mentioned in the previous chapter, with the 2009 Directive and specifically with Regulation n. 389/2013/EU, the national registries were replaced by a single centralized and standardized European Registry (Union Registry). Under this registration system, electronic trading occurs through trading platforms present in all 30 participating states, accessible to operators upon registration in the Registry and indicating only a correspondence account for recording purchases and sales.³⁰²

The term "registered operators" encompasses any individual or legal entity that can possess emission allowances, not limited to the operators of facilities to which allowances are allocated. Anyone interested in purchasing or selling allowances must hold a position within the Registry. Each entity has the ability to access information related to their own "account" through an internet banking system, similar to that used by account holders for managing funds in their bank accounts. In fact, *“by simply attesting to registration with a Chamber of Commerce and subsequently establishing an account with various registries, any economic entity can engage on European platforms even for substantial volumes of allowances and funds”*.³⁰³

It's important to emphasize that this possibility to operate in the market without specific requirements, along with the intangible nature of the registered assets, the rapid transactions conducted on them, and the lack of effective controls, have facilitated the emergence of situations involving

³⁰²<http://www.isprambiente.gov.it/it/servizi-per-lambiente/Registro-italiano-Emission-Trading/contesto/sistema-dei-registri>.

³⁰³ C. SCOZZARI, *Mercato delle emissioni di CO2 facile preda di criminalità, disposti 9 arresti*, in quotidiano online *La Repubblica*, 12 December 2014.

illegality, abuse, and fraud. In fact, with the Legislative Decree of February 11, 2016, Italy implemented Directive 2010/23/EU amending Directive 2006/112/EC on value-added tax, aimed at combating fraud related to the ETS system, such as the so-called "carousel fraud."³⁰⁴ With this directive, Member States are allowed to introduce a *reverse charge* mechanism for value-added tax (VAT) in their national legislations. This mechanism subjects the recipient of emissions allowances transfers to VAT, rather than the entity that is selling the asset (in this case, the allowance).³⁰⁵ The application period of this regime has been extended until 30 June 2022. Furthermore, as highlighted in the previous chapter, the MiFID II directive has categorized allowances as financial instruments. As a result, their trading has become definitively exempt from VAT, therefore the reverse charge mechanism is no longer necessary and applicable. The National Authority responsible for managing the Registry is thus tasked with ensuring the proper conduct of this activity. In Italy, it is important to note that the role of the administrator of the Italian section of the registry was initially assigned to APAT (with the directorial decree of February 23, 2006, and D.lgs n. 216 of 2006) and subsequently based on Article 28 paragraph 1 of D.lgs n. 30/2013 was assigned to ISPRA.

6.2 The National Registry of Small Emitters (RENAPE)

Before delving into the analysis of the National Registry of Small Emitters, it is necessary to establish a premise. As we have seen, Directive 29/2009/EC amended Article 27 of the original directive (transposed into the Italian legal framework by Article 38, paragraph 7, letter g of Legislative Decree 30/2013, modified by Legislative Decree 111/2015), introducing the possibility of excluding small-sized facilities from the emission trading system through the so-called "opt-out" clause. This exclusion would be granted on the condition that these facilities adopt emission reduction

³⁰⁴ This is a specific type within the broader category of VAT fraud, where the purchasing company deducts VAT even though the seller has not remitted it.

³⁰⁵ Article 17 par. 6, letter d-*bis*) DPR n. 633/1972.

measures equivalent to those that would have been applicable to them if they remained within the system. It is noteworthy that in 2018, emissions from "small emitters" accounted for 0.71% of the total emissions within the EU ETS. Consequently, among the measures aimed at establishing an equivalent system while reducing administrative burdens, a mechanism was established to account for the operations carried out by small facilities through a dedicated Registry. The ETS Committee introduced the National Registry of Small Emitters (RENAPE) through Decision n. 16/2013 of the ETS Committee.³⁰⁶ Registration in RENAPE is automatically carried out by the ETS Committee, which also ensures biannual updates. The primary rules for small emitters include the obligation to "*report emissions by April 30 of the year following the reference year.*" *Additionally, they are required to remit payments to the treasury or return EUA allowances if emissions exceed the permitted levels. Small emitters must also communicate any expansions of their facilities to redefine the allowable emissions and report the suspension of operations if it is expected to last for more than ten consecutive months.*³⁰⁷

As a result, this system outlines simpler rules for small emitters compared to the standard ETS system, although all essential data must still be provided.

Furthermore, Directive 2018/410/EU confirmed the possibility of exclusion from the emissions trading system, with a simplified regime, for installations emitting less than 25,000 tonnes per year. Additionally, the 2018 Directive adds to the original ETS Directive article 27a, which provides an even more pronounced possibility to exclude from the system the so-called "very small emitters," defined as installations emitting less than 2,500 tonnes per year.³⁰⁸ In light of this, on August 1, 2019, the ETS

³⁰⁶ The resolution is available at <https://www.minambiente.it/sites/default/files/archivio/allegati/emission_trading/deliberazione_25_07_2013_16.pdf. >

³⁰⁷ <<https://www.mise.gov.it/index.php/it/energia/gas-effetto-serra/2022839-piccoli-emettitori>, Sezione Energia, Emissioni Gas Effetto Serra, Piccoli Emettitori. >

³⁰⁸ Article 27a foresees that *Member States may exclude from the EU ETS installations that have reported to the competent authority of the Member State concerned emissions of less than 2 500 tonnes of carbon dioxide equivalent [...]*"

Committee proposed the implementation of the Articles 27 and 27a of Directive 2003/87/EC for the period 2021-2030 in Italy. This proposal was submitted to the European Commission for the necessary approval, and it now transferred in article 32 of D.lgs 47/2020.

