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Comparison of varying GHG calculation and pricing systems

This document provides an overview of the essential components of varying carbon pricing and calculation systems.

The European Emissions Trading System (EU-ETS), the ECO parallel climate currency and the Upstream ETS are volume-based systems that put a ceiling (cap) on the amount of fossil fuel emissions permitted.

The German emissions certificate trade (carbon tax) and carbon tax with climate dividends are systems without a cap and solely limit pollutants via inflationary pricing.

As yet to be established systems, the ECO climate emissions currency and upstream ETS are alternative solutions which ensure that the Paris Agreement emissions goals are met.

Essential differences between the varying systems

	ECO	**EU-ETS**	**Upstream ETS**	**Carbon tax with climate dividends**	**Carbon tax**
System design	Personal carbon credit trade implementing a parallel currency (volume solution). Personal carbon credit allowance for all end consumers (citizen-level), distributed as a cost-free basic ecological income in the form of the ECO – a parallel climate currency (cap, personalize and trade). Distributed free of cost, the ECO does not result in price hikes nor does it burden low-income households.	Industrial carbon credit trade limited to major carbon-emitting sectors (volume solution). Auctioned carbon credit certificates (cap and trade) Costs are transferred onto product prices, generating price increases which disproportionately overburden low-income households. A portion of certificates is currently distributed free of cost.	Carbon credit for fossil fuel conveyors (volume solution). Carbon credits are auctioned certificates (cap and trade) Costs are transferred onto product prices, generating price increases which disproportionately overburden low-income households.	Energy tax combined with eco dividends (pricing solution). The resulting price increases disproportionately overburden low-income households. 2/3 of incoming revenue is repaid to qualifying citizens in eco dividends.	Carbon emissions tax levied on certain sectors (pricing solution). The resulting price increases disproportionately overburden low-income households.

Efficacy	Emission goals are met since ECO distribution is directly linked to carbon emission limits.	Emission goals are not met since the system only applies to selected sectors and heating production.	Emission goals are met since certificate distribution is directly linked to carbon emission limits.	Emission goals are not met since the system only applies to selected sectors. The system generates price increases without providing alternative consumer options, resulting in insufficient reduction of GHG.	Emission goals are not met since the system only applies to selected sectors. The system generates price increases without providing alternative consumer options, resulting in insufficient reduction of GHG.
Working principle	Shortage Confronted with a limited carbon credit allowance, consumers' demand will automatically shift further from climate damaging products and services to climate friendly ones – those with a lower ECO price. This will directly motivate a trend toward ecological industrial manufacturing processes, in turn lowering GHG.	Shortage and price increases GHG is lowered by auctioning off a limited number of carbon credits which can be traded by the companies. The number of credits are valid for a predetermined trade period. Certificate costs are transferred to products, directly generating inflationary prices for consumers and thus, a carbon pricing signal.	Shortage and price increases A reduction in the manufacture of pollutive products and services is attained by limiting carbon credits (cap). Certificate costs are transferred to products, directly generating inflationary prices for consumers and thus, a carbon pricing signal.	Price increases Inflationary prices aim to deter climate damaging consumer habits. The population is thusly encouraged to limit carbon-intensive consumption or choose climate-friendly products.	Price increases Inflationary prices aim to deter climate damaging consumer habits. The population is thusly encouraged to limit carbon-intensive consumption or choose climate-friendly products.

Transparency/ Price manipulation security	The ECO represents the sum total of GHG generated throughout the entire chain of supply. This allows consumers to directly compare varying products’ climate impact and consciously choose the more environmentally friendly product. The final ECO price is automatically correct, as industries are prohibited from trading ECOs on the ECO exchange market. This eliminates the risk of price manipulation.	Since certificate costs are compounded with economic product prices, it is nearly impossible for end users to discern the climate impact of a given product. The extra charge representing a product’s carbon footprint cannot be clearly traced.	The separate euro climate price reflects the entire value chain. However, the trade period of certificate prices diminish the ecological statement’s accuracy. Controlling authorities must be alert to and prevent illicit product placement (green washing). Consumers have no comparative scale for validating the ecological price.	Since carbon costs are compounded with economic product prices, it is nearly impossible for end users to discern the climate impact of a given product. The extra charge representing a product’s carbon footprint cannot be clearly traced.	Since carbon costs are compounded with economic product prices, it is nearly impossible for end users to discern the climate impact of a given product. The extra charge representing a product’s carbon footprint cannot be clearly traced.

