Using carbon pricing revenues for social compensation

By Emma Krause, Agustin Roth, Moritz Schäfer

Date: March 1, 2022

Guidehouse Germany GmbH
Albrechtstrasse 10 c
10117 Berlin
T +49 30 7262 1410
www.guidehouse.com

Table of Contents

Executive Summary: The Social Dimensions of Carbon Pricing

This paper provides an overview of how jurisdictions that have implemented carbon taxes and emissions trading systems use the ensuing revenues. It highlights good practice approaches to recycling carbon pricing revenue to address distributional impacts on households and citizens in the European Union and beyond.

For recycling and compensation to occur, revenues are usually deposited into a fund designated for these measures. The fund then supports specific programs targeted at disadvantaged communities or energy bill reductions, as well as investments in energy efficiency improvements, renewable energy, industrial decarbonization, and research and development.

Key to the success of these programs has been a legislated commitment to use carbon pricing revenues for specific social compensation measures, as well as efforts to ensure transparency around how the revenues are spent through reporting requirements. Equally as important are engagement strategies that focus on transparently communicating how carbon pricing revenues have been spent and how those projects have benefited the public. Interweaving a communications strategy and revenue recycling program that is tailored to the carbon pricing jurisdiction's values and perceptions on climate change, as well as the role of taxes and government in societal matters, has also proven to be successful.

1. Introduction

Governments around the world are working to implement and enhance policies to meet more ambitious climate targets. Carbon pricing is one of the key tools in the fight against climate change. As carbon pricing mechanisms are implemented and refined to better meet environmental objectives, prices have risen, and more sectors of the economy have felt the ensuing impact.

Economic theory shows that putting a price on greenhouse gases emissions (GHG) equal to the marginal damage caused by pollution is a cost-efficient way to cope with the global climate change emergency (Edenhofer, et. al. 2013). There are three main carbon pricing designs: carbon taxes, emissions trading systems (ETS), and output-based performance standards:

- **Carbon taxes**, such as the Swedish carbon tax, set a tax rate on specific fossil fuels and companies that emit those greenhouse gases are subject to pay the tax to the government.
- In **emissions trading systems**, such as the EU ETS, the government places a limit (cap) on total emissions in different sectors, and companies (covered entities) are obligated to hold one permit for every tonne of CO_2 emissions they release. Covered entities may receive, buy or trade permits and their value represents the carbon price. Every year these entities are obligated to surrender enough allowances to cover their total emissions or face heavy fines. Over time, the cap on emissions decreases, limiting the number of available permits, and incentivizing covered entities to reduce their emissions.
- Finally, an **output-based performance standard** (OBPS), in place in several Canadian provinces as a part of the Canadian federal benchmark system, sets an emissions limit for each facility subject to the OBPS. The emissions limit is calculated using an emissions-intensity performance standard (i.e., a set level of GHG emissions per unit of output) for a given product or activity. Facilities that emit less than their emissions limit earn surplus credits they can sell or save for later use while facilities that emit more than their annual emissions limit must provide compensation for the excess emissions by a prescribed deadline.

Although carbon pricing can contribute to abating emissions, it can also have significant negative real or perceived distributional effects for households. In many contexts, a price on carbon can have regressive effects, as it may increase energy bills which already form a large percentage of poorer households' budgets. For example, the households in the lowest decile of the income distribution in the Czech Republic and Slovakia spend more than 20% of their income on energy (European Court of Auditors 2022). What's more, disadvantaged households may have less resources to afford more efficient or low-carbon appliances, heating systems, or cars. These, distributional impacts can in turn diminish support for carbon pricing, and climate policy generally. Section 2 of this paper presents an overview of how EU Member States use EU ETS revenue, with a particular focus on social compensation measures, as well as relevant, proposed amendments in the Fit-for-55 package.

Designing a fair and effective carbon pricing policy requires careful consideration of how costs and benefits are distributed across society to achieve immediate political feasibility and durability

for carbon pricing policy options over time. ETS' and carbon taxes have the advantage that they can leverage auction or tax revenue which can be used for 'social compensation measures' and contribute to funding necessary investments for the transition to a climate neutral economy in a fair way. In Section 3 we analyze how EU Member States with national carbon taxes in place use the ensuing revenue for social compensation measures.

Finally, Section 4 presents brief case studies of good practice carbon pricing approaches from outside the EU ETS. Section 5 concludes the paper.

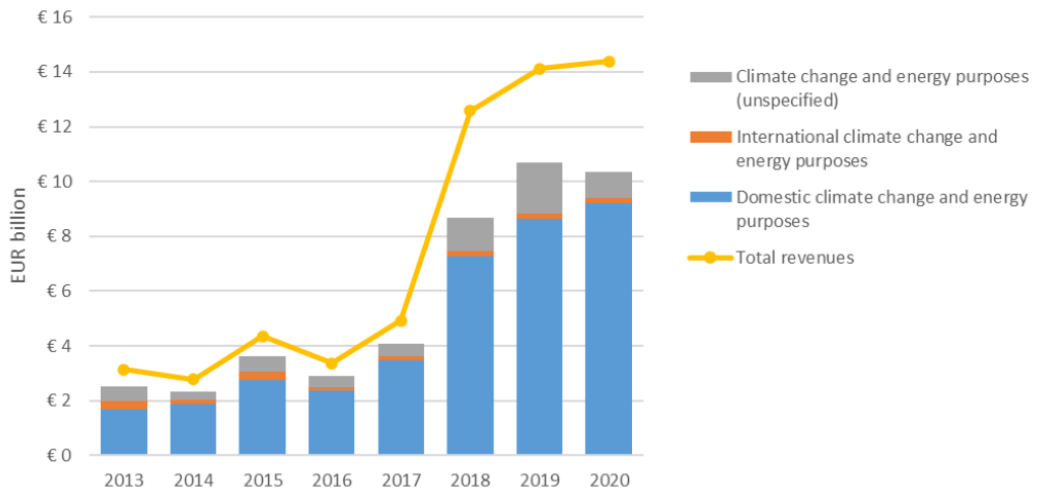
2. How EU Member States use EU ETS revenues for social compensation

2.1 Current use of ETS revenues

The EU ETS covers approximately 40% of the EU's GHG emissions, from the power sector, manufacturing industry, and aviation within the European Economic Area. 90% of auction revenues from the EU ETS are re-distributed to EU Member States (MS) based on their share of verified emissions, and the remaining 10% are further distributed amongst the lower-income MS. Currently, of the total revenues generated[1], at least 50% should be used for climate- and energy-related purposes. Based on information submitted by MS under the EU Governance Regulation, it is estimated that in 2020 around 72% of auction revenue was used for climate and energy purposes (European Commission 2021) (see Figure 1).

Countries that do not earmark ETS revenues, usually report example projects related to energy and climate to demonstrate that they comply with the 50% of total revenues allocated to these purposes. In other words, when the revenues go to the general budget, MS report on climate actions, which were financed by the state budget by the same amount (i.e., same financial value) as their auctioning revenues, however a direct link to auctioning revenue cannot be made (Velten et. al. 2016). What's more, there is no external verification of the reported numbers.

