EKONOMIA I PRAWO. ECONOMICS AND LAW
Volume 24, Issue 2, June 2025
p-ISSN 1898-2255, e-ISSN 2392-1625
www.apcz.umk.pl/EiP.pl


Original article
received 29.01.2025; accepted 30.04.2025; published 30.06.2025
doi: 10.12775/EiP.2025.09

# Towards integrated financing for a climate-neutral European Union

JOANNA SZAFRAN

corresponding author
Instytut Ekonomii I Finansów, Wydział Ekonomiczny, Uniwersytet Marii Curie-Skłodowskiej w Lublinie, pl. M.C.Skłodowskiej 5, 20-031 Lublin
joanna.szafran@mail.umcs.pl
ORCID: 0000-0002-8814-5401

## Abstract

**Motivation:** The biggest challenge for achieving the Paris commitments and the European Union's 2030 and 2050 climate and energy targets in a just transition is to provide long-term support through coherent policies and instruments that increase public and private funds for climate transition. Due to the complexity of the 'super wicked' climate change problem, scientists and some politicians (European Commission) recommend mainstreaming or 'integration' of climate objectives into non-climate policy areas. The study answers whether these declarations are followed by the integration of financing in EU policy and fills the gap in the literature on integrating climate policy instruments.

**Aim:** This paper examines the progress in integrating the sources and mechanisms of financing the European Union's transition towards net-zero emissions.

**Results:** Climate policy integration is an ongoing process that requires adjustments to activities and sources of financing. The Multi-Annual Budget and the Recovery Resilient Facility, the support of the EIB Group, national development banks and other financing institutions provide the financial, technological and political conditions for achieving the 2030 and 2050 targets. The revenues from market mechanisms (EU ETS) feed into specialised funds and public programmes, and repayable funding instruments (e.g. InvestEU Fund, the EIB) complement non-repayable funding (structural and investment Funds). New instruments such as

the Just Transition Mechanism, the Modernisation Fund and the Social Climate Fund aim to increase public support by mitigating the costs of the transformation.

**Keywords:** climate neutrality, energy and climate policy, the EU ETS, European Union funds, the European Investment Bank
**JEL:** Q58, Q48, F55, K32

## 1. Introduction

Mitigating climate change remains one of the biggest challenges. The European Commission, in the 2024-2029 term, will continue the transition to a zero-carbon economy (von der Leyen, 2024). The commitments made in the 2015 Paris Agreement (PA) and the 2019 European Green Deal (EGD) have been at the centre of EU legislation, programmes and finance. Achieving the 2030 targets and climate neutrality by 2050 in a just transition requires integrating all sectors and funding sources, considering differences within the Union. Meanwhile, the implementation of the EGD is taking place under adverse conditions of the COVID-19 pandemic, the migration crisis and the energy crisis caused by Russia's aggression against Ukraine, bringing security to the fore. Since 1990, global greenhouse gas (GHG) emissions have increased by 61.8%, reaching a record high of 53 Gt $CO2_{eq}$ in 2023, of which fossil $CO_2$ accounted for 73.7% (IEA, 2024). In 2023, six major economies accounted for 62.7% of total emissions, with China accounting for 30.1%, the USA for 11.3%, India for 7.8%, EU27 for 6.1%, Russia for 5% and Brazil for 2.5%. The second withdrawal of the USA, one of the largest emitters, from the Paris Agreement means increasing the efforts of other countries to reduce GHG emissions. The additional investment foreseen in the EGD Investment Plan appears to be underestimated and requires long-term support through coherent policies and instruments that increase public and private climate finance flows to green transition. This article aims to examine the integration of sources and mechanisms for financing the European Union's transformation towards net-zero emissions. This requires formulating four specific objectives, to which the further structure of the study is subordinated. Firstly, presenting the assumptions of the concept of climate policy integration and indicating its dimensions. Secondly, analysis of the development of the EU climate objectives and instrumentation in its legal framework from the late 1990s to the implementation of the 'Fit for 55' reform (to the end of 2024). The following section examines progress on climate spending targets in the multi-annual budget. Finally, the coherence of funding sources and mechanisms across the European Union's set of policies to achieve the 2030 and 2050 targets will be evaluated.

## 2. Theoretical background of climate policy integration

'We are playing a risky game in the climate casino', noted the forerunner of climate economics, W. Nordhaus (2021, p. 5). Climate policy confronts a super 'wicked problem' (defined originally by Rittel and Webber in 1973) because 'time is running out', those interested in solving it are complicit, central authority is too weak to take it up or responsibility for it is pushed back into the future, that together creates tragedy (Levin et al., 2012, p. 124). Furthermore, climate change is cross-cutting; it crosses administrative boundaries, exacerbating inequalities between rich and poor; it is resistant to simple 'technological fixes', and it 'challenges prevailing social norms and practices, which are predicated on' fossil fuel consumption (Jordan et al., 2010, p. 4). The complexity of the causes and impacts of climate change is located in multiple sectors, each with different priorities, and requires concerted and highly coordinated action. Scientific and political discourse has proposed mainstreaming environmental and climate protection, policy integration, or creating a mix of policies and instruments (Gupta, 2010; Oberthür, von Homeyer, 2023).

From the 1987 G.H.Brundtland Report onwards, environmental policy integration (EPI) became a fundamental principle of sustainable development, with priority given to environmental objectives (Lafferty, Hovden, 2003; Jordan, Lenschow, 2010). Subsequently, climate policy integration (CPI) came to the fore (Adelle, Russel, 2013).