	Resource currency ECO (CAP, Personalize and Trade)	**Carbon certificate trade (CAP and Trade) EU-ETS (European Union Emissions Trading System)**		**Upstream ETS**	**Carbon tax with climate dividends (Fee and Dividend)**	**Carbon tax**
System design	Personal carbon credit trade implementing a parallel currency (volume solution).	Industrial carbon credit trade limited to major carbon-emitting sectors (volume solution).		Carbon credit for fossil fuel conveyors (volume solution).	Energy tax combined with eco dividends (pricing solution).	Carbon consumption of specific sectors is taxed (pricing solution)
Working principle	Confronted with a limited carbon credit allowance, the population's demand will automatically shift from climate damaging products and services to climate friendly ones – those with a lower ECO price. Distributed free of cost prevents direct price increases. ECO can <u>only</u> be traded by consumers.	Reducing greenhouse gas emissions by auctioning off a limited amount of carbon credits which could then be traded on a market. Companies emitting larger GRG volumes than their carbon credits allowed, could buy more certificates from companies remaining beneath their budget. A portion of certificates are distributed free of cost.		Greenhouse gas emissions are to be reduced by issuing a limited number of emission rights and then trading them on a market. Companies that emit larger quantities of climate-damaging gases than their allowances permit can buy additional allowances. Companies that emit little can sell.	Inflationary prices aim to deter climate damaging consumer habits. The population is thusly encouraged to limit carbon-intensive consumption or choose climate-friendly products. Incoming revenues are redistributed equally among the population.	Inflationary prices aim to deter climate damaging consumer habits. The population is thusly encouraged to limit carbon-intensive consumption or choose climate-friendly products.
Implementation	Every citizen (resident) has a **limited personal carbon credit allowance**. Logically, industries will no longer find profit in polluting products, but will automatically shift to low/no-emission processes, following the consumer trend to ECO-affordable climate friendly products.	A reduction in the manufacture of pollutive products and services is attained by **limiting carbon credits** (cap).	A reduction in the manufacture of pollutive products and services is attained by **limiting carbon credits** (cap) and by an **inflationary** carbon pricing signal since certificate costs are transferred onto consumer products.	A reduction in the manufacture of pollutive products and services is attained by **limiting carbon credits** (cap) and by an **inflationary** carbon pricing signal since certificate costs are transferred onto consumer products.	**Inflationary** prices aim to deter climate damaging consumer habits.	**Inflationary** prices aim to deter climate damaging consumer habits.
Dissemination	Planned for (initially) within the EU Concept: Climate protection initiative SaveClimate.Earth	Active since 2005 in 31 European countries (27 EU members, plus Liechtenstein, Iceland, Norway, Switzerland)		Planned for (initially) within the EU Concept: Prof. Dr. Felix Ekardt	Switzerland Steering tax since 2008	Established in a variety of desings in divers countries worldwide
Sectors included	Cross-sector, comprehensive	Limited to selceted sectors. Currently, approximately 11,000 factories and power stations in 27 EU countries participate in ETS. Participating Sectors: Thermic power stations > 20MW, refineries, blast furnaces, cement industries, aviation, chemical industries and so on. (Extension to buildings and traffic planned for 2026)		cross-sector, comprehensive	Limited to heating oil and natural gas sectors	Currently limited to heating and transport sectors
Carbon emissions covered	100%	approx. 40 % of carbon emissions emitteed in the EU		100%	40%	Currently limited to emission from the heating and transport sectors
Targeted greenhouse gases	CO_2 (extendable to other GHGs)	• CO_2 • N_2O (laughing gas) • perfluorocarbons (PFCs)		CO_2	CO_2	CO_2
Distribution procedure	Cost-free, monthly ecological basic income for all residents	Cost-free certificate distribution (40%)	Auctioning certificates (60%)	Auctioning certificates	not applicable	not applicable
		The certificate volume has been reduced according to EU reduction goals.				