7. The Italian legal framework within which the D.lgs 47/2020 was adopted

As previously outlined in Chapter II, in 2018 the Directive 2018/410/EU was adopted, and the deadline for its transposition by the Member States was set in Article 3 of the same Directive to October 9, 2019. As already mentioned, this directive contains few innovations. Firstly, the linear reduction factor of the total available allowances was increased from 1.74% to 2.2% to enable the achievement of the reduction target assigned to the ETS sector (-43% compared to 2005 emissions). Furthermore, the percentage of emission allowances to be distributed through auctions is set *ex ante* at 57%. Consequently, the maximum amount for free allocations will be 43% of the total.

In Italy, the transposition of the new rules for Phase IV of the EU ETS led to the repeal of Legislative Decree March 13, 2013, No. 30, which had implemented Directive 2009/29/EC and was subsequently modified by Legislative Decree July 2, 2015, No. 111. This occurred following the adoption of Legislative Decree June 9, 2020, No. 47, which transposed Directive 2018/410/EU.

It is worth noting that in this renewed context, the Legislative Decree No. 111 of October 14, 2019, known as “*Decreto Clima*” was also adopted. This decree was later modified by Law No. 141 of December 12, 2019, in view of the approval of the much-discussed European Green Deal, which was adopted on December 11, 2019.³⁰⁹ With this decree, the National Strategic

³⁰⁹ E. FERRERO, “*Decreto Clima*”: *contrasto ai cambiamenti climatici e miglioramento della qualità dell’aria, inattesa del Green New Deal*, in *Ambiente e Sviluppo*, 2019, n. 11, 795.

Program to combat climate change and improve air quality was approved, adopting measures to implement Directive 2008/50/EC.³¹⁰ Among the key innovations, the "Climate Decree" stipulated that the Interministerial Committee for Economic Planning (CIPE), starting from January 1, 2021, would take on the name of the Interministerial Committee for Economic Planning and Sustainable Development (CIPESS). This was part of the broader efforts to address climate change and promote sustainability in economic planning.³¹¹

In order to promote the transformation of the energy sector in line with the goals of reducing pollutant emissions set at supranational level, the National Energy Strategy (SEN 2017) was adopted through an interministerial decree on November 10, 2017. The strategy is designed to cover the timeframe up to 2030 and aims to achieve a 57% reduction in ETS emissions and a 33% reduction in non-ETS emissions. This is to be accomplished by promoting renewable energy sources, phasing out coal-fired power generation facilities, introducing energy efficiency measures in industry and residential buildings, and implementing measures to incentivize sustainable mobility.³¹² The SEN 2017 serves as the foundation for the preparation of the National Integrated Energy and Climate Plan (PNIEC), which was submitted to the European Commission on January 8, 2019.³¹³

³¹⁰ Directive 2008/50/EC *on ambient air quality and cleaner air for Europe*, 21 May 2008. This Directive establishes goals for ambient air quality, with the aim of averting, mitigating, or diminishing adverse impacts on both human health and the overall environment. In pursuit of this objective, it outlines procedures for evaluating ambient air quality within Member States and obtaining data on such quality, in an effort to address air pollution and its associated disturbances. The Directive strives to enhance collaboration among Member States with the objective of minimizing air pollution.

³¹¹ Article 1bis Climate Decree "*the coordination of Public Policy for the Achievement of Sustainable Development Goals*" stipulates that, "*In order to enhance the coordination of public policies aimed at pursuing the sustainable development goals outlined in United Nations General Assembly Resolution A/70/L.I, adopted on September 25, 2015, as of January 1, 2021, the Interministerial Committee for Economic Planning shall be renamed as the Interministerial Committee for Economic Planning and Sustainable Development (CIPESS).*"

³¹² T. FANELLI, F. TESTA. "A proposito di strategia energetica nazionale." In *Economics and policy of energy and the environment*, 2012, 19-41.

³¹³ G. DE MAIO, *Cambiamento climatico ed energia rinnovabile decentrata: il ruolo dei governi locali*, in *www.federalismi.it*, n. 8, 2019, 7 ss.; A. MOLITERNI, *La regolazione delle fonti energetiche rinnovabili tra tutela dell'ambiente e libertà di iniziativa economica privata: la difficile semplificazione amministrativa*, in *www.federalismi.it*, n.18, 2017, 14 ss.

The PNIEC outlines Italy's comprehensive approach to energy and climate policies detailing the steps to achieve targets and commitments set at the European and international levels. In fact, it establishes the target of attaining a 30% share of renewable energy in gross final energy consumption, as well as a 21.6% share in gross final energy consumption for transportation (exceeding the EU target of 14%). Through this Plan, the aim is also to achieve a 43% reduction in primary energy consumption, surpassing the EU's target of 32.5%. Furthermore, the Plan anticipates a 33% reduction in greenhouse gas emissions for all non-ETS sectors, rather than the 30% reduction required by the EU.³¹⁴

On June 18, 2019, the European Commission published a Communication assessing the National Integrated Energy and Climate Plans submitted by Member States, including Italy. In this Communication, the Commission requested that countries strengthen their commitments to renewable sources and energy efficiency, respectively by 1.6% and 3% beyond the 6.2% targets outlined in the Plans, to achieve the agreed European targets for 2030.

Regarding Italy's PNIEC, the European Commission provided a generally positive assessment, while making nine recommendations on specific aspects of the Plan. The most significant recommendations are as follows. Firstly, the Commission emphasized the need for Italy to support the 30% renewable energy target by 2030 through the adoption of detailed and quantified policies and measures in line with European obligations. Additionally, Italy should ensure that the key policy instruments outlined in the PNIEC for energy efficiency deliver adequate savings, particularly in the period from 2021 to 2030. Lastly, Italy is encouraged to integrate the theme of a just and fair transition more comprehensively, specifically by detailing the effects of the proposed objectives, policies, and measures on society, employment, skills, and income distribution, especially in regions with high-carbon intensity industries.³¹⁵ Regarding the specific aspect of greenhouse gas emission allowances trading, significant changes were

³¹⁴ https://www.mise.gov.it/images/stories/documenti/PNIEC_finale_17012020.pdf.