Policy integration encompasses different degrees and dimensions: the policy framework, the involvement of sub-systems, policy objectives and policy instruments (Candel, Biesbroek, 2016). A higher degree of policy integration is associated with a greater density of sub-systems and a wider range of related policies. Climate objectives are integrated into non-climate policy areas at all policy stages (Adelle, Russel, 2013). In the transition to a zero-carbon economy, the integration of objectives poses a challenge when they are not mutually beneficial or competitive or lack the support of key actors. Once instruments are integrated, they are expected to be more coherent and diversified (Candel, Biesbroek, 2016) and consequently improve the efficiency of policy-making and resource allocation (Candel, 2021). At the EU level, there is a broad spectrum of procedural instruments in the environment and climate field, including overarching strategies and plans, legal standards, permitting and monitoring procedures, access to information, consultation mechanisms, and impact assessments (Knill, Liefferink, 2007; Candel, Biesbroek, 2016). They do not define specific objectives but certain rules of conduct that Member States must follow. The literature review recommends extending the debate to substantive instruments. They define specific de-

mands regarding policy content and directly impact policy outcomes/effects. Among these, regulatory, economic and informational instruments were distinguished (Wurzel et al., 2019; Oberthür, von Homeyer, 2023). Regulatory instruments use legal coercion (command-and-control), including emission limits and targets, product, production and environmental quality standards, and orders/prohibitions. Economic instruments provide an explicit price signal and aim to guide behaviour by influencing the cost-benefit calculations of regulated firms and individuals (Nordhaus, 2021). They include quantity-based instruments (e.g. cap-and-trade schemes) where the price emerges directly from trades in scarce permits or allowances, and price-based instruments where the price is set directly (e.g. emission taxes and subsidies), hybrid instruments and aspects of monetary policy (e.g. asset purchases by central banks). Information instruments, on the other hand, serve to raise awareness and disseminate knowledge, e.g. product labelling and educational campaigns. New research recommends diversification and 'thickening' of the policy and instrument mix that may advance climate governance and cross-sectoral expansion (Oberthür, von Homeyer, 2023). In practice, the weak integration of environmental policy was due to a lack of political and financial support, so horizontal and vertical integration, or mainstreaming, has been advocated towards climate policy (Jordan, Lenschow, 2010; Adelle, Russel, 2013). Horizontal policy integration means integration within and between policy sectors, and vertical integration - between levels of government (from EU to local), equating with multi-level governance (Candel, 2021). Mainstreaming climate change requires reviewing existing development policies, instruments and practices and redesigning them to meet climate goals (Rietig, 2021).

## 3. Evolution of the EU's climate policy objectives and instruments

The leading position of the European Union as 'a laboratory for developing progressive climate policies' with the most advanced climate policy framework is widely recognised (Wurzel, Connelly, 2011; Młynarski, 2017; Oberthür, Dupont, 2021). The origins of climate policy in the 1990s, well described in the literature, show the discrepancy in credibility between the EU's international commitments and positions and its internal policies (Oberthür, Roche Kelly, 2008). It aimed to stabilise $CO_2$ emissions by 2000, with limited scope for emission reductions. As a result, most climate policy was developed and implemented exclusively at the national level (Jordan et al., 2010). Following the adoption of the Kyoto Protocol in 1997 and its entry into force in 2005, developed countries committed to reducing their $CO_2$ emissions by 5% on average compared with the 1990 level between 2008 and 2012. The

European Union (15 countries) has decided to collectively reduce its GHG emissions by 8%. The Protocol also made three new international mechanisms available: emissions trading among signatories to the agreement, joint implementation of projects and the clean development mechanism. The European debate on economic instruments shifted from taxation to cap setting and emissions trading. The tax approach was abandoned after a decade of difficult negotiations (Delbeke, Vis, 2019). The Commission prepared the EU emissions trading system (EU ETS) for major installations in energy and industry (Directive 2003/87/EC), which became the centrepiece of the new EU climate policy. Further, EU climate policy directives adopted between 2000 and 2006 were reviewed by Oberthür and Roche Kelly (2008). The efforts of Member States in making a joint commitment to reduce 8% varied and ranged from minus 28% for Luxembourg to plus 27% for Portugal (Annex II of Council Decision 2002/358/EC).

Under the 2009 Copenhagen Accord and the 2010 Cancun Agreements, participating countries have committed to reduce emissions by at least 18% between 2013 and 2020, and the EU-27 and Iceland by at least 20% compared with the 1990 level. The EU has adopted the 'Climate and Energy Package', which includes three '20 targets' to reach by 2020: reducing GHG emissions by 20%, 20% of renewable energy's share in final energy consumption (from about 8.5%) and increasing energy efficiency to reduce energy consumption by 20% (Table 1). The inclusion of further sectors and measures accompanied the climate commitment:

- A revision of the EU ETS from 2013 to 2020 extended beyond the Union and aviation from 2012;
- the Effort Sharing Regulation (ESR), which set national emission reduction targets for the sectors not included in the EU ETS, such as specific industrial processes, road transport, buildings, waste and agriculture (non-EU ETS);
- the Renewable Energy Directive (RED) setting binding national targets for increasing the share of renewable energy sources in the energy mix;
- the Energy Efficiency Directive (EED) requiring each EU Member State to implement and monitor its national energy efficiency;
- reduction of $CO_2$ emissions from new cars.

Lower-income Member States, notably in Central and Eastern Europe, would have to face higher additional investments in relative terms because of their higher energy- and carbon intensity (Delbeke, Vis, 2019). The effort was shared between Member States, ranging from minus 20% for Denmark, Ireland and Luxembourg to 20% in Bulgaria and 19% in Romania (Annex II Decision 2009/406/EC).