Emissions reduction efficiency	high All sectors are integrated. Emissions are limited to the ECO distribution volume which reflects the entire emissions budget.	medium Not all sectors are integrated. Low certificate prices sink further due to over-allocation and subsidized electricity costs.		high All sectors are integrated. Emissions are limited to the certificate volume that reflects the entire emissions budget.	low Not all sectors integrated, no cap.	low Not all sectors integrated, no cap
Climate price transparency	high The ECO represents the sum total of GHG generates along the entire value chain. Consumers can directly compare the climate damage/friendliness of a given product and actively opt for the environmental alternative. The final price is always correct since industries are excluded from ECO trade on the Climate Exchange, eliminating the risk of price manipulation.	low Since certificate costs are added to economic costs, end-users cannot differentiate the climate costs of a given product or service. The added ecological footprint cost is buried in the economic price.		medium The separate euro climate price reflects the entire value chain. However, the trade period of certificate prices diminish the ecological statement's accuracy. Controlling authorities must be alert to and prevent illicit product placement (green washing). Consumers have no comparative scale for validating the ecological price.	low Since carbon costs are added onto economic product prices, it is nearly impossible for end users to discern the climate impact of a given product. The extra charge representing a product's carbon footprint cannot be clearly traced.	low Since carbon costs are added onto economic product prices, it is nearly impossible for end users to discern the climate impact of a given product. The extra charge representing a product's carbon footprint cannot be clearly traced.
Budgeting	yes via limited ressource currency	yes Via limited certificate amount, although over allocation negates the original budgeting.		yes via limited certificate amount.	no Works exclusively via inflationary consumer prices.	no Works exclusively via inflationary consumer prices.
Greenflation	no No additional financial burden on households, the personal carbon credit allowance is distributed free of cost.	no No additional financial burden on households, the personal carbon credit allowance is distributed free of cost.	yes The costs of the certificates are passed on to consumers. This places a disproportionate burden on low-income earners.	yes The costs of the certificates are passed on to consumers. This places a disproportionate burden on low-income earners.	partially 2/3 of incoming tax revenue is redistributed equally among the population.	yes Tax is applied to product prices, generating price increases which disproportionately overburden low-income households.
Inflationary	no The ECO parallel currency is wholly independent of the national currency.	*not applicable* *Certificates are gratis.*	yes Certificate prices are redefined at each auctioning, according to the current monetary value.	yes Certificate prices are redefined at each auctioning, according to the current monetary value.	yes The carbon tax must grow with inflation in order to have a measurable impact.	yes The carbon tax must grow with inflation in order to have a measurable impact.
Pricing tradeable carbon credits on the Climate Exchange	yes Supply and demand determine the prices (in national currency)for ECOs traded on the Climate Exchange.	*yes* *Although certificates are gratis, the trade price is determined by suppy and demand.*	yes Certificate prices emerge during auctioning and trade prices are determined by suppy and demand.	yes Certificate prices emerge during auctioning and trade prices are determined by suppy and demand.	not applicable	not applicable

Supranational administrative effort	high • Establishing and managing the Climate Bank • Establishing and adminstrating climate accounts • Establishing and managing the Climate Exchange	medium The internationally traded certificates require a higher administrative platform.		medium Since certificates are traded internationally, establishing and managing a higher platform is required.	not applicable	not applicable
National administrative effort	low • Monitoring conveyor's ECO payment-output balance • Monitoring fossil fuel output-ECO distribution balance • Autonomous ECO pricing along the value chain has no need for legislative control or administrative effort	high • Each of the 11,00 factories and power plants must be managed individually • Intensive bureaucratic effort in many extraneous areas • Necessary measures to integrate sectors not yet active in the emissions trade would massively increase administrative efforts		medium • Auctioning certificates • Monitoring output-certificate balance • Controlling correct GHG pricing • Organizing and controlling redistribution auction revenues	low • Law-makers determine both the carbon tax percentage and the products to be levied/burdened • Tax revenue distribution continues to require administrative effort	low • Law-makers determine both the carbon tax percentage and the products to be levied/burdened • Tax revenue distribution continues to require administrative effort
Administrative effort for businesses Unternehmen	high • Calculating and paying ECO costs • Double-entry accounting for the climate price	low Managing certificate trade and encashment	medium Transferring auctioned certificate costs onto end products	high • Calculating and paying certificate costs • Double-entry accounting for the climate price	low The carbon tax is a common operating cost for businesses and an integrated product cost for consumers.	low The carbon tax is a common operating cost for businesses and an integrated product cost for consumers.