³¹⁵ EUROPEAN COMMISSION, Recommendation on the draft integrated National Energy and Climate Plan of Italy covering the period 2021-2030, 18 June 2019, C(2019) 4412 final.

introduced through the Italian Law n. 37 of 3 May 2019, also known as "*legge europea 2018* ." Article 13 of this law specifically amended the Legislative Decree n. 58 of February 24, 1998, which contains the "*consolidated law on financial intermediation*." The purpose of this amendment was to ensure the full implementation of Regulation (EU) No. 1031/2010, focusing on the regulation of timing, management, and other aspects of auctioning greenhouse gas emission allowances.³¹⁶ Furthermore, Article 13 of the Law No. 37 of 2019 introduced significant changes to the Consolidated Law on Financial Intermediation by adding a new Article 20ter. This new article pertains to the authorization and supervision of entities eligible to apply for participation in auction markets. Additionally, in line with the principle stated in Article 59(6)(a) of Regulation (EU) No. 1030/2010, whereby competent national authorities can apply effective, proportionate, and dissuasive sanctions in case of rule violations, Article 13(1)(b), (c), and (d) amended Part V of the Consolidated Law on Financial Intermediation. This amendment aimed to extend the application of administrative sanctions, already established for authorized intermediaries, to those responsible for violations of the provisions outlined in Article 59, paragraphs 2, 3 (related to conduct rules), and 5 (related to authorization conditions) of Regulation (EU) No. 1031/2010 and its implementing provisions.

Furthermore, significant changes to emissions trading in Italy were also established by Law No. 117 of October 4, 2019, known as the "*legge di delegazione europea 2018*." This law set forth guiding criteria for the formulation of national regulations pertaining to the subsequent phase of the EU ETS.³¹⁷ In particular, Article 13 of Law No. 117 of October 4, 2019, delegated to the government the authority to adopt the necessary provisions for aligning national legislation with Directive 2018/410/EU amending Directive 2003/87/EC, Regulation (EU) 2017/2392, and Decision (EU) 2015/1814. Furthermore, the same Article 13 outlines the methods for

³¹⁶ For Regulation (EU) n. 1031/2010 see Chapter II par.4.

³¹⁷ On October 1st, the Chamber of Deputies definitively approved the 2018 European Delegation bill.

issuing delegated decrees, as well as the specific guiding principles and criteria for exercising this delegation. Among the various delegation criteria, it is important to highlight the inclusion in the law of the delegation criterion concerning the revision and rationalization of the sanctioning system. Additionally, there is the criterion relating to the mechanism for reallocating the proceeds from potential newly established administrative sanctions to the then Ministry of the Environment and Protection of the Territory and the Sea (it was renamed in 2022 as the Ministry of Environment and Energy Security, *Ministero dell'Ambiente e della Sicurezza Energetica (MASE)*) This criterion outlines the allocation of such proceeds to enhance investigative, supervisory, preventive, and monitoring activities, as well as to ensure compliance with the conditions outlined in procedures falling under the European Union Emissions Trading System for greenhouse gas emissions.³¹⁸

This provision aims to financially support the inspection and monitoring activities of emissions by the competent national authority, specifying the allocation of the proceeds from administrative sanctions for the proper functioning of the system. The explanatory report of Article 13 clarifies that the 2018 ETS Directive requires competent national authorities to go beyond mere administrative compliance in approving authorization requests and processing periodic communications. Authorities are also required to delve into the details of emissions monitoring processes of authorized installations. The European legislator further demands the establishment of measures with specific inspection purposes, aimed at scrutinizing the methods by which authorized installations conduct emissions monitoring activities. This scrutiny aims to ensure the accuracy of the applied methods and collected information through annual monitoring, thereby preventing errors resulting from the failure to adhere to guidelines that outline criteria for proper monitoring.

³¹⁸ M. NARDINI, *L'evoluzione dell'emission trading system europeo e l'impiego dei proventi delle aste CO2 in Amministrazione in Cammino*, 2020, 16 ss.

Other specific delegation criteria encompass the "*rationalization and strengthening of the organizational structure of the competent national authority*" (governed by Article 4 of Legislative Decree No. 30/2013), considering the enhanced complexity and specificity of tasks that require dedicated personnel. Additionally, the significance of determinations carried out by the aforementioned authority, encompassing economic considerations, the "*enhancement and digitization of the EU ETS*," alongside the "*formal nullification of incongruous clauses and synchronization of residual clauses within Legislative Decree March 13, 2013, No. 30*," are emphasized, ensuring fiscal equilibrium and the allocation of revenues arising from the auctioning of emission quotas."³¹⁹ Despite the two delegation laws mentioned earlier, the Minister for European Affairs declared in November 2019 that "*pursuant to Article 15, paragraph 1 of Law No. 236 of 24 December 2012,*³²⁰ a procedure was initiated under Article 258 of the TFEU with a letter of formal notice from the European Commission on November 22, 2019."³²¹ As a result, with the initiation communication numbered 2019/0329, the Italian state was sent a formal notice due to the failure to transpose Directive 2018/410/EU within the required deadline of October 9, 2019. This non-compliance was subsequently resolved through Legislative Decree June 9, 2020, n. 47.

7.1. The novelties introduced by the D.Lgs. n. 47/2020

Regarding the new Legislative Decree 47/2020, the Italian legislature has opted for a complete rewriting of the regulations instead of making specific amendments to the 2013 legislative decree. This decision takes into account the numerous innovations introduced by Directive 2018/410/EU in this

³¹⁹ Article 13 par.4, L. 117/2019.