In addition, the '3x20 targets' have become the measurable objectives of 'Europe 2020: A strategy for smart, sustainable and inclusive growth' (EC, 2010). The Multiannual Financial Framework (MFF) 2014–2020 adopted

a target of spending at least 20% of the total budget on climate action and monitored progress in its implementation. The new 'climate mainstreaming' approach was used in programmes and projects co-funded by the Common Agricultural Policy (CAP) and Cohesion Policy and programmes directly managed by the Commission, e.g. the Connecting Europe Facility (CEF), Horizon 2020 and LIFE. The target has been met, with €220.8 billion or 20.6% of the EU budget (EC, 2022a).

The findings of the IPCC Fifth Report 2014 and the EU's continued leadership in the global agreement concluded in Paris in December 2015 were the motivation for raising the EU's 2030 target of at least a 40% reduction in GHG emissions compared to 1990. The subsequent 10-year climate and energy policy framework also endorsed an increase of at least 27% in energy efficiency and the share of renewable energy in energy consumption. Following the 2018 revision, these were increased to 32.5% and 32%, respectively. The development of the climate policy framework for the new reduction target includes legislation on the EU ETS (Directive 2018/410), Member State emission targets for other sectors (Regulation EU 2018/842), renewable energy (Renewable Energy Directive 2018/2001/EU) and energy efficiency (Directive on energy efficiency 2018/2002/EU), and for the first time accounts for emissions coming from the agriculture and forestry sectors (LULUCF Regulation EU 2018/841) (Oberthür, Dupont, 2021). EU climate policy addresses the redistributive problem. Shares in the collective reduction effort have been differentiated, ranging from a 40% reduction compared to 2005 for the highest-income countries (Luxembourg, Sweden) to 0% for the country with the lowest average per capita income (Bulgaria) (Annex I Regulation EU 2018/842).

In the European Green Deal, announced at COP 25 in 2019, the Union became the first economy to set a climate neutrality target by 2050 through a just transition (EC, 2019). The European climate law set out a framework for achieving net zero emissions by balancing emissions and removals of GHGs across the Union and then moving towards negative emissions and setting a new target of at least a 55% reduction in net GHG emissions across the Union by 2030 compared to 1990 (Regulation 2021/1119). The intermediate target is realised through 'Fit for 55' legislative proposals announced on 14 July 2021, subject to 2 years of negotiations in the Member States and the European Parliament. As a result of Russia's invasion of Ukraine, the Commission presented in May 2022 REPower EU a plan to accelerate independence from Russian fossil fuels and thus transform energy. New regulations based on the Fit for 55 and REpower EU were adopted in 2023 (Tab. 1), including:

– EU ETS reform involving the inclusion of maritime transport, capping of emission allowances, phasing out of free allowances for aviation and industries covered by the new Carbon Border Adjustment Mechanism (CBAM);

- a new, separate emissions trading system for the buildings, road transport and additional sectors (mainly small industry) will be established in 2027 (ETS 2);
- an increase in the resources of the Innovation Fund (IF) and the Modernisation Fund (MF), and the creation of the Social Climate Fund (SCF);
- new ESR target (1,513 MtCO2e) and revision of the 2030 national reduction targets to ensure a fair and balanced distribution of the effort (from minus 50% Denmark, Finland, Germany, Luxembourg, and Sweden to minus 10% Bulgaria);
- an increase in the EU net removals target to at least 310 MtCO2e and new binding national targets in the LULUCF sector;
- cleaner fuels for the aviation (RefuelEU Aviation Regulation) and maritime sectors (FuelEU Maritime Initiative), and the development of infrastructure for alternative fuels;
- tighter $CO_2$ emission standards for new cars and vans, a 55% and 50% reduction in $CO_2$ between 2030 and 2034 and a target of a 100% reduction in 2035;
- further increase the 2030 target to at least 42.5%, aiming for 45%, the share of energy from renewable sources and new targets for sectors;
- Increasing the EU's energy efficiency ambition by at least 11.7 % in 2030 (under the 2020 EU Reference Scenario) meant that primary and final energy consumption would be reduced by 40.5 % and 38 %, respectively.

## 4. Methods

In order to achieve the aims formulated in the introduction, the study is divided into several parts. The author reviewed and assessed the literature on integrating climate policy and funding sources for EU climate action. Next, strategic documents and EU legislation that formulate and implement new climate policy targets and instruments within successive climate and energy packages, European climate law, and the "Fit for 55" package were analysed. These legal acts, reports from the European Commission and the European Environment Agency, and documents of the EIB Group allowed to highlight the contributions of key pillars – such as the reformed EU ETS and its related funds, the multiannual EU budgets, and the European Investment Bank – in achieving the EU targets for 2030 and 2050, as well as attempted to assess the links and coherence of these instruments and mechanisms of EU policies. Based on the analysis of statistical data from the European Commission's Annual Management and Performance Reports and working document 1 on the 2025 draft budget, changes in climate contributions of main programmes

under the 2021–2027 MFF compared to the 2014–2020 MFF were presented. In the research process, in addition to the study of literature and sources of EU law, descriptive and comparative analysis was used.

## 5. Results

The EU's climate policy is considered comprehensive, takes into account different sources of emissions (energy, industry, transport, construction, agriculture, waste) and collectively covers all GHG emissions (Delbeke, Vis, 2019, p. 16; EEA, 2024). The legislation includes the most extensive package of measures to date that combines "push and pull factors" to reduce emissions while providing financial transfers to Member States for sectors and individuals vulnerable to the negative impacts of the green transition (Boasson, Tatham, 2023; Dupont et al., 2024; Sikora, 2021). Achieving the 2030 targets and climate neutrality are the focus of the reformed climate policy pillars: EU ETS expanded from 2027 to include new sectors, national efforts in non-EU ETS sectors and LULUCF sectors, and new instruments such as a Carbon Border Adjustment Mechanism (CBAM). The commitment to 'climate mainstreaming' has been mainstreamed in almost all areas of EU policy and budget, as well as the off-budget financial engineering of The EIB Group. EU programmes and measures are designed to stimulate national action and spending, integrate public and private investments (financial sector, public-private partnerships), and select projects that take climate risk into account.