Figure 1. Auctioning revenues and reported usage (€ billion), 2013-2020, EU-27



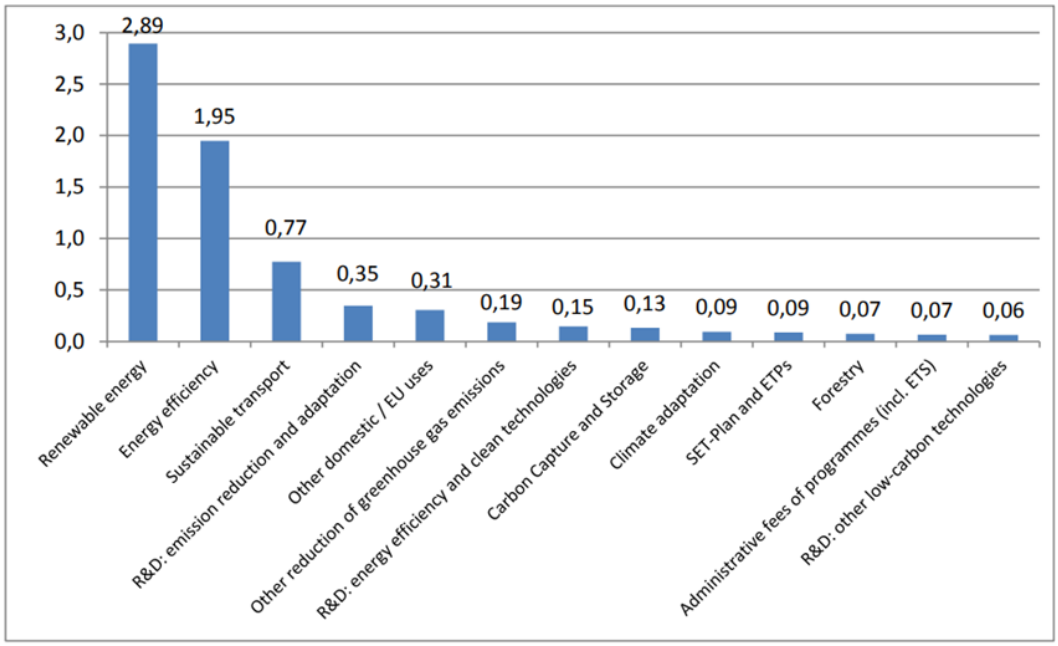
*Source: Figure taken from **EU Climate Action Progress Report** (November 2021, p. 17)[2]*

[1] Including all revenues generated from allowances distributed for the purposes of solidarity and growth, and all revenues from allowances issued in respect of aviation.

[2] Data based on: **https://ec.europa.eu/clima/system/files/2021-10/com_2021_962_en.pdf**

In the Final Report submitted to the European Commission on the Analysis of the use of Auction Revenues by the Member States, the aggregated EU data between 2013-2015 shows that most of the auctioning revenues were spent on implementing renewable energy and energy efficiency policies and programs, which can contribute to mitigating social and distributional impacts (see Figure 2).[3]

Figure 2. Use of auctioning revenues by category of domestic and EU spending between 2013-2015 (bn EUR)



*Source: Figure taken from the report "**Analysis of the use of Auction Revenues by the Member States" (2017, p. 19). Final report written by Ramboll for the European Commission***

In a research communication that analyzed the use of auctioning revenues published in *Energy Efficiency* (Wiese, Cowart, & Rosenow 2020), the authors conclude that strategic investments in energy efficiency programs provide opportunities for realizing multiple benefits: additional emission reductions from both ETS and non-ETS sectors, lower economic and societal decarbonization costs and support for the political process to further tighten the ETS cap**. The authors point out that "together with targeted cashback or bill support for low-income households, recycling of revenues into efficiency and renewable energy programmes targeted to low-income households or communities reduces bills significantly in the long-term".** These investments can contribute to reducing energy and mobility poverty, and accelerating decarbonization in key sectors such as housing and transport.

[3] For more information on revenues generated from the auctioning of emission allowances by EU27 (and the UK until 2020) in every year from 2013-2021, see here: **https://ec.europa.eu/clima/system/files/2021-10/swd_2021_308_en.pdf**

2.2 Examples of the use of ETS revenues in EU MS

Some EU countries have strategically invested between 50 - 100% of their domestic ETS auctioning revenues in measures that pave the way towards a climate neutral future. These programs have shown to deliver energy savings, GHG emissions reductions, cost savings to consumers, tax revenue for national budgets, employment, and economic growth. The majority focusses on energy efficiency in buildings but also renewable heat and electric mobility are areas repeatedly addressed. An overview of relevant measures is provided below, taken from EIONET – Reporting Obligations Database (ROD) (European Environment Agency 2021):

Table 1 – Energy measures financed with EU ETS revenue

EU Country	Instrument or Policy	Objective	Total € or % of auctioning revenues	Implementing Agency
Belgium	Financial Support	Investment subsidies for social housing corporations to perform **energy renovations of social housing**. Measures to increase energy efficiency and insulation or provide **financial support to lower- and middle-income households**.	30 million	VMSW: Flemish company for social housing
Belgium	Financial Support	Rolling fund for loans for social renovation, subsidies for demolition/rebuilding houses, **project subsidies, heat networks, subsidies for heat pump boilers**	53.3 million	VEA Flemish Energy Agency
Belgium	Financial Support	Support for **low emission buses**, infrastructure for shore power, **charging infrastructure**	33.3 million	De Lijn and Department of Transport in Flanders
Croatia	Financial Support	Implementing a system of individual **measurement of thermal energy consumption,** encouraging renovating family homes and other private and public buildings. Measures intended to increase **energy efficiency and insulation** or provide financial support to address social aspects **in lower- and middle-income households**.	7.7 million	Environmental Protection and Energy Efficiency Fund

EU Country	Instrument or Policy	Objective	Total € or % of auctioning revenues	Implementing Agency
Czech Republic	Financial Support	The Czech New Green Savings Program is focused on funding energy saving measures carried out by households, **refurbishing private dwellings** (**insulation**), constructing new dwellings using **low-energy or passive standards,** and using low-emission or renew**able sources to heat** households. Measures are intended to increase **energy efficiency** and **insulation** or to provide financial support to address social aspects in **lower- and middle-income households.**	82.5 million[4]	State Environmental Fund of the Czech Republic
Estonia	Financial Support	Support the promotion of **energy efficiency and renewable energy use in public buildings**, such as kindergartens, welfare buildings of local government institutions and others. Measures intended to increase **energy efficiency** and **insulation** or provide financial support to address social aspects in **lower- and middle-income households.**	6.2 million	Ministry of Finance
Estonia	Financial Support	Support to purchase of all **electric vehicles** to promote their use. The aim of the measure is to reduce CO_2 emissions in the Estonian transport sector through the wider introduction of electric vehicles and to promote electric transport.	1.2 million	Environmental Investment Centre
France	Financial support policy through subsidies	Improving the **energy efficiency** of **private housing** stock through the "Habiter Mieux" program. Measures aim at improving the **energy efficiency of low- and**	Up to 420 million per year from the	The National Agency for Housing (ANAH), public administrative institution under the supervision of the

[4] The amount in EUR is counted using the average 2019 exchange rate 25,54 CZK/EUR.

EU Country	Instrument or Policy	Objective	Total € or % of auctioning revenues	Implementing Agency
		middle-income households and providing financial support for social needs in **lower- and middle-income households**.	auctioning revenues	Ministry of Housing, the Ministry of Economy and the Ministry of the Budget
Germany	Financial support policy through subsidies	Germany directs its revenues from EU ETS auctions towards **lowering the EEG surcharge** for consumers, a charge paid by electricity suppliers, companies with high energy costs, and final consumers that goes towards supporting renewable energy development. Revenues are also directed to **international, European, and national climate programs**.	3.1 million	The German Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection
Hungary	Financial Support	A program called Energy efficiency: "Warmth of Home" provides the opportunity for the **renovation and modernization of** family **houses**, detached houses and condominiums, to achieve the improvement of energy efficiency and climate protection. **Modernizing** secondary heating in housing cooperative and condominium buildings with **district heating** and the development of a new **smart heating** cost sharing system.	28.17%	Ministry for Innovation and Technology
Hungary	Financial Support	Multiple programs funding **electric charging installations** and **supporting purchase of electric cars and buses** to reduce CO_2 emissions from transport.	36.4%	Ministry for Innovation and Technology
Italy	Financial Support	Measures intended to increase **energy efficiency and insulation** and provide financial support to address social aspects in **lower- and middle-income households**.	Share of broader 77.5 million measures	Ministry for the Ecologic Transition / Ministry of Economy and Finances