³²⁰ Regulation (EU) 2017/2392 amended the framework to introduce certain provisions in preparation for the implementation of a global market-based measure starting from 2021 (Official Journal of the European Union, December 29, 2017, No. L 350). Meanwhile, Decision (EU) 2015/1814 established the Market Stability Reserve within the European Union Emissions Trading System (Official Journal of the European Union, October 9, 2015, No. L 264).

³²¹ See <<http://www.senato.it/service/PDF/PDFServer/BGT/1133834.pdf>>

field. Additionally, the simultaneous retention of measures pertaining to Phase III of the Emissions Trading System (ETS), still applicable, would not have allowed the recipients of the provision to clearly differentiate between the new technical provisions for Phase IV of the ETS (2021-2030) and the still applicable measures related to Phase III of the ETS, which concludes in 2020.

Hereafter, we outline the most significant changes introduced by the 2020 decree. Article 3 introduces new definitions, modifying those contained in the repealed 2013 legislative decree. Article 4 reiterates the ETS Committee as the Competent National Authority, responsible both for implementing Directive 2003/87/EC and for the implementing acts and delegated acts supporting the management of project activities under the Kyoto Protocol. Furthermore, the same article stipulates that the ETS Committee consists of ten voting members of which: three, including the President, appointed by the Minister of the Environment; three, including the Vice President, appointed by the Ministry of Economic Development (which is denominated from 2022 as “Ministry of Enterprises and “Made in Italy”, *Ministero delle Imprese e del “made in Italy”*); one with voting rights solely on matters concerning enforcement activities appointed by the Minister of Justice; three appointed by the Minister of Infrastructure and Transport, including two from ENAC (Italian Civil Aviation Authority), with voting rights exclusively on matters relating to air transport. Additionally, five non-voting members are appointed, one by the Minister of Economy and Finance, one by the Department for European Policies, one by the Permanent Conference for Relations between the State, Regions, and the Autonomous Provinces of Trento and Bolzano, and two by the Minister of Foreign Affairs and International Cooperation. According to Article 4, Paragraph 4, the members of the Committee serve a five-year term, which may be renewed once.

In contrast to the provisions of Legislative Decree No. 30 of March 13, 2013, support for the Committee's activities is entrusted to a technical secretariat composed of five members (rather than fifteen), as explicitly

stipulated by regulation. These members are selected from career officials of the Directorate General for Climate, Energy, and Air of the Ministry of the Environment (DG CLEA), the competent authority, thus strengthening its connection with the relevant ministerial structures. For the preliminary inspections activities aimed at the deliberative acts of the Committee, the Ministry of Environment employs the assistance of its in-house companies and ISPRA. Regarding activities concerning small emitters and the aviation sector, instructional procedures are conducted with the support of GSE and ENAC, respectively. The tool employed for conducting these investigations is the ETS Portal.³²²

Regarding aviation transport, the uses of proceeds resulting from the auctioning of allowances for aviation activities are specified in Annex I and conducted by an air operator administered in Italy. These uses have been expanded by four additional purposes beyond those provided for in Article 6 of Decree No. 30/2013.³²³

Furthermore, Article 10 details the activities related to the Monitoring Plans for emissions and their communication which falls under the purview of the ETS Committee. As for the regulation of stationary installations, it is stipulated that the obligation to obtain authorization for greenhouse gas emissions does not apply to small-sized installations, for which a simplified authorization is granted.³²⁴ Moreover, Article 19 introduces the revocation of authorization, in addition to the case of activity cessation, as already provided for in Article 17 of Legislative Decree 30/2013. This revocation

³²² Atto modificativo alla convenzione sottoscritta il 4 agosto 2020 per l'attuazione dei "Servizi tecnici specialistici per il rafforzamento della struttura organizzativa e l'ottimizzazione delle procedure rientranti nel Sistema europeo di scambio di quote di emissione di gas a effetto serra" available at <<https://www.sogesid.it/sites/default/files/inline-files/17.-atto-modificativo-ets-firmato-01.06.2021.pdf>>

³²³ Article 6 from lett. h) to m). These include initiatives "aimed at enabling widespread dissemination of satellite navigation systems" (lett. h), "to ensure contributions to the Global Fund for Energy Efficiency and Renewable Energies" (lett. i), "for research and innovation, with particular reference to programs or initiatives within the Ninth Research Framework Program" (Nono programma quadro di ricerca) (lett. l), as well as "to cover the operational costs of the Committee and its support related to aviation activities" (lett. m).

³²⁴ Article 15 par.3, D.lgs 47/2020.

now also applies in cases involving integrated environmental permits (*autorizzazione integrata ambientale*),³²⁵ underscoring the close interdependence between the latter and the ETS authorization.

Article 23 confirms the current regulations regarding the mechanisms for the allocation of CO₂ quotas through their auction, based on the amount determined by a decision of the European Commission. Quotas subject to free allocation and not placed in the market stability reserve or cancelled under Article 36 of the same legislative decree are excluded from this allocation. Furthermore, according to Article 23, paragraph 3 of the same decree, the proceeds from auctions are deposited into a dedicated bank account of the GSE (Gestore dei Servizi Energetici, which serves as the placement agent) or the Trans-European Automated Real-time Gross Settlement Express Transfer System. This system, in turn, transfers the accrued sums and interests to an account held by the State Treasury under the Department of the Treasury, notifying the relevant Ministries. These amounts are subsequently recorded in the state budget and allocated to specific budget items for investment expenses, with the allocation purpose specified in the subsequent paragraph 7.