### 5.1. Reform of the EU Emission Trading System

A key tool to achieve climate policy goals is the EU ETS, established in 2005 to promote the reduction of GHGs cost-effectively and economically efficiently (Article 1 of Directive 2003/87/EC). It has been organised and is evolving in trading periods. The current phase IV was initiated with the adoption of the Fit for 55 on 14 July 2021 and will end on 31 December 2030. The EU ETS applies to the EU-27 Member States, Iceland, Liechtenstein, and Norway, as well as to Northern Ireland concerning electricity generation, and is also linked to the Swiss ETS (from 2020). The EU ETS is a "cap and trade" system. The cap sets the total amount of GHGs that operators can emit in the sectors covered by the system. Within the cap, operators buy or receive emissions allowances, which they can trade with one another as needed (EC, 2023f). Reducing emissions from the sectors covered by the EU ETS by 62% by 2030 compared to 2005 (766 MtCO2e) requires an increased rate of annual reductions of 4.3% between 2024 and 2027 and 4.4% from 2028 (instead of 2.2%). The new target covers an expanded ETS scope: emissions from power generation, energy-intensive industries and aviation, adding CO2 emissions from maritime transport from 2024, further extended to methane

and nitrous oxide as of 2026. In addition, free allowances will be phased out in aviation (full auctioning will be introduced from 2026) and between 2026 and 2034 in industries covered by the new CBAM mechanism. As a result of the EU ETS, estimated emissions from stationary installations by 2023 have fallen by 48% compared to 2005 (EEA, 2024). Member states raised more than €100 billion in auction revenues between 2013 and 2021, the central part of which went into their budgets, and at least 50% was pledged to climate and energy (EC, 2023). The EU ETS reform envisages allocating all their emissions trading revenues to such projects.

Part of the allowances are auctioned to feed the **Innovation Fund** (IF) and the **Modernisation Fund** (MF) set up for the IV phase. The IF was launched in 2020 to support innovation in low-carbon technologies and processes in all Member States and eligible sectors (Directive 2003/87/EC). Between 2020 and 2030, it has the potential to raise around €38 billion (with a CO2 allowance price estimated at €75/tCO2) (EC, 2022b). It offers grants for the implementation of investments (up to 60% of the costs depending on the scale of the project) and their preparation (up to 40% of the financing) for large-scale and small-scale projects (with a total capital expenditure of more than and no more than €7.5 million respectively). The IF can be combined with other programmes' support, loans, loan guarantees or equity financing from the European Investment Bank. As one of the largest public funding programmes for developing innovative, clean technologies, it complements the Horizon Europe Programme. The Modernisation Fund was established to improve energy efficiency and modernise energy systems in Member States whose GDP per capita was below 60% of the EU average (Article 10d of Directive 2003/87/EC). Beneficiary countries include Bulgaria, the Czech Republic, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and Slovakia, with shares of the Fund's resources varying from 1.44% (Latvia) to 43.41% (Poland). At least 70% of the Fund's resources must be allocated to priority investments such as RES energy, improving energy efficiency, energy storage, modernising energy networks, increasing interconnections between countries, and supporting a fair transition in coal-dependent regions.

Part of the revenue generated from ETS2 sectors will feed into the **Social Climate Fund**. Between 2026 and 2032, it will support households and micro-enterprises at risk of fuel poverty and transport exclusion to mitigate the effects of including buildings and road transport in emissions trading (ETS 2). The Fund's resources, estimated at €65 billion from the auctioning of emission allowances (or €54.6 billion if the implementation of the scheme is deferred until 2028), may be supplemented by additional resources from other funds and programmes, e.g. redeployed from programmes co-financed by cohesion policy funds, except Interreg (Regulation 2023/955).

Introducing a 'border carbon charge' aims to limit emissions of GHGs and prevent carbon leakage by shifting carbon-intensive production from

the EU to countries with less stringent climate requirements than the Union or by substituting EU products with imports with higher CO2 emissions. Imported products are subject to a regulatory regime that requires certain goods imported into the Union to be registered and their emissions accounted for through **Carbon Border Adjustment Mechanism** certificates to ensure that their emissions costs are equivalent to those incurred under the EU ETS (Regulation EU 2023/956). From 1 October 2023, an interim phase of CBAM began, which will last until the end of 2025, and from 2026 the final scheme will be implemented. Its gradual introduction coincides with the phasing out free allocation under the EU ETS. CBAM will not only a shield for the ETS but may also encourage other countries to implement compatible systems and create a climate club (Szulecki et al., 2023).

### 5.2. The Climate Mainstreaming in 2021–2027 and 2014–2020 Multiannual Financial Framework

The current EU's budget integrates areas such as climate mitigation and adaptation, biodiversity and clean air (Dupont et al., 2024). The Interinstitutional Agreement of 16 December 2020 established an overall target of at least 30% for climate-relevant expenditure. It contained the following key elements: a 'climate adjustment mechanism', the development of an effective climate tracking methodology to track the level of expenditure, and the application of the 'do no harm' principle (EC, 2022a). The basic acts specify expected contributions (as a percentage of the overall budget allocated, presented in Table 2) or make a more general commitment to climate mainstreaming. The updated EU budget and NextGenerationEU (NGEU) climate-related spending in Table 2 shows that, in total, they will amount to approximately EUR 658 billion, which is 34.3% of the budget envelope and surpasses the initial target. The most significant financial contribution will come from the **Recovery and Resilience Facility** (RRF), the main component of the NGEU. It offers grants (EUR 338 billion in total) and loans (EUR 385.8 billion) available for the implementation of national Recovery and Resilience Plans (RRPs). Member States are to support climate investments and reforms with at least 37% of the allocation between 2020 and 2026. The approved RRPs foresee the disbursement of more than 40% of the total allocation for these purposes (EC, 2024). RRF interventions complement the multi-annual budget support offered by Cohesion policy funds, InvestEU, CEF, Horizon Europe, and Life. **Cohesion policy funds** focus on strengthening the EU's economic, social and territorial cohesion by promoting sustainable development, climate and digital transition. Its new objectives reflect EGD priorities, in particular CP 2, which is funded by the European Regional Development Fund and Cohesion Fund. The ERDF bridges inter-regional disparities and co-funds, among other things, investment in small and me-