Price consistency for industries and consumers	medium Cyclic adjustment of the ECO distribution volume impedes price consistency for both industries and consumers	high The cap is defined and predictable for a given trade period. However, supply and demand at certificate auctioning and trade makes price developments difficult to foresee.		high The cap is defined and predictable for a given trade period. However, supply and demand at certificate auctioning and trade makes price developments difficult to foresee.	medium New referenda have the power to adjust the control tax at any time.	high Allowable price increases per carbon ton are given for a defined period of time
Administrative effort for consumers	high • Managing (possible) Climate Exchange trades. • Household management of two accounts/budgets	not applicable		not applicable	not applicable	not applicable
Fairness	yes Carbon credits for the entire population includes everyone.	no Limited to specific industrial sectors. No direct inclusion of consumers/citizens		no Limited to specific fossil fuel conveyors sectors. No direct inclusion of consumers/citizens	yes By taxing end products and subsequently refunding the taxpayers, the system impacts all consumers/citizens	yes By taxing end products, all consumers are impacted
Consumer justice	high • No additional financial burden on households, the personal carbon credit allowance is distributed free of cost. • Every citizen receives the same carbon credit allowance (basic ecological income) for blanket public acceptance. Low-carbon consumers (as rule poorer people) can sell excess ECOs on the Climate Exchange, while high-carbon consumers (as a rule wealthier people) can buy them, resulting in not only an additional source of income for low-income households, but also a wealth gap offset. This generates a most welcome increase in social justice.	medium • Gratis certificates do not additionally burden taxpayers • However, the cost of additionally purchased certificates is transferred onto consumer products. • Low-income households are disproportionately overburdened and the wealth gap further entrenched. • New companies are excluded due to historic emissions records for older facilities	low • Certificat costs are borne by consumers. • Low income households are disproportionately overburdened. • Entrenches the wealth gap • Unfair certificate auctioning procedure favors wealthy companies. Low-capital, young, innovative companies with (possibly) carbon efficient products are excluded	low • Certificate costs are borne by consumers. Low income households are disproportionately overburdened. • Entrenches the wealth gap	low • The carbon tax is borne by consumers. Low income households are disproportionately overburdened. Refunds are distributed indiscriminately, meaning wealthy households receive an equal share • Entrenches the wealth gap	low • The carbon tax is borne by consumers. Low income households are disproportionately overburdened. Many cannot afford a price increase while others take no notice. • Entrenches the wealth gap
Social balancing	high • Tradeable on the Climate Exchange (citizens <u>only</u>) • Low-carbon consumers (as rule poorer people) can sell excess ECOs on the Climate Exchange, while high-carbon consumers (as a rule wealthier people) can buy them, resulting in an additional source of income for low-income households. • Facilitates a balance between rich and poor, offsetting the wealth gap.	no		medium Auctiong revenues ago to (among others): • increasing enemployment benefits • Lowering energy bills for low-income households • Financing energy efficient/sufficient programs • Supporting developing countries	high • Climate friendly habits are rewarded with refunds. However, refunding is non-selective, wealthy households receive an equal share of refunds.	medium The German government reinvestscarbon tax revenues in climate-friendly transport, energy-efficient buildings and/or taxpayer bonuses with • Lowering EEG apportionment • Raising housing allowances • Raising commuting allowances • Providing mobility bonuses
Based on the polluter principle	yes Industrial commodity production is not an end in itself, but responds to supply and demand. Therefore, the ECO works directly with the polluter principle, placing responsibility for climate protection COMPLETELY in the hands of the smallest component on the market. ALL consumers with their vast steering effect directly influence industrial manufacturing processes.	no Carbon credit trade on a superordinate level overlooks the smallest component on the market - the consumer - with his/her enormous steering impact.		no Carbon credit trade on a superordinate level overlooks the smallest component on the market - the consumer - with his/her enormous steering impact.	yes Taxing consumer products directly addresses polluters, i.e., end customers.	yes Taxing consumer products directly addresses polluters, i.e., end customers.