The legislator has also stipulated that by May 31 of the year following the auctions, the Minister of the Environment and Energy Security, along with the Ministry of Enterprises and "Made in Italy and the Minister of Economy and Finance, shall issue a decree for the redistribution of the proceeds. In

³²⁵ As specified in the definition of "*autorizzazione integrata ambientale (AIA)* (Article 5, paragraph 1, letter o-bis of Legislative Decree 152/2006 (*Codice dell'Ambiente*), subsequently amended by Legislative Decree 46/2014) it "*can apply to one or more installations or parts thereof located on the same site and managed by the same operator. In instances where different sections of an installation are managed by distinct operators, the corresponding integrated environmental authorizations are appropriately coordinated at the procedural level.*"

The term "integrated" is attributed to the AIA because it does not concentrate solely on the examination of a particular facet, but encompasses various technical assessments aimed at comprehending the potential impact of a facility on air, water, and soil emissions. For the purpose of obtaining authorization, the applicant's (operator's) request is demanded, providing specific general information across various aspects: plant, site, and conducted activities; materials and energy employed; emissions and waste generated; technologies and preventive, containment, or control measures implemented; primary alternatives considered by the operator; risks of soil and groundwater contamination when the utilization, production, or discharge of hazardous substances is involved.

particular, 50% of these proceeds are allocated to a state bonds amortization fund, while the remaining portion is divided between the Ministry of Environment and Energy Security (70%) and the Ministry of Enterprises (30%).³²⁶ Article 23, paragraph 7 emphasizes that the allocation of these resources is tied to climate change mitigation purposes. In fact, the use of these resources by the Administrations is constrained by the allocation purpose defined in paragraph 7, which must align with the aforementioned objectives. These objectives are reproduced in the comprehensive framework of Article 10, paragraph 2 of Directive 2003/87/EC, with some differences compared to the provisions in the previous regulations of Decree 30/2013.

In contrast to Article 19, paragraph 6 of the 2020 decree, under Article 23, paragraph 7, stipulates that the resources allocated to the Ministry of the Environment and the Ministry of Enterprises, as per paragraph 4, shall be directed towards various activities, including: a) financing research and development activities and demonstrative projects aimed at reducing emissions and adapting to climate change, including participation in initiatives under the European Strategic Energy Technology Plan and European Technology Platforms; b) developing renewable energies to meet the European Union's commitment to renewable energy and assisting in meeting the European Union's commitment to increase energy efficiency to the levels agreed upon in relevant legislative acts.

The legislative decree of 2013, however, bound this allocation "*to the levels agreed upon in relevant legislative acts*" to the now outdated 20-20-20 climate-energy package goals.

Furthermore, two additional activities are introduced in subparagraphs p) and q) of Article 23 par. 7 regarding the allocation of financial resources: supporting climate-related activities in vulnerable third countries; promoting the creation of skills and the reallocation of workers to contribute to a fair transition towards a low-carbon economy.

³²⁶ Article 23 par. 4, D.lgs 47/2020.

It's worth noting that although Article 10, paragraph 3 does not include this objective from Directive 2003/87/EC as amended by Directive 2018/410/EU, the national legislature has added subparagraph g) to Article 23, paragraph 7, which had previously been introduced under Article 19, paragraph 6, letter d-bis) of Legislative Decree No. 30 of 2013 by Article 39, paragraph 1-bis of Decree Law No. 133 of September 12, 2014. This provision is justified by the contribution offered by protected areas in reducing greenhouse gas emissions, as confirmed by Article 4-ter of Decree Law No. 111 of October 14, 2019 (the "climate decree"). This law identifies national parks as environmental economic zones in order to "*enhance the contribution of natural areas at the national level to the containment of climate-altering emissions and to ensure compliance with the limits set by Directive 2008/50/EC on air quality, as well as to promote investments in these areas aimed at combating climate change (...)*".³²⁷

Regarding the allocation and issuance of free allowances, Article 24, paragraph 2 introduces an additional category of installations for which the allocation of free allowances is not permitted. Specifically, this category includes installations of reduced size or emissions that have adopted the regime prescribed by Articles 31 and 32 of D.lgs 47/2020. In paragraph 3, the types of installations for which the ETS Committee determines and proposes the allocation of free allowances are outlined.

What's more the Committee may determine and propose to the European Commission the adjustment of free allowance allocation in the case of "*installations and sub-installations whose operator has submitted a renunciation of allocation for the years subsequent to the year of application*" or in the case of activity cessation.³²⁸ On the other hand, D.lgs 30/2013 provided the possibility to propose to the European Commission the adjustment of free allowance allocation solely in the case of a partial halt in the installation activity.

³²⁷Article 4 ter, D. L 111/2019.

³²⁸ Article 24 par. 4, D.lgs 47/2020.

Additionally, the ETS Committee is required to submit to the European Commission a list of installations governed by the aforementioned decree. This list is valid for five years starting from January 1, 2021, and is updated every five years. The list includes electricity generation installations, small-sized installations that may be excluded from the EU ETS, as well as installations unilaterally included in the system. The Committee has the authority to deliberate on the final allocation of free allowances to each of the installations included in the mentioned list, excluding those of reduced size.³²⁹

Article 33 outlines the inspection activities that the ETS Committee can carry out, which may include on-site visits. The costs of these inspections are borne by the inspected entities, in accordance with the provisions of Article 30, paragraph 4, of Law n. 234 of 24 December 2012.³³⁰

According to Article 30 of the Decree, the Innovation Fund³³¹ is incorporated, as established by Directive 2018/410/EU, but not the Modernization Fund.³³² Italy is unable to access the Modernization Fund due to not meeting the requirements, as its GDP per capita is lower than 60% of the EU average. Furthermore, Article 31 excludes small-sized installations with emissions below 25,000 tons of CO₂ per year from the scope of application. The concerned operator can also request the ETS

³²⁹ Article 25, D.lgs 47/2020.