dium-sized enterprises, infrastructure and innovation in the environment, transport and the transition to a low-carbon and circular economy in all sectors. It co-finances some 280 national and regional programmes (under the Investment for Jobs and Growth objective) and Interreg, providing support to various beneficiaries in all regions, taking into account their level of development. In addition, it supports urban policy, disadvantaged areas, and territorial instruments using a place-based approach. From the outset, the Cohesion Fund prefers large projects in the fields of environment and transport, including sustainable water management, energy efficiency and RES, clean mobility, and climate change adaptation in the Member States with a GNI below 90% of the EU average. In turn, the European Social Fund Plus (ESF+) supports investment in education, skills and qualifications in environmental, climate, circular economy and bioeconomy sectors. In addition, the Cohesion Policy has been reinforced by **the Just Transition Fund** (JTF), which focuses on its specific objective: mitigating the effects of transition in regions with concentrations of mining and carbon-intensive industries (Article 5 of EU Regulation 1056/2021). In the programmes adopted for 2021-2027, ERDF and Cohesion Fund contributions to climate action are exceeded and will reach 33% and 56% respectively (EC, 2024). In the 2014–2020 MFF, almost half of the climate expenditure was incurred under the **Common Agricultural Policy**, including €45.5 billion from the European Agricultural Guarantee Fund (EAGF) and €57.7 million from the European Agricultural and Rural Development Fund (EARDF), slightly above the 25% commitment. A reform of the CAP was launched in 2018 to further target environmental and climate objectives, both in direct payments (area-based eco-schemes and animal welfare) and rural development interventions (agro-environment-climate payments, ecological payments, premiums for afforestation, afforestation or agro-forestry schemes, payments for areas with natural constraints). Through both funds, its contribution to climate expenditure represents 39% (with a target of 40% of the total allocation – Table 2). Their support is provided based on the CAP Strategic Plan prepared by the Member State for 2023–2027. EU-27 GHG emissions from agriculture fell by more than 20 % between 1990 and 2010 and have remained at similar levels since then, although agricultural production is increasing (European Court of Auditors, 2021).

These instruments are complemented by programmes managed directly by the Commission: Horizon Europe, LIFE, CEF (in particular the transport and energy components), or the third edition of the Instrument for Pre-Accession Assistance (Table 2). Since 1992, the **LIFE Programme** has supported the implementation of Community environmental law and policy and promoted new environmental and climate solutions. Between 2021 and 2027, four sub-programmes are being implemented in these two areas, including in the climate area 'Mitigation and adaptation to climate change'

(with an allocation of €0.947 billion) and 'Transition to clean energy' (€0.997 billion) (EU Regulation 1293/2013). In turn, the main objectives of the **Connecting Europe Facility** are the construction, modernisation and cohesion of trans-European transport, energy and digital networks, as well as facilitating cross-border cooperation in the field of renewable energy. **Horizon Europe**, meanwhile, supports a clean transformation in research and innovation, funding activities that develop knowledge and technologies and their implementation in companies.

In order to ensure that budget expenditure is monitored and to assess the impact of different funding sources in achieving the EU's climate objectives for 2021–2027, the Commission has developed a new, effect-based methodology based on **'EU climate coefficients'**. It considers the different modes of financial management and allocating funds under the EU budget (e.g., centrally managed funds, shared management, and financial instruments implemented by third parties). The Commission assigns three coefficients to specific areas of intervention: 100%, 40% and 0%, depending on whether or not their contribution to climate objectives (direct or indirect) is significant, moderate or negligible. The **'do not harm'** principle limits budget and RRF spending on projects potentially damaging climate and environmental impacts.

### 5.3. InvestEU programme

The **InvestEU Programme** has been established to boost public and private funding and support for investments serving Union policy objectives over 2021–2027, replacing the Investment Plan for Europe 2015–2020. The Programme supports investments in four policy windows: sustainable infrastructure, innovation and digitisation, SMEs, social investment and skills (Regulation EU 2021/523). It provides comprehensive support for the financing and pooling of relevant portfolios of financial instruments (InvestEU Fund and pooled operations), technical assistance and advice in the identification, development and implementation of projects (InvestEU Advice Centre), and the matching of projects with investors via a project database portal (InvestEU portal). The InvestEU Fund's resources amount to €32.5 billion, of which €26.15 billion comes from the EU budget guarantee (EU module), €4.9 billion provided by the EIB Group and €1.6 billion from other contributions/implementing institutions (Articles 4 and 13). Its support is implemented by the EIB Group (75% EU guarantee) and national development banks (25% EU guarantee). As estimated by the Commission, the guarantee funds will mobilise debt financing that will contribute to public and private investments, totalling around €370 billion (InvestEU, 2024). In turn, the Member States' module is fed by voluntary contributions from funds under shared management or the RRF. The EU guarantees under both modules

intend to correct market failures or close the investment gap for higher-risk projects in sensitive regions and areas. In addition, the Programme is one of the pillars of the Just Transformation Mechanism and, at the end of 2023, provided €1.5 billion for investments (EC, 2024).