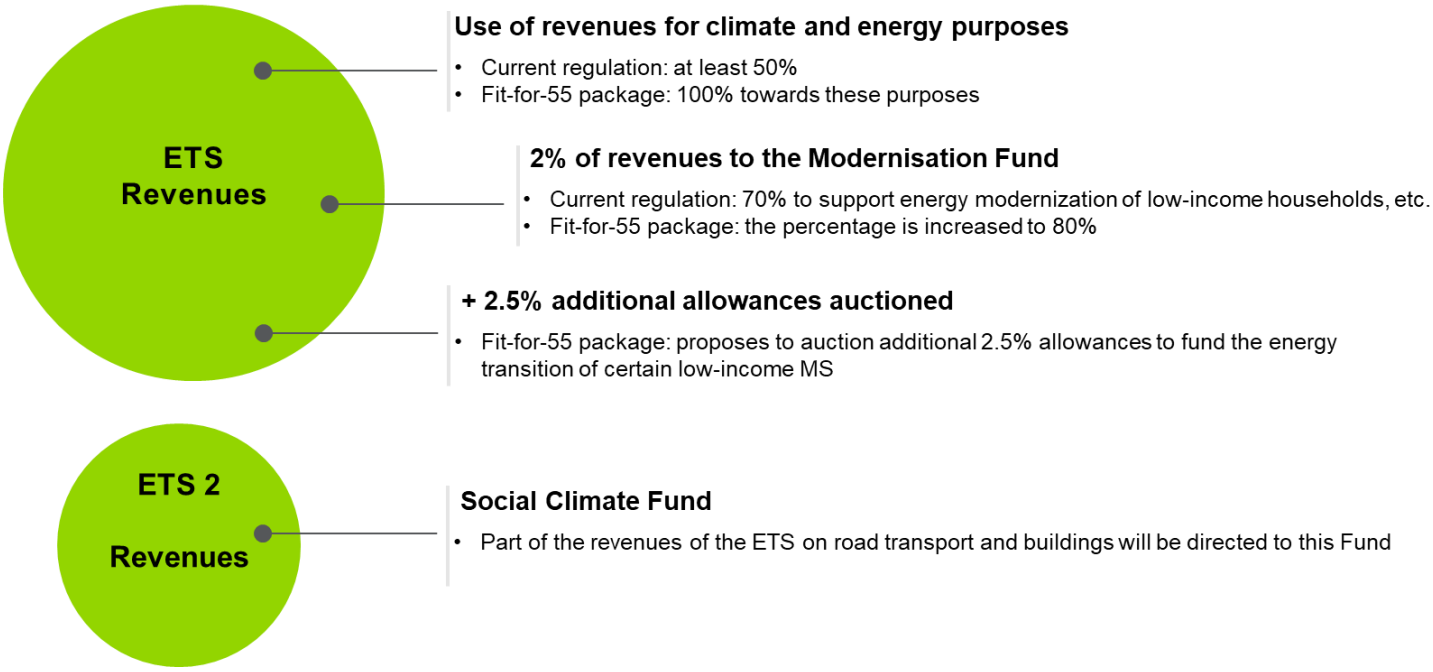
2.3 Changes through the Fit-for-55 package

Though auction revenues have been used to varying degrees of success to address distributional impacts, the European Commission has put forth new proposals to further systematize and support these efforts. In the Fit-for-55 proposal released in July 2021, the Commission proposed an **amendment to the ETS Directive** on how to use auction revenues from the EU ETS. The proposal states that Article 10 of the ETS Directive (2003/87/EC) should be amended so that MS must use all the revenues, to the extent they are not attributed to the Union budget, for climate-related purposes, including to support sustainable renovation of low-income households. Additionally, the proposal recommends auctioning an additional 2.5% of EU allowances to fund the energy transition of MS with GDP per capita below 65% of the EU average in 2016-2018 (European Commission 2021).

The proposal also offers an **amendment to the Modernisation Fund**, which currently uses EU ETS allowance revenues to modernize energy systems and improve energy efficiency, in MS with a GDP per capita below 60% of the Union average in 2013 (European Commission 2020). The Fit-for-55 proposal calls for increasing the percentage of the fund that needs to be invested in support policies from 70% to 80%, eliminating support for all fossil fuel investments, and supporting modernizing low-income households heating systems in rural or remote areas, among other initiatives (ibid).

The Fit-for-55 proposal also calls for a **second EU ETS specifically for the building and road transport sector**, with revenues from this ETS partially directed to a proposed **Social Climate Fund**. This fund would focus on increasing energy efficiency in buildings, decarbonizing heating and cooling in buildings, granting improved access to zero- and low-emissions mobility and transport, and implementing measures and investment needs that principally benefit vulnerable households, micro-enterprises or transport users (European Commission 2021). These efforts would be supported by additional Fit-for-55 measures released in December 2021 on the energy performance of buildings, which posits an EU-wide minimum energy performance standard carefully designed to mitigate potential negative social effects, improve living conditions, retrofit worst-performing buildings, and potentially alleviate or prevent energy poverty (European Commission 2021). Figure 3 presents and overview of the current and proposed use of ETS revenues.

Figure 3 – Use of ETS revenues overview



Source: own elaboration.

3. How EU Member States use carbon tax revenues for social compensation

In addition to the EU ETS, many EU MS have adopted **national and regional carbon taxes**, which also represent a source of revenues that can or cannot be earmarked to specific social or environmental purposes. In the table below we present MS who have used their carbon tax revenues for specific **social compensation measures**.

Table 2 – Carbon tax revenues for social compensation measures in EU Member States

Member State	Sectors/Fuels covered	Use of revenues
Finland	The carbon tax applies to CO_2 emissions from the industry, transport, and buildings sectors with some exemptions for industry. The tax covers all fossil fuels except for peat.	The revenues are **not earmarked** and go directly to the general budget. However, Finland has introduced a tax-shifting package for carbon tax revenues, and, in exchange for a decrease in people's income from carbon taxes, they **reduce income taxes** by a percentage (Khastar, M. Aslani, A., and Nejati, M., 2020).
France	The carbon tax applies CO_2 emissions from the industry, buildings and transport sectors with some exemptions for these and other sectors. The tax covers all fossil fuels.	Due to the "non-allocation of budget" principle, France directs all **revenues from the carbon tax to the general budget**. However, France commits a portion of carbon tax revenues to fund other tax policy measures. For example, revenues are used to **lower the tax burden of low-income households and the elderly**, and to support financial aid given to individuals **replacing old diesel vehicles**. In 2018, compensation measures also included EUR 100 million for a grant scheme supporting **purchases of energy-efficient cars** and EUR 81 million for a support scheme helping low-income households with covering their **energy bills**.
Ireland	The carbon tax applies to CO_2 emissions from non-ETS sectors with some exemptions for the power, industry, transport and aviation sectors and to mineral oils, natural gas and solid fuels (coal and peat). The tax covers all fossil fuels.	Originally, the carbon tax was not earmarked for a specific purpose, but its revenues were reported to be used for **green subsidies** (investments that facilitated the low-carbon transition) and revenue recycling. The tax rate increased in 2021 and the government has since committed to earmarking additional revenues resulting from the rise. They are used to finance the "**National Fuel Allowance** Scheme" which consists of w**eekly cash payments to low and fixed-income households** in the colder portion of the year, as well as **energy efficiency measures for buildings** and low-income households most vulnerable to fuel poverty through the recently formed "National Energy Retrofit Program".

Member State	Sectors/Fuels covered	Use of revenues
		"EUR 6 million of carbon tax revenue was allocated in both 2020 and 2021 to finance the newly established **national Just Transition Fund** for the Midlands. The Fund provides financial support for **retraining workers** and for business projects that can generate sustainable jobs in a region that is being affected by the phase out of peat extraction and use. Revenues from the carbon tax are also used to mitigate the impact of higher taxes on **vulnerable households** and communities, which helps increase social acceptability". The information is based on the report "A Credible Carbon Tax Trajectory for Ireland. International Programme for Action on Climate" (OECD, 2021).
Portugal	The carbon tax applies to CO_2 emissions from the industry, buildings, and transport sectors with some exemptions for these and other sectors. The tax covers all fossil fuels.	Revenue from the carbon tax and ETS allowance auctions are allocated to **Portugal's Environmental Fund**, which supports a wide range of government programs, including some decarbonization measures (EREK, 2021). Portugal has also politically committed to using revenues for tax policy measures, with revenues earmarked for **tax cuts to help relieve large families** from paying personal income taxes. Additional use of revenues is for investments in **low-carbon mobility**, **energy efficiency vouchers** to economically vulnerable families, and a specific 'compensation mechanism for a fair transition' which maintains the income of workers directly and indirectly affected by the closure of the Pego Thermoelectric Power Plant. (IEA, 2021).
Sweden	The carbon tax applies to CO_2 emissions from the transport and buildings sector as there are (partial) exemptions for other sectors. The tax covers all fossil fuels.	Carbon tax revenues are **not earmarked** and are transferred to the general budget, but parallel **tax relief for low-income households** are provided. General budget funds are used for specific purposes linked to the carbon tax, such as addressing undesirable distributional consequences of taxation or **financing** other climate-related measures such as **improved public transportation** systems, an **increase in biofuels in district heating**, and improvements in **building insulation.** GHG emissions from heating households has decreased by 90% since 1990, mainly due to the replacement of oil heating by district heating and heat pumps. In addition to support policies, the introduction of the carbon tax turned biomass into the most competitive fuel for heat production.