Consumer freedom	high Allows maximum buying freedom within clearly defined ecological limits without additional inflation. All consumers can personally choose climate friendly or climate damaging products.Consumer freedom for all citizens is ensured within their personal climate allowance, which is the same for everyone.	medium The additional price hikes to cover certificate costs increasingly limit the consumer freedom of low-income households.		medium The additional price hikes to cover certificate costs increasingly limit the consumer freedom of low-income households..	medium Carbon tax price hikes increasingly limit the consumer freedom of low-income households.	medium Carbon tax price hikes increasingly limit the consumer freedom of low-income households.

Industrial outsourcing risk (Carbon Leakage)	low Leaving the RCU (Resource Currency Union) is only attractive for industries that wish to manufacture exclusively for markets outside the RCU and do not wish to trade within the RCU. Since, logically, importing fossil fuel-produced products into the RCU will be subject to ECO pricing according to their carbon content and subsequently paid by consumers.	low Gratis certificate distribution counteracts the risk of outsourcing to third countries that do not participate in certificate trade.	high The risk of outsourcing production to third countries is high for carbon-intensive industries unwilling to take part in certificate trade, thereby avoiding the cap within the economic sphere. The same risk applies to companies that refuse to invest in converting production processes to climate friendly ones.	high The risk of outsourcing production to third countries is high for carbon-intensive industries unwilling to take part in certificate trade, thereby avoiding the cap within the economic sphere. The same risk applies to companies that refuse to invest in converting production processes to climate friendly ones.	low Since carbon tax costs are transferred to consumers, carbon-intensive industries have no incentive to outsource manufacturing to third countries.	low Since carbon tax costs are transferred to consumers, carbon-intensive industries have no incentive to outsource manufacturing to third countries.
Manipulation security	high • Carbon leakage ruled out • Closed circulation prevents price manipulation since each step in the value chain must pay ECO invoices from preceding steps with ECO gained from the downstream processes. • Companies cannot capitalize on ECO overpricing as they are excluded from Climate Exchange trade. Excess ECO cannot be sold. •ECO underpricing is also ruled out as it leads to an deficit of ECO funds and ECO payments cannot be met. • Private speculation is also ruled out since bought ECOs cannot be resold.	medium • Blast furnaces over 20MW can split certificates to avoid limit regulation infringements • Cap is possible to circumvent: over-reaching emissions limits are merely fined • Certificate speculation is possible	medium • Carbon leakage • Blast furnaces over 20MW can split certificates to avoid limit regulation infringements • Cap is possible to circumvent: over-reaching emissions limits are merely fined • Certificate speculation is possible	medium • Carbon leakage • Without sufficient monitoring, the ecological price percentage can be intentionally set lower (Greenwashing) • Certificate speculation possible	high	high
Interoperability	yes • Can be well integrated into existing national and international economic processes (import/export) • ECO is a complementary, globally valid, uniform resource currency • Exchange rates for ECO to local currency are only valid within individual countries	limited • To prevent unfair competition, carbon certificate prices must be consistent throughout all participating countrie and converted within all currency systems. • Importing climate damaging products from non-participating countries counteracts EU-ETS		limited • To prevent unfair competition, carbon certificate prices must be consistent throughout all participating countrie and converted within all currency systems. • Importing climate damaging products from non-participating countries counteracts Upstream ETS	not applicable	not applicable
Electricity subsidization	not applicable	not applicable	yes Energy-intensive companies receive subsidies to maintain international competetiveness. This further reduces EU-ETS efficacy.	no available data	not applicable	not applicable
Flexibility for dynamic climate goals	high The ECO distribution volume can be adapted to the emissions budget at any time. This flexible system steering allows a consistently precise attainment of emissions goals.	medium Since certificate distribution volumes are frozen within a given trade period, flexible cap adaptation to altered climate conditions is difficult.		high The certificate volume cap for mining companies can be adapted to a determined emissions budget at any time. This flexible system steering allows a consistently precise attainment of emissions goals.	medium Referenda determine the carbon tax price percentage and cannot be flexibly adapted to dynamic climate goals.	medium The carbon tax graduation has already been set until 2026 and cannot be flexibly adapted to dynamic climate goals.