### 5.4. The role of 'the EU climate bank'

The **European Investment Bank** (EIB) is the EU's development bank and a part of The European Investment Bank Group (EIB Group). Its objectives reflect EU priorities and respond to crises affecting the Union and cooperating countries. Since the late 1990s, it has focused on sustainable development and climate change (issuing the world's first green bonds in 2007). As 'the EU climate bank', it has directed its activities towards achieving the goals of the Paris Agreement and climate neutrality in a just transition; strengthens the EU's external action; supports countries' ambitions in their Nationally Determined Contributions (NDCs), Energy and Climate Plans, and Adaptation Plans, offering long-term financing and advice. The EIB Climate Strategy adopted in 2015 is based on three pillars: reinforcing the impact of climate financing, increasing resilience to climate change, and further integrating climate change issues across all standards, methods, and processes. Between 2012 and 2020, the EIB provided €150 billion of funding to deliver €550 billion of investments in mitigation and adaptation to climate change (EIB, 2020). The EIB Group Climate Bank Roadmap 2021–2025 contains commitments for increased financing, support for €1 trillion of investment from 2021 to 2030, and alignment of all new operations of the PA, thus ending the financing of fossil fuel energy projects. The EIB and other large European banks have started implementing the EU Taxonomy into their credit strategies (Kołtuniak, Grzybowski, 2021; Michalski, 2022). It eliminates investment gaps in access to higher-risk, capital-intensive financing products or innovative instruments to support new low-carbon or RES technologies. The EIB plans to develop green loans and green bond products (including green hybrid bonds), enabling it to participate in the green bond market as an issuer and a buyer. In addition, EIB Group experts offer technical support. They help to identify projects (ELENA) or their preparation and optimisation, to access repayable and non-repayable financing from EU funds (JASPERS), and to support investments through financial intermediaries. The EIB combines substantive and financial support for projects submitted to the Innovation Fund or the Modernisation Fund. In the latter case, it manages the Fund's income, distributes it to beneficiaries, and co-facilitates the investment committee considering investment projects submitted for funding.

## 6. Conclusion

The EU's early climate policy was accused of being too unambitious in its objectives and having a 'surprisingly empty' set of tools to achieve them (Jordan et al., 2010, p. 17). The subsequent climate and energy framework and the creation of the energy union strengthened the coherence of climate and energy policies and mainstreamed their objectives into most EU policies (Delbeke, Vis, 2019; Dupont et al., 2024). A comparison of the 2014–2020 and 2021–2027 Multi-Annual Budgets shows significant climate spending increases for all budget programmes. The updated 2024 EC reports show they will meet and exceed their spending targets. Directly or indirectly, they have been mainstreamed in research, trade, foreign and social policy (Rietig, 2021; Oberthür, von Homeyer, 2023). Thus, the sectoral scope and strength of the CPI has increased considerably. Climate governance models and instrumentation have undergone a gradual evolution from 'market failures' (particularly evident in CO2 pricing) to incorporation of 'socio-technological change' (regulatory instruments and subsidies) and 'public support' (some procedural instruments and social support measures) (Sikora, 2021; Boasson, Tatham, 2023; Oberthür, von Homeyer, 2023). The Multi-Annual Budget and the RRF, the support of the EIB Group and, more indirectly, the European Central Bank (e.g. in its asset purchase programme), national development banks and other financing institutions (banks, guarantee societies, microfinance providers, venture capital) are supposed to provide the financial as well as the technological and political conditions for achieving the 2030 and 2050 targets. In 2023, Member States applied more than 3000 policies and measures to achieve the energy and climate objectives (EEA, 2024). The 'exemplary role of the public sector' promoted is translating EU-wide and national targets into action by local authorities, communities and businesses. In contrast, public funds should avoid financing commercially viable projects preferentially.

Increasing public support by mitigating transition costs is supported by new instruments such as the Just Transition Mechanism, the Modernisation Fund and the Social Climate Fund. The JTM provides non-refundable investment aid from the Just Transition Fund, loans from the European Investment Bank, and technical and advisory support for the platform created by the InvestEU programme. The SCF proposal fully aligns with existing measures and complements them under the JTM and ESF+. However, Crespy and Munta (2023) pointed out the possibility of deepening health, well-being and income inequalities. They questioned the just transition, which is why further research on the effectiveness of transfers from these instruments is needed.

Integration of funding mechanisms also consists in the fact that revenues from market mechanisms (EU ETS) feed into specialised funds (IF, MF, SCF) and public programmes, and repayable funding instruments (e.g. InvestEU Fund, EIB) complement non-repayable funding (structural and investment Funds). A factor that integrates the use of different instruments and favours 'sustainable investments' are the principles adopted, led by the principle of sustainability and 'do no harm', and the climate impact tracking system adopted using the EU taxonomy. However, there is a risk of contradictory interdependencies and combinations of instruments that may adversely affect the achievement of the policy objective. In addition, pressure from the fossil fuel lobby, the lack of unity within the Union and the geopolitical situation threatens to 'dilute' climate targets.

## References

Adelle, C. & Russel, D. (2013). Climate policy integration a case of déjà vu? *Environmental policy and governance*, 23(1), 1–12. https://doi.org/10.1002/eet.1601.

Boasson, E.L &, Tatham, M. (2023). Climate policy: From complexity to consensus? *Journal of European Public Policy*, 30(3), 401–424. https://doi.org/10.1080/13501763.2022.2150272.

Candel, J.J.L. & Biesbroek, R. (2016). Toward a processual understanding of policy integration, *Policy Sciences* 49, 211–231. https://doi.org/10.1007/s11077-016-9248-y .

Candel, J.J.L., (2021). The expediency of policy integration, *Policy Studies* 42(4), 346–361. https://doi.org/10.1080/01442872.2019.1634191.