Source: The information on sectors and fuels covered is based on the Carbon Pricing Dashboard of the World Bank (The World Bank, 2022). The information on use of revenues is based on European Environmental Bureau (2021) and on the report "Possible extension of the EU Emissions Trading System (ETS) to cover emissions from the use of fossil fuels in particular in the road transport and the buildings sector" (European Commission, 2021).

4. Good practices from around the globe

There are many jurisdictions outside of the EU ETS that have carbon pricing in place, however not all of them have specific social compensation mechanisms. In this section we provide a series of brief case studies of 'good practice' approaches from around the globe.

4.1 British Columbia

The British Columbia (B.C., province of Canada) carbon tax was implemented in 2008 and covers approximately 78% of GHG emissions from all sectors of the economy, with some exemptions for industry, aviation, transport, and agriculture. The tax started at a rate of $10 CAD per tonne in 2008, rose at a rate of $5 CAD per tonne yearly with some exceptions from 2013 - 2017, and is currently at a rate of $45 CAD per tonne, with an increase to $50 CAD per tonne scheduled for April 1, 2022 (Government of British Columbia 2020).

The tax is imposed on fuel and distribution companies who pass it on to consumers at the final point of sale and is then passed back to the province via the retailer or wholesaler. The tax applies to the purchase of fuels including gasoline, diesel, natural gas, heating fuel, propane, and coal, and to all uses, even if the fuel is not combusted. When designing the carbon tax, **the provincial government made a binding legislative commitment to establish the tax as revenue-neutral by giving carbon tax revenues back to industry and households.** Though the tax originally was applied at the same rate across sectors without exemptions, feedback from the public and industry resulted in specific policy changes to address competitiveness and social issues. Northern and rural residents argued that they would be overly disadvantaged by the tax due to colder temperatures (higher heating fuel use) and a lack of public transport (more gasoline use), and low- and middle-income households also raised concerns. To address this challenge, the government implemented **two tax credits** (Government of British Columbia 2021):

- A tax credit of $200 CAD for northern and rural residents distributed annually upon completion of a tax return.
- The B.C. Climate Action Tax Credit (BCCATC) paid quarterly to low- and middle-income individuals and families, dependent on individuals and families income thresholds, and contingent on adults' completion of a tax return.

In 2018, following the increase of the carbon tax to $30 per tonne, the province broke with the policy of revenue neutrality, committing instead to use the revenues for low-income credits and to incentivize industrial decarbonization. Revenues are now earmarked for:

- Additional **low-income tax credits**
- A Clean B.C. Program **for industry to invest revenues into infrastructure projects** such as transmission grids, access to low carbon fuels, and other GHG emission reduction projects
- **Rebates to specific emissions intensive and trade exposed** (EITE) industry players that meet a GHG intensity benchmark of two times the B.C. sector's production-weighted-average emissions intensity for the product or activity

The carbon tax has enjoyed general support from the public, so long as it is seen to be being used to address climate challenges and any resulting regressivity from the carbon tax. Key to the tax's success has been **open and transparent communication**. Transparency has been accomplished through annual reporting mandates, as well as annual 3-year plans documenting how the tax revenues will be used. Furthermore, adopting a phased and predictable approach ensured that revenue use was communicated in a transparent, and palatable manner (OECD and World Bank 2015).

4.2 California

The California (federal state in the U.S.) Cap-and-Trade Program, implemented by the California Air Resources Board (CARB), covers the power, industry, transport, and buildings sectors, meaning approximately 80% of the state's GHG emissions fall under the system. The California Cap-and-Trade Program is linked to the Québec Cap-and-Trade Program (California Air Resources Board 2022).

California is the only ETS jurisdiction that has determined through legislation that the investment of emissions trading revenues should have social and environmental justice outcomes that support low-income households and vulnerable communities. All revenues generated from the program's ETS auctions are deposited into the **Greenhouse Gas Reduction Fund** (California Climate Investments 2021). The fund supports several different social compensation programs, including:

- The California Climate Credit, designed specifically to distribute a share of program's auction revenues directly to **California residential customers** that receive electricity from an investor-owned utility company, electric service provider or community choice aggregation provider
  - Credit is distributed bi-yearly to residential households and is reflected by a **decrease on electricity bills**
  - Credit is not related to the electricity use, which means that it does not interfere with the carbon price signal by virtue of being a **lumpsum payment**

- A legislated requirement that 25% of the proceeds must go to projects that provide a **benefit to disadvantaged communities**, and at least 10% of the funds go to projects located within those communities (California Environmental Protection Agency 2022).
  - The California EPA has, through a public input process, compiled a list of disadvantaged communities, relying on a screening tool (CalEnviroScreen 4.0) to identify areas disproportionately burdened and vulnerable to pollution (California Office of Environmental Health Hazard Assessment 2021).
  - According to a 2019 semi-annual update, more than 60% of investments from the California cap-and-trade program go toward programs that benefits low-income and environmentally disadvantaged communities (California Air Resources Board 2019).

- The California Climate Investments program, which provides technical assistance, incentives, and funding for residential energy efficiency programs for single and multi-family **low-income homeowners in disadvantaged communities** to improve their homes.

- The California legislature appropriates money from the Greenhouse Gas Reduction Fund to California state administering agencies for these programs (California Climate Investments 2021)

Despite substantial lobbying from industry groups to get rid of the cap-and-trade program, it has enjoyed public support due to the role it plays in the state's mandated pollution reductions goals, the program's focus on fairness, and the California government's efforts to showcase cap-and-trade spending on visible solutions with broad support. California has led dedicated information campaigns to give clear evidence of how the funding was spent, including highlighting solutions that made a visible difference, especially in low-income communities, such as electric school buses, cars and trucks, new light rail stations, and car sharing programs. What's more, California has also taken specific actions to communicate visible expenditures of ETS revenues on measures that benefit Californian citizens. Examples include, specifically highlighting the ETS revenue financed Climate Credit on Californians electricity bills, displaying a "Cap-and-Trade dollars at work" logo on all grantees of the California Climate Investments program, and a continued focus on using the revenues to enhance fairness and equity.

4.3 Nova Scotia

The Nova Scotia (Canadian province) Cap-and-Trade Program, implemented by Nova Scotia Environment's Climate Change Unit in 2019, covers the power, industry, transport, and buildings sectors and thus approximately 80% of Nova Scotia's emissions. The program has a designated 'Green Fund' into which all revenues from the auction of ETS allowances are deposited (Government of Nova Scotia 2022). There is a clear legal mandate how the program revenues must be spent, as well as a mandate that all spending decisions are reported to the public each year through an annual report.

The Nova Scotia Environment Act outlines how revenues from the cap-and-trade program must be used, including financing measures to mitigate the economic and social impact of measures to reduce, limit or avoid greenhouse gas emissions (Nova Scotia Legislature 2017).

The Nova Scotia cap-and-trade program held it's first two auction in 2020, generating approximately CAD $28.7 million, of which CAD $19.5 million has been designated for investments in energy efficiency, renewable energy programs, and support for youth internships; specific investments include (Nova Scotia Environment 2021):

- $5.5 million over two years for the Solar Homes program, which offers rebates to homeowners installing solar panels
- $4.7 million over one year for the HomeWarming – Efficiency One program, which provides energy efficiency home upgrades for non-electrically heated homes at no charge to eligible Nova Scotian homeowners that meet a low-income threshold
- $11.5 million over five years for the Affordable Multi-Family Housing program, which provides incentives for energy efficiency upgrades in affordable housing projects
- $3.5 million over three years for the Small Business and Not-For-Profit Energy Solutions program, which offers incentives for energy efficiency upgrades for small businesses and not-for-profits
- $2 million over five years for the Clean Leadership program, to enable youth interns to work on climate change projects across the province

Two non-profit organizations, the Clean Foundation and Energy Efficiency Nova Scotia, will implement the various programs outlined above. Several of the programs are specifically targeted at reducing energy costs for low-income Nova Scotians. The remaining money in the Green Fund is earmarked for climate adaptation, climate change risk, and administrative purposes for operating the cap-and-trade program and the Green Fund.