Impact speed	high Changing the ECO distribution volume has an immediate impact on consumer demand and subsequently, on carbon emissions.	low Since certificates are cost-free, there is little incentive for investing in greener processes.	medium Certificate costs are transferred to the consumer, leaving little incentive for investing in greener processes.	high Changing the certificate volume for mining companies has an immediate impact on consumer demand and subsequently, on carbon emissions.	high Changing the carbon tax price percentage has an immediate impact on consumer demand and subsequently, on carbon emissions.	high Changing the carbon tax price percentage has an immediate impact on consumer demand and subsequently, on carbon emissions.
Tradeable	yes Private citizens (only) have the right to trade ECOs on the Climate Exchange.	yes Certificates can be traded among participating companies.		yes Mining companies can trade certificates.	not applicable	not applicable
Globally expandable	yes	yes		yes	no National instrument only	no National instrument only
Can be extended to other greenhouse gases	yes	yes		yes	yes	yes

Efficacy SUMMARY!	very high The ECO is a carbon credit trade system working on the private population/consumer level. The ECO is a socially inclusive, volume-based solution, rationing emissions with a complementary currency which should be initially implemented throughout the European union. Confronted with a limited carbon credit allowance, the population's demand will automatically shift from climate damaging products and services to climate friendly ones – those with a lower ECO price. The ECO stands out by directly addressing the polluter principle, placing responsibility for climate protection COMPLETELY in the hands of ALL consumers with their vast steering effect. With limited personal carbon credits, consumers themselves reduce climate damaging product manufacture. Industries automatically convert to low-emission production in response to consumer demand for climate-friendly products. The ECO is distributed free of cost, there is no direct inflationary impact. The total emissions budget is distributed equally among all citizens. Every natural person receives a monthly ecological basic income, his or her personal carbon credit allowance, free of cost. Companies do not have an ECO allowance. All goods and services have an additional ECO pricetag. This climate price reflects the sum total of carbon emitted along the product's or service's entire value chain and is paid in ECOs, drawing on the consumer's personal ECO account. Consumers are empowered to directly compare the climate impact of products and actively choose the more climate friendly option. This allows for maximal freedom for all consumers within clearly defined limits. Natural persons can sell their excess ECOs for local cash currency at the Climate Exchange. Exchange prices are determined by suppy and demand. This ensures low-carbon consumers an additional financial resource. Hence, the ECO contributes to reducing the wealth gap. All sectors are covered without exception, ECO payment begins at the source - fossil fuel conveyors. The ECO price on end products reflects the amount of carbon emitted throughout a given product's entire production process. Ultimately, the price paid by a consumer is returned to the fossil fuel conveyor. The ECO distribution volume is equal to the entire emissions budget^and cannot be overdrawn. There is little national administratiive effort. Only fossile fuel conveyors must be monitored at the system's bottleneck, so to speak. ECO-pricing ensues autonomously and incorruptibly, without governing influence. Supranational effort entails establishing a Climate Bank with climate accounts as well as setting up the Climate Exchange for ECO trade. Consumer households have two account/budgets to manage as well as potential Climate Exchange activities. The ECO carbon-pricing and carbon-accounting system is impossible to manipulate. The fixed ECO sum is generated over a closed circulation. The final ECO price is automatically correct. Since industries are excluded from Climate Exchange trade, they cannot capitalize on excess ECOS. ECO underpricing also backfires as it leads to an ECO deficit and companies cannot pay their precursors. This completely rules out price manipulation. Businesses merely pass on accrued ECO costs, which calls for double-entry accounting. Immune to carbon leakage. Fossil fuel-produced goods imported to the RCU are ECO priced according to their carbon content before being sold to end customers. There is no risk of primary currency inflation (greenflation). The personal carbon credits are distributed free of cost. "Artificial" carbon pricing and its ensuing inflation is impossible. Consumer households are not further financially burden. As a complementary currency wholly detached from national currency, the ECO system is inflation-proof. The ECO can be well integrated into existing national and international economic processes (import/export).	