Crespy, A., & Munta, M. (2023). Lost in transition? Social justice and the politics of the EU green transition. *Transfer: European Review of Labour and Research*, 29(2), 235–251. https://doi.org/10.1177/10242589231173072.

Delbeke, J. & Vis, P. Eds. (2019). *Towards a climate neutral Europe. Curbing the trends.* London and New York: Routledge.

Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC (OJ L275/2003).

Directive (EU) 2023/959 of the European Parliament and of the Council of 10 May 2023 amending Directive 2003/87/EC establishing a system for greenhouse gas emission allowance trading within the Union and Decision (EU) 2015/1814 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading system (OJ L130/2023).

Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955 (recast) (OJ L231/2023).

Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652 (OJ L2023/2413).

Dupont, C., Moore, B., Boasson, E. L., Gravey, V., Jordan, A., Kivimaa, P., Kulovesi, K., Kuzemko, C., Oberthür, S., Panchuk, D., Rosamond, J., Torney, D., Tosun, J. & von Homeyer, I. (2024). Three decades of EU climate policy: Racing toward climate neutrality? *WIREs Climate Change*, 15(1). https://doi.org/10.1002/wcc.86312.

EC. (2010). *Europe 2020: A strategy for smart, sustainable and inclusive growth*. COM(2010)2020final.

EC. (2019). *The European Green Deal*. COM(2019)640.

EC. (2021). *Annual management and performance report for the EU budget: financial year 2020.* Retrieved 10.11.2024 https://data.europa.eu/doi/10.2761/41370.

EC. (2022a). *Climate Mainstreaming Architecture in the 2021-2027 Multiannual Financial Framework* SWD(2022) 225 final. Retrieved 20.11.2024 from https://data.consilium.europa.eu/doc/document/ST-10530-2022-INIT/en/pdf.

EC. (2022b). *Innovation fund progress report*. Retrieved 10.12.2023 https://data.europa.eu/doi/10.2834/58165.

EC. (2023). *Accelerating the transition towards climate neutrality to ensure Europe's security and prosperity. EU climate action report 2022*. COM(2022) 514 final/2, Retrieved 10.12.2023 from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022DC0514.

EC. (2024). *Draft General Budget of the European Union 2025. Working Document Part I Programme Performance Statement.* COM(2024). Retrieved 22.04.2025 from https://commission.europa.eu/publications/working-documents-2025_en.

EEA. (2024). Trends and projections in Europe 2024. *EEA Report* 11/2024. Retrieved 25.04.2025 https://data.europa.eu/doi/10.2800/7574066.

EIB. (2020). *EIB Group Climate Bank Roadmap 2021–2025*. Retrieved 4.04.2024 from https://www.eib.org/en/publications/the-eib-group-climate-bank-roadmap.

European Court of Auditors, (2021). Common Agricultural Policy and climate - Half of EU climate spending but farm emissions are not decreasing, *Special Report* n°16. Retrieved 30.06.2023 from https://op.europa.eu/webpub/eca/special-reports/cap-and-climate-16-2021/en/.

Gupta, J. & N. van der Grijp, N. (Eds) (2010). *Mainstreaming climate change in Development Cooperation* (pp. 67-96). Cambridge: Cambridge University Press.

IEA. (2024). Crippa, M., Guizzardi, D., Pagani, F., Banja, M. et al., GHG emissions of all world countries. Publication Office of the European Union https://data.europa.eu/doi/10.2760/4002897.

Jordan, A., Huitema, D., van Asselt, H., Rayner, T., Berkhout, F. (Eds.) (2010). *Climate Change Policy in the European Union. Confronting Dilemas of Mitigation and Adaptation?* Cambridge: Cambridge University Press.

Jordan, A. & Lenschow A. (2010). Environmental policy integration: a state of the art review, *Environmental Policy and Governance*, 20(3), 147–158. DOI:10.1002/eet.539.

Knill, Ch., Liefferink, D. (2007). *Environmental politics in the European Union: policy making implementation and patterns of multi-level governance*. Manchester University Press.

Kołtuniak, M. & Grzybowski, M. (2021). Źródła finansowania transformacji energetycznej. In: A.Z. Nowak, M. Kurtyka & G. Tchorek (Eds.), *Transformacja energetyczna i klimatyczna – wybrane dylematy i rekomendacje* (pp. 265–283). SWWZ UW.

Lafferty, W.M. & Hovden, E. (2003). Environmental policy integration: commodity dan analitical framework, *Environmental Politics,* 12(3), 1–22. https://doi.org/10.1080/0964401041233130825 4.

Von der Leyen, U. (2024). Europe's choice. Political guidelines for the next European Commission 2024-2029. Retrieved 20.11.2024 from Available at: https://commission.europa.eu/document/e6cd4328-673c-4e7a-8683-f63ffb2cf648_en.

Levin, K., Cashore, B., Bernstein, S. & Auld, G. (2012). Overcoming the tragedy of super wicked problems: constraining our future selves to ameliorate global climate change, *Policy Science* 45(2), 123–152. https://doi.org/10.1007/s11077-012-9151-0.

Michalski, D. (2022). Zarządzanie finansowaniem zielonej transformacji. In. G.Wojtkowska-Łodej (Ed.). *Transformacja rynków energii. Gospodarka – Klimat – Techologia* – Regulacje (pp. 23–47). Oficyna Wydawnicza SGH.

Młynarski, T. (2017). *Bezpieczeństwo energetyczne i ochrona klimatu w drugiej dekadzie XXI wieku: energia - środowisko – klimat*. Wydawnictwo Uniwersytetu Jagiellońskiego.

Nordhaus, W. (2021). *Kasyno klimatyczne. Ryzyko, niepewność i ekonomia globalnego ocieplenia.* PTE.