In Nova Scotia, there is strong public consensus in favour of acting against climate change, and an appreciation for using the funds generated through the cap-and-trade program to address climate challenges. The Nova Scotia government has contributed to building this consensus by engaging the public in consultations on how revenue in the Green Fund should be spent, and through reporting each year how the revenue will be used.

4.4 United States: The Regional Greenhouse Gas Initiative

The Regional Greenhouse Gas Initiative (RGGI) is the first mandatory greenhouse gas ETS in the United States. A regional ETS, it covers the power sector across 10 participating U.S. states: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, and Virginia. Proceeds from RGGI auctions are focused on reducing energy consumption and thus costs, as funds are re-invested into energy efficiency programs, direct energy bill assistance, and other GHG reduction programs. How auction revenues are specifically used differs by state, however examples include low-income energy assistance programs that support energy efficiency projects and energy bill financing, as well as energy efficiency programs directed at upgrading appliances and lighting, weatherizing, and insulating buildings, upgrading HVAC systems, and improving industrial processes. RGGI revenues are also leveraged to promote green jobs, and partially measures program success in 'job hours created.' Some states, such as New York have identified disadvantaged communities as a key target group for RGGI funding, e.g., EmPower New York, a program for low-income New Yorkers that provides energy efficiency services for family homes (Regional Greenhouse Gas Initiative 2021). In Delaware, Maine, Vermont and New Hampshire low-income initiatives target low- and moderate-income customers by providing incentives for home weatherization and heating systems (ibid).

RGGI states provide yearly reports as to how revenues from the ETS have been invested. Reports highlight who the revenues targets - a wide range of consumers, including private homes, local businesses, multi-family housing, industrial facilities, community buildings, retail customers, and more – as well as the programs proceeds were invested in. The reports provide transparency and communicate revenue investment to the public to facilitate further buy-in into the RGGI program. To the extent that the public is aware of RGGI, there is a generally positive view of the program.

4.5 Switzerland

Switzerland has two carbon pricing systems: a levy covering non-ETS sectors and an ETS, the Switzerland Emissions Trading System, which is linked to the EU ETS and covers power, industry, and aviation within the EU. All revenues from the Swiss ETS are fed back into the general budget. One third of revenues from the CO_2 levy support renovations and renewable energy programs, and a portion is carved out for a nationwide technology fund to promote innovative companies. The other two thirds of the levy are re-distributed through a unique social compensation measure, a health levy, which is distributed uniformly between the Swiss population and Swiss companies'

premiums. Distribution of the healthy levy to citizens is carried out by health insurers, and the amount granted to each household is settled against their health insurance premium. The distribution to companies is in proportion to the settled AHV (old age and survivor's insurance) payroll of the company's employees. The AHV compensation funds distribute the revenues by offsetting or paying out the respective amount.

The Swiss public is generally in favour of the redistribution mechanisms, as they are perceived as being distributed equally amongst Swiss citizens. The Swiss government has also tried to communicate the CO_2 levy in a specific way, intentionally calling it a 'levy' as opposed to a 'tax' to avoid the negative connotations associated with the word 'tax'. Additional measures to demonstrate transparency and build trust have included making information available on the Swiss government's and through leaflets sent to citizens on how these revenues are generated and distributed.

5. Conclusion

By putting a price on carbon pollution to reflect the marginal societal damages caused by an additional tonne of CO_2 - referred to as the 'social cost of carbon' - policymakers can incentivize businesses and consumers to internalize the economic costs of climate change and abate emissions. Though an important and effective climate policy tool, carbon pricing can also have regressive distributional effects for households and society, whether through higher costs for carbon intensive consumer goods and services or through income from work and investments that may decrease due to higher production costs for firms. The use of carbon pricing revenues generated is key, as a jurisdiction's approach to distributing revenues will impact whether carbon pricing will be an effective, durable policy that contributes to a just transition, or will disproportionally affect the poor and increase inequality.

Carbon pricing instruments can generate considerable revenues for the government. Jurisdictions can decide whether to earmark revenues for specific climate and energy projects and investments, or deposit them into their general operating budgets to then be used for energy, climate, and or social compensation policies. Good practices from carbon tax and ETS jurisdictions around the world have shown that using these revenues to both further decarbonization goals and address distributional outcomes can make carbon pricing policies progressive and better ensure their longevity.

Good practices from around the globe also show that investments in renewable energy, energy efficiency, clean vehicles and fuels, transportation infrastructure, etc. can both reduce the burden of high energy and fuel costs, especially in low-income groups, and support decarbonization goals in sectors such as transport, cooling, and heating. Direct and indirect income support (e.g., though annual payments to energy-poor households or reductions on the energy bills) are popular but should be designed in a way that incentivize a reduction in energy consumption as opposed to only diminishing overall costs. Jurisdictions around the world have shown that strategic investments in energy efficiency and renewable energy programs that target revenue recycling to low-income households realize multiple benefits including emissions reductions, lower energy bills in the long-term, and more progressive climate policies. These benefits can in turn create more political acceptance for carbon pricing and existing and future climate policies.

Effective carbon pricing program' have also established legislated commitments to use carbon pricing revenues for specific social compensation measures, as well as developed reporting mandates and accompanying communications strategies to demonstrate accountability, transparency, and visibility on how revenues are spent. As the European Union works to expand its carbon pricing mechanisms to new sectors and determine how to make the best use of ensuing revenues, it is crucial that MS carefully consider how to govern and target revenue spending to ensure the longevity of carbon pricing mechanisms, and ultimately just transition to a decarbonized economy. Jurisdictions across the EU and the world can offer valuable lessons to help justly and effectively tailor the next phase of EU climate policy.

6. References

California Air Resources Board. (2022). *Cap-and-Trade Program*. Retrieved from: **https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program**

California Air Resources Board. (2019). *California Climate Investments 2019 Semi-Annual Update*. Retrieved from: **https://ww2.arb.ca.gov/news/california-climate-investments-track-set-annual-record-more-900-million-projects-statewide**

California Climate Investments. (2021). *About California Climate Investments*. Retrieved from: **https://www.caclimateinvestments.ca.gov/about-cci**

California Environmental Protection Agency. (2022). *California Investments to Benefit Disadvantaged Communities*. Retrieved from: **https://calepa.ca.gov/EnvJustice/GHGInvest/**

California Office of Environmental Health Hazard Assessment. (2021). *CalEnviroScreen 4.0*. Retrieved from: **https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40**

Carbon Pulse. (2020). *Mexico's Jalisco to implement a carbon tax in 2021*. Retrieved from: **https://carbon-pulse.com/101802/**

Carl, J. and Fedor, D. (2016). Tracking global carbon revenues: A survey of carbon taxes versus cap-and-trade in the real world. Energy Policy. (6(50-77). **https://doi.org/10.1016/j.enpol.2016.05.023**

Climate Policy Database. (2022). *Climate Change Bill of Catalonia*. Retrieved from: **https://www.climatepolicydatabase.org/policies/climate-change-bill-catalonia**

Edenhofer, Ottmar, Christian Flachsland, Michael Jakob, and Kai Lessmann. (2013). *The Atmosphere as a Global Commons – Challenges for International Cooperation and Governance.* Discussion Paper 2013-58. Cambridge, Mass.: Harvard Project on Climate Agreements.

Energy Court of Auditors. (2022). *Energy taxation, carbon pricing and energy subsidies.* Retrieved from: **https://www.eca.europa.eu/en/Pages/DocItem.aspx?did=60760**.