³³⁰ Article 30, paragraph 4, of Law n. 234 of December 24, 2012, expressly stipulates that *"the costs related to services and inspections to be carried out by public offices for the purpose of implementing the European Union provisions referred to in the European Delegation Law for the reference year and the European Law for the reference year shall be borne by the interested parties, unless this is contrary to European Union regulations, based on rates determined on the basis of the actual cost of the service provided. The rates referred to in the first sentence are predetermined and public."*

³³¹ The Innovation Fund is established by Directive 2018/410/EU under Article 10b(8), which will serve as the primary instrument within the ETS system for funding innovative, low-carbon emission technologies and pioneering innovations. The fund is established through Regulation 2019/856311 and promotes pioneering innovations in sectors covered by the EU ETS, including innovative renewable energies, carbon capture and utilization (CCU), and energy storage. In all Member States, projects, including small-scale ones, can receive support from the Innovation Fund.

³³² The Modernisation Fund is established by Article 10(1), Directive 2018/410/EU and governed by Article 10d. It serves the purpose of supporting investments in enhanced energy efficiency and the modernization of energy systems in specific Member States. More specifically, it facilitates a fair transition in carbon-dependent regions within ten Member States, whose market price-based GDP per capita in 2013 was below 60% of the average.

Committee to exclude installations that have reported emissions below 2,500 tons of CO₂, except for biomass emissions, in the three preceding years and list them in a dedicated section of the ETS Portal.³³³

Lastly, concerning the common provisions for stationary installations and aircraft operators, in line with Article 11a of Directive 2003/87/EC, the new regulations stipulate that, pending the enactment of an international agreement on climate change, operators of existing and new installations and aircraft operators administered in Italy can use international CER (Certified Emission Reduction) and ERU (Emission Reduction Unit) credits to fulfill the surrender obligations for the period 2021-2030.³³⁴ Furthermore, Article 38 outlines the role of the Ministry of the Environment and Energy Security regarding activities stemming from the two aforementioned mechanisms. Another significant innovation introduced by the new decree is found in Article 42, which pertains to the sanctioning plan, as we will see in the following section.

7.2 The establishment of effective compliance mechanisms and sanctions

Regarding the sanctioning regime, as mentioned earlier, the decision on sanctioning methods is left to the discretion of the Member States, while the obligation of allowance surrender, as stipulated by Article 12, paragraph 3 of the ETS Directive, remains intact.³³⁵ The Italian legislator has chosen exclusively to adopt administrative pecuniary sanctions in its sanctioning regime. These sanctions are all administrative fines and range from a minimum of €1,000.00 to a maximum of €250,000.00. The determination of the applicable sanction in practice was based on the provisions of Law 24 November 1981 n. 689, to which the dedicated provision, Article 36 of Legislative Decree No. 30/2013, made explicit reference.

The sanctions can either operate on their own or in combination with additional sums related to the average value of allowances or the volume of

³³³ Article 31, D.lgs 47/2020.

³³⁴ Article 37, D.lgs 47/2020.

³³⁵ See Chapter II, par. 7.

allowances traded without authorization. The first type of additional sanctions specifically amounted to a sum three times the average value of allowances in the first quarter of the ongoing calendar year, up to a maximum of €100.000. Regarding sanctions related to the volume of allowances traded without authorization, these are calculated based on the actual emissions released or on the difference between the emissions released and the quantity of allowances that would have been allocated for free if the operator had been entitled to them.³³⁶ In the previous regime of D.lgs 30/2013 the absence of authorization for greenhouse gas emissions from stationary installations' operators was punished with the heaviest sanctions (from 25.000 euro to 250.000 euro)

Also, the omission of information about modifications to installations for the purpose of updating the monitoring plan or updating the authorization constitutes the subject to sanctions ranging from €2.500 to €50.000.

Moreover, concerning solely the verifying entity, discrepancies or inaccuracies in the information verified or certified by them also render them liable to penalties, varying from €20 to €40 per each excess tonne equivalent of greenhouse gases in relation to the total falsely or irregularly certified. The sanctioning framework prescribed by the previous 30/2013 Decree was characterized by an exceedingly stringent approach, ensuring strong abstract deterrence but offering little room for dialogue between private operators and public authorities concerning non-compliance due to factors such as innocent errors with the operator or technical malfunctions. Furthermore, another limitation of the Italian legal framework on emission trading was the design of a monitoring and control procedure that primarily relied on documentation, without incorporating additional inspection or verification mechanisms.

In contrast, for example, the solutions adopted in the Netherlands involve competent authorities initiating a warning and mediation procedure with the operator before imposing sanctions. The aim is to prevent non-compliance with monitoring and surrender obligations. In Poland, all operators receive

³³⁶ Art. 36 par. 1, lett. a), D.lgs. n. 30/2013.

a reminder before each relevant deadline for fulfilling monitoring and surrender obligations.³³⁷

Given these reflections, as previously discussed, Legislative Decree No. 47 of June 9, 2020, has implemented a revision and streamlining of the penalty framework with the intention of discouragement and prevention. This takes into account the practical data indicating an irregular trend in sanction payments. In fact, in 2017, the ETS Committee issued 58 assessment reports in which administrative sanctions were imposed for violations of the provisions outlined in Legislative Decree No. 30 of 2013. Currently, a total of sixteen sanctions have been paid, amounting to €476,429.60. In the preceding years, the revenue derived from sanctions was significantly lower: no administrative sanctions were paid in 2016 and 2015; two administrative sanctions were paid in 2014, while in 2013, four sanctions were paid.³³⁸ Therefore, the new decree has introduced a much more detailed framework compared to what was previously in force. First of all, Article 42 par. 23 of the 47/2020 Decree stipulates that the oversight of compliance with the provisions of the decree, as well as the determination of associated penalties, the imposition of sanctions, and the potential issuance of injunction orders, falls under the purview of the ETS Committee. What's more, the same provision includes specific severity levels and corresponding punitive consequences. In fact, the following violations that lead to sanctions are listed in detail. Firstly, as in the previous sanctioning regime of 30/2013 Decree, for conducting a subject activity without authorization, an administrative pecuniary sanction ranging from €10,000 to €100,000 is imposed. Additionally, there's an increase of €100 per ton of CO2 equivalent emitted without authorization. This is in addition to the surrender of allowances that would not have been allocated for free.³³⁹ In order to facilitate the disclosure of irregularities, the statutory limits are halved if there is an act of self-correction and voluntary declaration to the

³³⁷ F. FLEURKE, J. VERSCHUUREN, *Report on the implementation of the EU ETS at Member State level*, al link http://entracte-project.eu/uploads/media/ENTRACTE_Report_Legal_Studies.pdf.