Oberthür, S. & Dupont C. (2021). The European Union's international climate leadership: towards a grand climate strategy? *Journal of European Public Policy* 28(7), 1095–1114. https://doi.org/10.1080/13501763.2021.1918218.

Oberthür, S. & von Homeyer, I. (2023). From emissions trading to the European Green Deal: The evolution of the climate policy mix and climate policy integration in the EU, *Journal of European Public Policy* 30(3), 1–24. https://doi.org/10.1080/13501763.2022.2120528.

Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021 establishing the Recovery and Resilience Facility (OJ L057/2021).

Regulation (EU) 2021/523 of the European Parliament and of the Council of 24 March 2021 establishing the InvestEU Programme and amending Regulation (EU) 2015/1017 (OJ L107/2021).

Rietig, K. (2021) *Learning in governance. Climate policy integration in the European Union.* The MIT Press.

Rittel, H. & Webber, M. (1973). Dilemmas in a general theory of planning. *Policy Sciences* 4, 155–169. Retrieved 12.02.2024 from https://urbanpolicy.net/wp-content/uploads/2012/11/Rittel+Webber_1973_Policy-Sciences4-2.pdf.

Sikora, A. (2021). European Green Deal – legal and financial challenges of the climate change. *ERA Forum,* 21, 681–697. https://doi.org/10.1007/s12027-020-00637-3.

Szulecki, K., Overland, I. & Smith, I.D. (2022). The European Union's CBAM as a de facto climate club: The governance challenges. *Frontiers in Climate*, 4, https://doi.org/10.3389/fclim.2022.942583.

Wurzel, R. & Connelly, S. (Eds.) (2011). *The European Union as a leader in international climate change politics.* Routledge.

## Acknowledgements

**Author contributions:** author has given an approval to the final version of the article. Author's total contribution to the manuscript: 100%.

**Funding:** this research was fully funded by the author's own sources.

**Note:** the results of this study were presented in another form at the Conference: Finanse samorządu terytorialnego w warunkach kryzysowych (June 20–21, 2023, Lublin, Poland)

## Appendix

Table 1. Main EU climate and energy targets for 2020, 2030 and 2050

| Legal Framework | Climate and Energy Package | Climate and Energy Framework | European Climate Law | | |
|---|---|---|---|---|---|
| | | | Fit for 55 | REPower EU | |
| Year of adoption | 2009 | 2014 | 2021–2023 | 2022 | No data |
| Target year | 2020 | 2030 | 2030 | 2030 | 2050 |

| Legal Framework | Climate and Energy Package | Climate and Energy Framework | European Climate Law | | |
|---|---|---|---|---|---|
| | | | Fit for 55 | REPower EU | |
| Reduction GHG emission (%):<br>– compared with 1990<br>– compared with 2005<br>• EU ETS<br>• non-EU–ETS | 20<br><br>21<br>10 | ≥ 40<br><br>43<br>30 | ≥ 55<br><br>57–62[b)]<br>40 | ≥ 55<br><br>62<br>40 | 0 net |
| Increasing the renewable energy share (%) | 20 | 32[a)] | 40–42.5-45[b)] | 45 | 84–90 |
| Improving energy efficiency (%) | 20 | 32.5[a)] | 40.5/38[c)] | +13 | Nd. |
| Decrease of primary energy consumption / final energy consumption at least (Mtoe), compared with 2005 | 1312/953 | 1128/864 | 993/763[c)] | 752 | Nd. |

Explanatory notes: a) Revised; b) Baseline and final proposals adopted by Directive 2023/959/EU and Directive 2023/2413; c) About the updated baseline and Directive 2023/1791
Source: Own preparation.

Table 2. Climate-relevant share of the main contributing programmes within the 2021–2027 MFF and NGEU compared to the 2014–2020 MFF (commitments, billion Eur)

| Programme | 2014–2020 | | 2021–2027 | | % target in the basic act |
|---|---|---|---|---|---|
| | total | % on total envelope | total | % on total envelope | |
| Connecting Europe Facility | 21 | 70 | 24.4 | 77 | 60 |
| Horizon 2020/ Europe | 20.3 | 27 | 32.7 | 36 | 35 |
| LIFE | 1.6 | 46.5 | 3.3 | 61 | 61 |
| InvestEU | – | – | 3.2 | 33 | 30 |
| Just Transition Mechanism | – | – | 19.7 | 98 | 100 |
| Cohesion Policy<br>European Regional Development Fund<br>Cohesion Fund | 50.9<br>34<br>17 | 25<br>18<br>28 | 93.5 | 35 | <br>30<br>37 |
| European Social Fund + | 5.5 | 3,8 | 6.1 | 5 | – |
| Common Agricultural Policy<br>European Agricultural Guarantee Fund<br>European Agricultural and Rural Development Fund | 103<br>45.5<br>57.7 | 25<br>15<br>58 | 146<br>96<br>50 | 39<br>33<br>47 | 40 |
| European Maritime Fisheries and Aquaculture Fund | – | 15 | 3 | 53 | – |
| ITER and the Development of Fusion Energy | – | – | 4.5 | 100 | 100 |
| Neighbourhood Development and International Cooperation Instrument | 7.3 | – | 24.5 | 31 | 30 |
| Humanitarian Aid | 1 | – | 2.8 | 19 | – |
| Pre-Accession Assistance | 1.6 | 12 | 4 | 27 | 18 |
| ReactEU | – | – | 8 | 16 | 25 |
| Recovery and Resilience Facility | – | – | 275.7 | 43 | 37 |
| Total | 216-220 | 20,8 | 658 | 34.3 | 30 |

Source: Own preparation based on EC (2021), EC (2022a) and EC (2024).