Environment and Climate Change Canada. (2016). *Pan-Canadian Approach to Pricing Carbon Pollution*. Retrieved from: **https://www.canada.ca/en/environment-climate-change/news/2016/10/canadian-approach-pricing-carbon-pollution.html**

Environment and Climate Change Canada. (2021). *Review of the federal Output-Based Pricing System Regulations.* Retrieved from: **https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work/output-based-pricing-system/review.html**

Environment and Climate Change Canada. (2021). *Update to the Pan-Canadian Approach to Carbon Pollution Pricing 2023-2030*. Retrieved from: **https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work/carbon-pollution-pricing-federal-benchmark-information/federal-benchmark-2023-2030.html**

EREK. (2021). *Support programme Environmental Fund – Portugal*. Retrieved from: **https://www.resourceefficient.eu/en/support-programme/environmental-fund-portugal**

European Commission. (2017). *Analysis of the use of Auction Revenues by the Member States.* Retrieved from: **https://www.gcca.eu/sites/default/files/2020-06/2017%20European%20Commission%20Analysis%20on%20the%20use%20of%20Auction%20Revenues%20by%20the%20Member%20States.pdf**

European Commission. (2020). *Article 10d – Modernisation Fund.* Establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC. Retrieved from: **https://lexparency.org/eu/32003L0087/ART_10d/**

European Commission. (2021). *Possible extension of the EU Emissions Trading System (ETS) to cover emissions from the use of fossil fuels in particular in the road transport and the buildings sector.* Retrieved from: **https://data.europa.eu/doi/10.2834/779201**

European Commission. (2021). *Proposal for a Directive of the European Parliament and of the Council.* COM (2021)551). Retrieved from: **https://ec.europa.eu/transparency/documents-register/detail?ref=COM(2021)551&lang=en**

European Commission. (2021). *Proposal for a Directive of the European Parliament and of the Council on the energy performance of buildings*. COM (2021) 802 final. Retrieved from: **https://ec.europa.eu/energy/sites/default/files/proposal-recast-energy-performance-buildings-directive.pdf**

European Commission. (2021). *Regulation of the European Parliament and of the Council establishing a Social Climate Fund*. COM (2021) 568 final. Retrieved from: **https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021PC0568&from=EN**

European Commission. (2021). *Speeding up European climate action towards a green, fair and prosperous future: EU Climate Action Progress Report*. Retrieved from: **https://ec.europa.eu/clima/system/files/2021-11/policy_strategies_progress_com_2021_960_en.pdf**

European Environment Agency. (2021). *Deliveries for Use of auctioning revenue and project credits.* Retrieved from: **https://rod.eionet.europa.eu/obligations/698/deliveries**

European Environmental Bureau. (2021). *A carbon pricing blueprint for the EU.* Retrieved from: **https://euagenda.eu/upload/publications/a-carbon-pricing-blueprint-for-the-eu2.pdf.pdf**

Government of British Colombia. (2020). *British Columbia's Carbon Tax*. Retrieved from: **https://www2.gov.bc.ca/gov/content/environment/climate-change/clean-economy/carbon-tax**

Government of British Columbia (2021). *Climate action tax credit*. Retrieved from: **https://www2.gov.bc.ca/gov/content/taxes/income-taxes/personal/credits/climate-action**

International Carbon Action Partnership. (2022). *ETS Map*. Retrieved from: **https://icapcarbonaction.com/en/ets-map**

International Carbon Action Partnership. (2021). *Emission Trading Worldwide: Status Report 2021*. Retrieved from: **https://icapcarbonaction.com/en/?option=com_attach&task=download&id=723**

International Emissions Trading Association (IETA). (2021). *Status and trends of compliance and voluntary carbon markets in Latin America.* Retrieved from: **https://www.ieta.org/resources/Resources/Reports/Status-and-Trends-of-Compliance-and-Voluntary-Carbon-Markets-in-Latin-America.pdf**

IEA. (2021). *Portugal Energy Policy Review.* Retrieved from: **https://www.iea.org/reports/portugal-2021**

Khastar, M. Aslani, A., and Nejati, M. (2020). How does carbon tax affect social welfare and emissions reduction in Finland? *Energy Reports, 6, 736 – 744.* **https://doi.org/10.1016/j.egyr.2020.03.001**

Massachusetts Department of Environmental Protection. (2021). *Electricity Generator Emissions Limits (310 CMR 7.74).* Retrieved from: **https://www.mass.gov/guides/electricity-generator-emissions-limits-310-cmr-774**

Nova Scotia Environment. (2021). *Green Fund Supports Energy Efficiency, Renewable Energy and Youth Jobs*. Retrieved from: **https://novascotia.ca/news/release/?id=20210202004**

Nova Scotia Environment. (2022). *Nova Scotia Cap-and-Trade Program Details.* Retrieved from: **https://climatechange.novascotia.ca/cap-trade-regulations**

Nova Scotia Legislature. (2017). *An Act to Reform the Environmental Laws of the Province and to Encourage and Promote the Protection, Enhancement and Prudent Use of the Environment*. Retrieved from: **https://nslegislature.ca/sites/default/files/legc/statutes/environment.pdf**

OECD. (2021). *A Credible Carbon Tax Trajectory for Ireland. International Programme for Action on Climate.* Retrieved from: **https://www.oecd.org/climate-action/ipac/webbooks-practices/dynamic/ipac-case-studies/a39128a3/pdf/a-credible-carbon-tax-trajectory-for-ireland.pdf**

OECD. (2021). *Carbon pricing in times of COVID-19: What has changed in G20 economies? Background Notes.* Retrieved from: **https://www.oecd.org/tax/tax-policy/carbon-pricing-background-notes.pdf**

OECD and the World Bank. (2015). *The FASTER Principles for Successful Carbon Pricing: An approach based on initial experience*. Retrieved from: **https://www.oecd.org/env/tools-evaluation/FASTER-carbon-pricing.pdf**

Regional Greenhouse Gas Initiative. (2021). *The Investment of RGGI Proceeds in 2019.* Retrieved from: **https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2019.pdf**

The World Bank. (2019). *Guide to Communicating Carbon Pricing*. Retrieved from: **https://openknowledge.worldbank.org/bitstream/handle/10986/30921/132534-WP-WBFINALonline.pdf?sequence=9&isAllowed=y**

The World Bank. (2022). *Carbon Pricing Dashboard*. Retrieved from: **https://carbonpricingdashboard.worldbank.org/map_data**

Transportation & Climate Initiative (TCI). (2021). *Transportation & Climate Initiative Program (TCI-P).* Retrieved from: **https://www.transportationandclimate.org/tci-p**

UK Department for Business, Energy and Industrial Strategy. (2022). *Participating in the UK ETS.* Retrieved from: **https://www.gov.uk/government/publications/participating-in-the-uk-ets/participating-in-the-uk-ets#overview**

Velten, E. et al. (2016). Smart Cash for the Climate: maximizing Auctioning Revenues from the EU Emissions Trading System. Retrieved from: **https://www.ecologic.eu/sites/default/files/publication/2016/2584-maximiseretsfulltechnicalreport_final.pdf**

Washington State Legislature. (2021). *An Act Relating to the Washington climate commitment act.* Retrieved from: **https://lawfilesext.leg.wa.gov/biennium/2021-22/Pdf/Bills/Senate%20Passed%20Legislature/5126-S2.PL.pdf#page=1**

Wiese, C., Cowart, R. & Rosenow, J. (2020). The strategic use of auctioning revenues to foster energy efficiency: status quo and potential within the European Union Emissions Trading System. Energy Efficiency 13, 1677–1688 (2020). **https://doi.org/10.1007/s12053-020-09894-0**.

7. Appendix

7.1 EU Member States ETS Auction Revenue – Earmarking Approach

In the table below, for each EU MS we show whether the revenues from auctioning are earmarked or are directed to the general budget.

Member State	Are revenues earmarked?	Observations
Austria	Not earmarked	In past years, Austria reported climate and energy projects financed from the national budget, however, their funding cannot be directly linked to the auctioning revenues. In 2020, Austria reported to have spent € 986.4 million on climate and energy and its total revenues from auctioning in 2020 were €184.2 million, meaning that well over 100% of auctioning revenues were spent on climate and energy policies.
Belgium	Earmarked	ETS revenues have been allocated to a federal Fund called "Fonds destiné à la responsabilisation climat" or "Fonds bested voor de klimaatresponsabilisering". Since 2017, Belgium has spent approximately at least half of ETS revenue on climate and energy projects through its regional governments. In addition, the general budget is also used to finance climate and energy projects.
Bulgaria	Not earmarked	Bulgaria reports some energy and climate projects funded from the general budget.
Cyprus	Earmarked	Revenues from auctioning go to a specific fund, which different ministries can use for climate and energy projects. This fund also receives money from the general budget.
Croatia	Earmarked	According to Croatian law, 100% of the revenues are spent on climate and energy.
Czech Republic	Not earmarked	The Czech Republic reported spending on climate and energy projects with funds allocated from the national budget.