³³⁸ Explanatory Report of the draft law on D.lgs 47/2020.

³³⁹ Article 42 par.1-5, D.lgs 47/2020.

Committee, indicating the date on which the authorization should have been sought. Furthermore, in the event of an authorization request within 60 days of the sanction being determined, if emission allowances are returned, the variable portion of the penalty linked to emitted carbon dioxide tonnes does not apply. An additional penalty ranging from 10,000 to 50,000 euros is envisaged for the failure to communicate the cessation or suspension of activities, and for cases where an operator, after cessation, does not return wrongly allocated emission allowances, or an operator who fails to request the suspension of emission allowance allocation.³⁴⁰ Penalties are also established for cases of failure to submit a request for modification of the authorization when required, failure to communicate the monitoring plan, or modifications to the plan and methodology employed.³⁴¹

Additionally, operators of small-sized installations may be sanctioned if they do not offset excess emissions beyond those determined using the methodology approved by the European Commission. Similarly, operators of small-sized installations may be subject to pecuniary sanctions ranging from €1,000 to €5,000 if they fail to submit the monitoring plan within 30 days of the formal request by the Committee or to communicate an updated monitoring plan to the Committee within 30 days of changes in the operator's identity, expansions or reductions of the facility's activity levels by more than 20%, modifications to the nature and operation of the facility, or significant changes to the monitoring system. Furthermore, other violations leading to sanctions include: failure to provide, falsely provide, or incompletely provide verified emission reports by March 31st.; failure to surrender allowances; issuance of verification certificates with false information.

It is worth noting, in conclusion, that for maritime transport, the regulations governing penalties for violations of provisions related to monitoring,

³⁴⁰ Article 42 par. 17, D.lgs 47/2020.

³⁴¹ Article 19 par.18, D.lgs 47/2020.

reporting, and verification of carbon dioxide emissions are outlined in Legislative Decree No. 83 of July 19, 2019.³⁴²

³⁴² D. PAPPANO, *Inquinamento atmosferico e lotta ai cambiamenti climatici nella tutela della qualità dell'aria*, in G. ROSSI (edited by), *Diritto dell'ambiente*, Torino, Giappichelli, 2021, 366 ss.

CONCLUSIONS

This study has provided a detailed examination of the carbon market and greenhouse gas emissions trading, beginning with the theoretical model derived from various economic theories and then examining its empirical application at the international, through the Kyoto Protocol, the European and national level. The analysis conducted in the first chapter revealed that command and control mechanism is insufficient to ensure effective climate protection. Such a mechanism involves significant public sector intervention in the private one without addressing the fundamental information asymmetry in favor of the latter. Hence, it became imperative to transition to an approach based on more flexible market-based instruments.

In line with the theories of Coase, the market, through the creation of property rights on the environment, allows for the attainment of an optimal level of pollution and production activities. This approach internalizes negative externalities on the environment generated by various economic activities. In this context, the State's function is primarily confined to the assignment of property rights, such as emissions rights, which can subsequently be traded in the market. Coase's theory, in fact, offers a theoretical foundation for the utilization of tradable permits or emissions rights within the carbon market. This concept was initially put into practice through the United States Clean Air Act and, later on, at the global scale through the Kyoto Protocol.

The market-based instruments, as analyzed in the first chapter, can be based on the *cap and trade system*, where public authorities set a maximum emissions limit and the market determines prices through supply and demand dynamics.

Indeed, the cap-and-trade approach involves governmental entities establishing a maximum threshold or target while permitting market dynamics to govern resource allocation through the creation of artificial markets. The public sector consistently maintains a central role by making

gradual adjustments to the regulatory framework. Nevertheless, it is ultimately the market, and consequently private entities, that determine the most efficient methodology for achieving the objectives defined by public authorities. In these artificial markets, the exchange of tradable permits takes place, characterized by the fact that, despite the essential role of public authorities in determining the total quantities of natural resource exploitation, significant discretion is granted to autonomous assessments made by private operators. However, maintaining this seemingly ideal equilibrium in practice has proven challenging.

This is evident in the European Emission Trading System (EU ETS), which represents the largest artificial emission allowance trading market, as discussed in the second chapter. The difficulties in establishing a functioning emissions trading mechanism had already become apparent with the International Emission Trading (IET) under the Kyoto Protocol, which was never fully implemented; indeed, a concrete realization of such a mechanism takes place within the European Union through the EU Emission Trading System Directive (EU ETS directive – directive 2003/87/EC). Similarly, the new Sustainable Development Mechanism (SDM), as outlined in the 2015 Paris Agreement, which amalgamates the flexible mechanisms of the Kyoto Protocol, the Joint Implementation (JI) and Clean Development (CDM). However, also the full realization of the SDM approach at the global level has proven to be challenging, as it is constructed on the premise that all nations possess climate mitigation objectives. Therefore, it necessitates complementing measures in conjunction with a more comprehensive strategy aimed at the execution of broader climate policies to help developing countries achieve their own targets.

Regarding European ETS, the exhaustive examination conducted in the second chapter necessitates a nuanced assessment.