Member State	Are revenues earmarked?	Observations
Denmark	Not earmarked	Denmark reports some energy and climate projects funded from the general budget.
Estonia	Hybrid system	50% of ETS revenues are earmarked and directed though the four-year State Budget Strategy and spent on climate and energy projects and measures. The remaining 50% goes to the general budget, which, amongst others policy areas, covers climate and energy investments.
Finland	Not earmarked	Finland reported some energy and climate projects funded from the general budget.
France	Hybrid	Up to a ceiling of 420 million per year are used to co-fund energy efficiency improvement of low-income housing (National Housing Agency). The remainder goes to the general budget, which, amongst others policy areas, covers climate and energy investments.
Germany	Earmarked	Germany directs its revenue from EU ETS auctions towards lowering the EEG surcharge for consumers, a charge paid by electricity suppliers, companies with high energy costs, and final consumers that goes towards supporting renewable energy development. Revenues are also directed to international, European, and national climate policy programs.
Greece	Earmarked	Revenues are fully spent on domestic climate change and energy projects.
Hungary	Hybrid	50% of revenues are spent on climate and energy. The other 50% goes to the national general budget, which can cover climate and energy investments.
Ireland	Not earmarked	ETS revenues are not earmarked for specific purposes but amounts spent are equivalent to

Member State	Are revenues earmarked?	Observations
		spending 100% of ETS revenues on climate and energy projects.
Italy	Hybrid	Italian law mandates that 50% of the revenues are earmarked for climate and energy purposes. The remaining 50% was initially used to compensate for the depleted phase 2 of the New Entrants Reserve, and later it was allocated to the general budget, which funds amongst other policy areas, climate and energy projects.
Latvia	Earmarked	100% of revenues go the EAAI, a national green investment scheme aimed at tackling global climate change.
Lithuania	Earmarked	Revenues are allocated to a climate change fund that is only for climate action and energy projects.
Luxembourg	Not earmarked	Luxembourg reports spending 100% of these revenues on climate and energy projects.
Malta	Earmarked	All revenues go to a fund for climate and energy projects, which receives further funding from the general budget.
Netherlands	Not earmarked	Revenues go to the national general budget, a portion of which is used to finance climate and energy projects. It is not possible to link auctioning revenues to specific projects funded.
Poland	Not earmarked	Poland reported energy and climate projects that amount to 50% of the total revenues received from EU ETS auctions.
Portugal	Earmarked	All revenues are channeled to the Environmental Fund (alongside other revenues) which finances environmental projects that may or may not be directly related to climate objectives.
Romania	Hybrid	50% of revenues are earmarked for climate change and energy purposes. An additional 6% is earmarked for GHG reduction projects. 15% goes to indirect carbon cost compensation. The remaining 29% goes to the general budget.

Member State	Are revenues earmarked?	Observations
Slovakia	Earmarked	All auctioning revenues are earmarked and go to an Environmental Fund, which also receives money from other sources.
Slovenia	Earmarked	100% of the auctioning revenues are used for climate and energy projects.
Spain	Hybrid	Estimated revenues are earmarked for energy and climate project ahead of each year (up to a cap, which was up to EUR 500 million in 2018 and EUR 1,100 million thereafter). The remainder goes to the general budget, part of which also funds climate projects.
Sweden	Not earmarked	Example projects have been reported for at least the minimum required spending on energy and climate purposes.

7.2 Additional Social Compensation Mechanisms Outside the EU ETS

Many jurisdictions outside of the EU ETS that have carbon pricing in place, however not all of them have specific social compensation mechanisms. Jurisdictions have used auction revenues to fund climate programs, including on energy efficiency, low-carbon transport, renewable energy and industrial decarbonization in addition to social compensation measures. The below provides an overview of how jurisdictions outside of the EU ETS use their carbon pricing revenues, and specifically identifies which ones have specific social compensation measures in place.

Jurisdiction	Are specific social compensation mechanisms in place?	Observations
Argentina	No	• Argentina enacted a carbon tax on fossil fuels in March of 2018 of $10 USD per tCO_2e; tax applies to the energy and transportation sectors, not to industrial process, agriculture, or waste sectors • Tax is collected and revenues go to the social security system, as well as to transport infrastructure investments, the national housing fund, and to the provinces, among other uses
Baja California	Yes	• Passed a proposal in 2020 that imposes a new carbon tax at a higher rate than the Mexican national tax

Jurisdiction	Are specific social compensation mechanisms in place?	Observations
		• Covered entities will be subject to both taxes, though multiple exemptions in the national tax result in many entities not being doubly covered • Tax is applied to entities and individuals with installations or a fixed place of business, where goods that generate pollutants are sold to final customers • Here goods refer to gasoline, diesel, natural gas, and liquified petroleum gas • Revenue generated from the tax to attend to health issues caused by emissions of those pollutants • Though the tax has been implemented, official information is not available as to whether these revenues have been collected and thus total revenues are unclear

Canada	Yes	• The Pan-Canadian Approach to Carbon Pollution, released in October 2016, mandated Canadian provinces and territories to implement a carbon pricing mechanism by September 2018.
		• Mechanism requires provinces and territories to meet a minimum federal benchmark but also gave provinces the flexibility to choose a carbon pricing mechanism that best suited them.
		• The federal backstop fully applies in four and partially in another three provinces and territories. The Government of Canada has committed to return all net direct proceeds from the federal carbon pollution pricing system to the provincial jurisdictions of origin.
		• Fuel-charge proceeds from the provinces participating in the fuel-charge portion of the federal backstop are returned to those provinces
		  ○ In the Yukon and Nunavut, net proceeds from the fuel charge are returned directly to those governments
		  ○ In Manitoba, New Brunswick, Saskatchewan, Alberta, and Ontario 90% of direct proceeds from the fuel charge are returned directly to individuals and families in the form of tax-free Climate Action Incentive payments
		  ▪ The remaining 10% are used to provide support to schools, hospitals, small and medium-sized businesses, colleges, universities, municipalities, not-for-profits, and Indigenous communities in the province.

Jurisdiction	Are specific social compensation mechanisms in place?	Observations
		▪ A 10 per cent additional supplementary amount will be provided for individuals and families who live in rural areas outside a census metropolitan area, as defined by Statistics Canada. • Proceeds collected from the provinces participating in the OBPS portion of the federal backstop will be used to help decarbonize industrial sectors • Climate Action Incentive payment amounts for 2021 were distributed through those who claimed them on their 2020 personal income tax returns • The Government of Canada intends to shift Climate Action Incentive payments to quarterly amounts paid through the Canada Revenue Agency's benefit system as early as 2022
Catalonia	No	• Catalonia has a regional carbon tax. The Catalan government expects to raise about 150 million euros a year, which will be allocated to both the Climate Fund and the Natural Environment and Biodiversity Fund. • The Climate Fund will incentivize and subsidize the purchase of clean vehicles, fund improvements to public transport, and promote renewable energies and energy-efficient housing.
Chile	No	• A carbon tax has been in place in Chile since 2017, and was reformed in February 2020; in its updated form, stationary emission sources that emit more than 25,000 tCO_2 and/or 100 tonnes of particulate matter due to combustion process per year are subject to the tax of USD $5 • Revenues from the carbon tax are not collected, and are not specifically earmarked, though the tax was approved as part of a wider tax reform focused on raising funding for education and health initiatives
China and Chinese Pilots	No	• Eight Chinese pilots (Beijing, Chongqing, Fuijan, Guangdong, Hubei, Shenzhen, Shanghai, Tianjin) operate in conjunction with the Chinese national ETS • The national ETS covers the power sector, whereas the pilots cover a range of sectors including the power sector; the national ETS is expected to expand to industrial sectors such as a steel and aluminum in the coming years

Jurisdiction	Are specific social compensation mechanisms in place?	Observations
		• The Chinese pilot ETS' will be gradually integrated into the national ETS, and the integration for the electricity sectors is already underway • ETS revenue is deposited into the general government budgets • Guangdong has explored establishing a Low Carbon Development Fund that would use auction revenues to promote further mitigation actions, carbon finance, and low-carbon industrial development ○ Due to the change of the pilot's competent authority further information regarding this measure has not yet been released

Colombia	No	• Colombia implemented a carbon tax that applies to liquid and gaseous fossil fuels; it does not apply to coal and other solid fuels nor to natural gas used by refineries or in the petrochemical industry
		  ○ Revenues from the carbon tax are collected and flow to the "Sustainable Colombia Fund" (Ley 1819 de 2016, 2016), which is an initiative by the government to support sustainable practices and projects in areas affected by violent conflict
		• Columbia is currently developing an emission trading system that is expected to launch through a pilot phase between 2023 and 2024
		  ○ Auction revenues from the ETS are to be directed to the National Environmental Fund and used for GHG reductions and mitigation projects, as well as to manage the information needed to implement the law mandating the creation of the ETS, the climate change management law

Jalisco	No	• Governor announced intention to implement a carbon tax starting in 2021 by reforming the state's takes law • Covered entities will be subject to both the national and Jalisco state tax, though multiple exemptions in the national tax result in many entities not being doubly covered • Tax would be applied to the point of combustion of a variety of economic units, companies, and individuals, and would cover CO_2 as well as other GHGs • Revenue generated would flow into policies and programs for climate change adaptation and mitigation,

Jurisdiction	Are specific social compensation mechanisms in place?	Observations
		as well as promote economic and industrial sustainability • Though the tax has been implemented, official information is not available as to whether these revenues have been collected and thus total revenues are unclear
Japan	No	• Japan's carbon tax applies to fossil fuels such as petroleum, oil products, natural gas and coal • There are several exemptions and refund measures for certain fossil fuel products used in energy intensive industries • Revenue generated gets redirected to supplement energy projects and to enhance energy savings measures
Kazakhstan	No	• ETS revenue is deposited into the general government budget • Emissions trading system imposed on the power, oil, gas, and industry sectors
Massachusetts	No	• The state of Massachusetts participates in RGGI, however also has an additional system, the Massachusetts Limits on Emissions from Electricity Generators that also covers the power sector and operates in parallel but does not directly interact with RGGI • Electricity generators in Massachusetts must hold and surrender allowances for both programs. • The Massachusetts specific program requires auction revenues to be paid into a segregated account. • These revenues are then reinvested into clean energy and electric vehicle projects, as well as projects targeting communities adversely impacted by air pollution • Massachusetts is currently determining how to specifically use the proceeds from the system, and which groups will specifically benefit from the proceeds
Mexico	No	• Mexico has a national carbon tax on fossil fuels (except for natural gas) and an emissions trading system covering the power and industrial sectors • Revenue generated from the carbon tax are fed back into the general budget • No revenue is generated from the emissions trading system thus far, as all emissions allowances are allocated for free, not auctioned

Jurisdiction	Are specific social compensation mechanisms in place?	Observations
New Zealand	No	• The New Zealand ETS has broad sectoral coverage, covering the power, industry, domestic aviation, transport, buildings, waste and forestry sectors • A partnership between the government and the agricultural sector, called "He Waka Eke Noa," is currently working to determine how to apply a carbon price to the agricultural sector, specifically a levy/rebate system separate from the NZ ETS; activities also include developing on-farm accounting and reporting systems for GHG sources and sinks • If this partnership does not make enough progress by 2022, agricultural emissions will be brought directly into the NZ ETS from 2022 • Livestock emissions would be priced at the processor level (ex. Milk processors) and GHG emissions from fertilizer would be covered upstream under the NZ ETS at the importer/manufacturer level • New Zealand announced the creation of a Climate Emergency Response Fund at the end of 2021, which will use ETS revenue to meet NZ emissions reduction goals; the first NZ emissions reduction plan will be published in 2022[5]
Québec	No	• All auction revenues from the Quebec Cap-and-Trade Program go to the Electrification and Climate Change Fund (formerly the Québec Green Fund), which funds mitigation measures that include energy efficiency, electrification (Québec's electricity is 99.7% renewable), and public transport[6] • No specific policies directed towards addressing distributional impacts or social effects, partly due to Quebec's robust social framework as well as spillover effects from supporting public transit and energy efficiency through the Plan for a Green Economy [7]
Republic of Korea	No	• Korean Emissions Trading System covers the power, industry, domestic aviation, building, and waste sectors

[5] **https://budget.govt.nz/budget/2022/bps/budget-allowances-cerf.htm**

[6] https://cdn-contenu.quebec.ca/cdn-contenu/adm/min/environnement/publications-adm/plan-economie-verte/plan-mise-oeuvre-2021-2026.pdf?1608760053

[7] **https://www.quebec.ca/en/government/policies-orientations/plan-green-economy**

Jurisdiction	Are specific social compensation mechanisms in place?	Observations
		• The government has put forward possible options for the use of ETS revenues, including support for mitigation equipment, low-carbon innovation, and technology development of ETS-covered entities • Specific rules on the use of revenues have yet to be decided

South Africa	No	• Tax is collected and fed into National Revenue Fund
		  • Carbon tax implemented from June 1, 2019, to December 2022 with a tax rate of 120 rand (USD $8.34) per tonne of carbon dioxide equivalent
		  • Imposed on energy industries including heat and electricity recovery from waste, manufacturing industries and construction, and transport
		• Second phase runs from 2023 - 2030[8]

Transportation Climate Initiative Program (TCI-P)	Yes	• TCI-P is a regional ETS covering GHG emissions from the transportation sector • Original participating states include Connecticut, Massachusetts, Rhode Island, and Washington D.C., with 9 other jurisdictions, including Delaware, Connecticut, Maryland, New Jersey, New York, North Carolina, Pennsylvania, Vermont, and Virginia, contributing to further program development. • In November of 2021 both Massachusetts and Connecticut's governors stated that they would no longer attempt to operationalize TCI given high gasoline prices; the program is unlikely to run without these two states participating • Program is designed so each state can invest the revenue as determined appropriate to achieve TCI program goals; however, at least 35% of revenues generated are to be invested in equitable, less-polluting, and more resilient transportation • TCI-P is to operate under a 'Model Rule' which serves as a common framework that each TCI-P jurisdiction will use to develop regulations for their specific jurisdiction • Participating jurisdictions will have to articulate in their regulations how:

[8] **https://www.sars.gov.za/customs-and-excise/excise/environmental-levy-products/carbon-tax/**

Jurisdiction	Are specific social compensation mechanisms in place?	Observations
		○ Investment levels will be determined for the benefit of overburdened and underserved communities ○ Policy and programmatic decision-making processes through which projects will be selected for funding ○ Plans for identifying new jobs and new skills that may be required for TCI-P funded projects and developing programs to train workers for these jobs
United Kingdom	No	• The UK does not earmark ETS revenue specific purposes, all revenue is deposited in the UK consolidated fund. • The UK is considering leveraging a portion of revenues to provide support for different funding mechanisms to support decarbonisation of the industry, buildings, and transport sectors in line with the UK Net Zero Strategy
Washington	Yes	• In mid-2021 Washington state passed legislation to establish an economy-wide cap-and-trade program covering transportation fuel-suppliers, in-state power generators, industrial facilities, and electricity importers and natural gas suppliers • The Washington Department of Ecology is currently developing the program and regulations needed to create the cap-and-trade program • A portion of ETS allowances freely allocated for investor-owned electric utilities will be consigned to auction, and the revenues of those consigned allowances must be used by utilities for the benefits of ratepayers, with priority given to low-income customers • A portion of ETS allowances freely allocated for natural gas utilities will be consigned to auction, and the revenues will be directed to eliminate additional cost burdens to low-income customers and small businesses through credits on utility bills • Remaining proceeds from the allowance auctions will be split between a Carbon Emissions Reduction Account, a Climate Investment Account, and an Air Quality and Health Disparities Account • The use of all funds will be advised on by an environmental justice council and will be subject to an environmental justice assessment

Jurisdiction	Are specific social compensation mechanisms in place?	Observations
		• A minimum of 35% of investments must benefit vulnerable populations and a minimum of 10% of funds must support Native American tribes • Funding will be put towards clean transportation, natural climate resilience solutions, clean energy transition and assistance, and other mitigation project
Zacatecas	No	• Established ecological taxes in 2017, one of which is a carbon tax that charges USD $25 for each tonne of carbon dioxide released into the atmosphere • Covered entities will be subject to both the national tax and Zacatecas taxes, though multiple exemptions in the national tax result in many entities not being doubly covered • Revenue generated are to be used for social programmes and funds related to climate change consequences • Though the tax has been implemented, official information is not available as to whether these revenues have been collected and thus total revenues are unclear