Regarding the drawbacks of the European Emission Trading System (EU ETS), the most significant issues have arisen from the difficulty for businesses to have confidence in a secure and stable system due to initial misjudgments by the European legislator. These misjudgments have

subsequently undermined the harmonization and reliability of the ETS. In fact, there are several shortcomings that have become evident during the implementation of the EU ETS.

The first issue pertained to the price volatility of allowances. This volatility was primarily caused during the initial two phases of the EU ETS (2005-2012) by the overallocation of quotas, leading to uncertainty among operators within the EU ETS. Consequently, these uncertainties prompted businesses to delay investments in low-carbon technologies due to the absence of stable market price signals. Moreover, with the numerous directives and measures introduced over time, the mechanism has grown increasingly complex, exacerbated by the absence of clear market rules. Striking a balance between the discretion that should be afforded to businesses in deciding, based on their assessments, whether to invest in technology or purchase allowances on the market, while also ensuring that public authority intervention does not impede this discretion, has proven challenging within the framework of European ETS regulations. For instance, consider the Market Stability Reserve, which was intended to address price volatility but, in practice, amounts to a restriction on the normal price-setting mechanism in the market. In fact, based on this mechanism, 900 million permits were set aside in reserve to withdraw from the market the excess allowances leading to a decline in prices and imbalances.

Another weakness in the ETS mechanism is evident in the issues of carbon leakage and the free allocation of allowances in sectors at risk of relocation. When companies receive allowances for free, they are disincentivized from investing in sustainability and seeking innovative environmental solutions, as this option is economically favorable for businesses. European legislators attempted to address this with the creation of the Carbon Border Adjustment Mechanism (CBAM). Nevertheless, as highlighted in the second chapter, the CBAM Regulation presents numerous challenges, particularly regarding its compatibility with WTO rules. Therefore, it may not represent a long-term solution to the problem.

Furthermore, the free allocation of allowances inevitably favors the recipients of these allowances over companies that must purchase them through auctions. Consequently, the entry of new operators into the market is discouraged if they are not eligible for free allocation, as they would face additional costs. Simultaneously, the absence of new entrants in the market implies a lack of competition and, thus, reduced incentive for companies to seek sustainable technological solutions.

Finally, another major limitation of the ETS mechanism is undoubtedly represented by the use of directives as the governing instrument. These directives grant significant discretion to their Member States, although this discretion has been somewhat curtailed over time, particularly since Directive 2009/29/EC. This has resulted in significant heterogeneity in the implementation of the overall system. Indeed, as we have seen, the initial two phases were characterized by a governance problem, as Member States had excessive freedom in defining their national plans. As a result, most National Allocation Plans (NAPs) ended up allocating too many emission allowances. Furthermore, the existence of overly generic rules for setting national emission caps led to a lack of sufficient stringency within the system.

The problematic nature of the directive instrument is also evident in the numerous delays in aligning national systems with the ETS Directive, as exemplified by the case of Italy, as discussed in the third chapter. Italy conformed to the European Union framework for emissions trading with significant delays and was subject to several infringement procedures by the European Commission due to its delayed implementation of the ETS Directive and its various amendments over the years.

Moreover, what emerges from the study of Italy's ETS regulations is that the Italian government is still far from developing an effective monitoring and inspection strategy within the context of the Emission Trading System. This is a consequence of the institutional autonomy granted to Member States by the EU in choosing the entities responsible for implementing and enforcing EU law. However, this autonomy does not exempt them from the obligation

to achieve the Directive's objectives, which ultimately aim to reduce greenhouse gas emissions throughout the EU. Nonetheless, this objective can only be realized if all operators of installations covered by the Directive comply with their monitoring and reporting obligations. Given that the Emission Trading System is market-based, there is a greater need for a robust inspection and enforcement strategy compared to command-and-control policies, especially when allowance prices are high. The Legislative Decree 47/2020 mainly focused on improving the organizational structure of the Comitato ETS but did not adequately address the practical execution of inspection tasks. While the new organizational setup may represent a step forward due to the expertise of the "Segreteria Tecnica" components, it may not be sufficient to compensate for the lack of an efficient monitoring system.

As for the positive aspects, the undeniable leadership role of the European Union in fighting climate change and its significant contribution to the worldwide adoption of emission reduction instruments through market mechanisms cannot be overstated. Currently, it hosts the largest carbon market in the world and operates the first transboundary cap-and-trade system. As we have seen, this system encompasses 31 countries and covers more than 11,000 installations. This demonstrates the EU's commitment to setting an example and inspiring other nations to implement similar measures.

However, it's worth noting that the EU's efforts to assert its leadership have not always received a positive response from the international community, as we observed with the Directive 2008/101/EC (Aviation Directive)

In any case, to draw conclusions regarding the effectiveness of the emissions trading system, it is necessary to consider the environmental outcomes achieved. The impact of the results is directly proportional to the efficacy of the model. As the instrument designed to address the problem has become overly complex, the results have been limited in terms of practical applicability and the actual emissions reduction against the objectives that the European Union had established.

There is still much progress to be made before achieving climate neutrality. In this regard, Europe has continued to adopt measures aimed at reducing greenhouse gas emissions. Specifically, in 2021, the European Parliament adopted the European Climate Law, legally binding the target of climate neutrality by 2050, committing the European Union and its Member States to adopt all appropriate measures to achieve this goal, resulting in a revision of the existing plans. The new European Climate Law increases the EU's target for reducing greenhouse gas emissions by 2030, from 40% to at least 55%.

In sum, the EU ETS represents a pivotal tool in the fight against climate change, showcasing both the potential and the complexities of emissions trading as a means to reduce greenhouse gas emissions. As the EU continues to navigate the intricate landscape of climate policy, its experience with the EU ETS offers valuable insights for the global community in addressing one of the most pressing challenges of our time.

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