low The EU ETS is an emissions trading system for large emitters, limited to defined sectors, which does not directly involve citizens. Emissions trading on such a superordinate level does not sufficiently take into account the smallest unit in the market, the consumers, with their enormous steering effect. It is a volume-based emissions quota solution introduced in 2005 in the form of tradable certificates, whose issuance volume is reduced annually. 40% of the certificates are currently issued free of charge. The remaining 60% are allocated by auction. It is difficult to flexibly adapt the CAP to changing conditions, as the volume of certificates issued is fixed in the current trading period. Since only 11,000 companies within 27 countries of the EU (plus Liechtenstein, Iceland, Norway, Switzerland) participate, only about 40% of all emissions are covered. Covered sectors: electricity generation by thermal power plants > 20MW, refineries, high furnaces, cement industry, aviation, chemical industry, etc. (additional extension to buildings and transport planned in yeshr 2026). The EU-ETS offers hardly any transparency regarding the climate price, since the costs of the certificates are not priced separately. There is a risk of inflation of the primary currency through increased consumption ("greenflation"), because the costs of the certificates are passed on to the end consumers. Lower-income households are disproportionately affected by this surcharge. There is no direct social compensation for citizens. The certificate prices are inflation-dependent and are determined at each auction. Their level is determined by supply and demand. The allocation procedure via auctioning is unfair, because financially stronger companies (can) purchase larger quantities of certificates at auction. CO2 certificate prices must be the same internationally within all participating countries in order to prevent distortions of competition. Since certificates are traded internationally, the operation of a superordinate platform is necessary. The governmental effort is very high, because all participating companies have to be registered and controlled. Companies must pass on the costs of the auctioned certificates to their products. There is no additional effort on the part of citizens. The system can be manipulated by companies > 20MW sharing their combustion site in order not to fall under the scheme. Exceeding the cap will only result in a penalty fee. There is a risk of carbon leakage to avoid necessary investments in climate-friendly transformation processes. Imports of climate-damaging goods from non-participating countries counteract the effectiveness of the EU ETS. The effectiveness of the EU ETS is further reduced because energy-intensive companies receive electricity price compensation to ensure international competitiveness.	high The Upstream ETS is an emissions trading system for producers of fossil primary energy sources that was initially to be established within the EU. The system is a volume-based emission quota solution in the form of tradable certificates that does not directly involve citizens. The CAP of the allowance volume for the sponsoring companies could be adjusted at any time according to the decided emission budget. The emission target would always be exactly reached due to flexible controllability of the system. All allowances must be auctioned. The system covers all sectors, so that 100% of the emissions are covered. This system offers transparency with regard to the climate price, as this is managed as a separate euro price along the entire value chain. However, this price is inaccurate because its ecological significance is reduced by the trading margins of the certificate prices. For consumers, there is no reference value to evaluate the reported ecological price. There is a risk of inflation of the primary currency through increased consumption ("greenflation"), because the costs of the certificates are passed on to the end consumers. Lower-income households are disproportionately affected by this surcharge. Social compensation is achieved by indirectly returning auctioning proceeds to citizens through increased social benefits, by financing programs for energy efficiency and sufficiency, and by leaving the proceeds to developing countries. The certificate prices are inflation-dependent and change with each auction. Their level is determined by supply and demand. Certificate prices must be the same internationally within all participating countries in order to prevent distortions of competition. Since certificates are traded internationally, it is necessary to establish and operate a superordinate platform. The governmental effort is midling and mainly caused by the certificate auction, the monitoring of the production volumes and the distribution of funds of the auction proceeds. In addition, the correct pricing of the GHG fraction must be monitored. Companies must allocate the cost of auctioned allowances to their products. Since the climate price is shown separately on the final product, double-entry bookkeeping is necessary. There is no additional effort on the part of citizens. There is a risk of carbon leakage in order to avoid the CAP of fossil fuel production within the economic area and to avoid having to invest in the conversion of production processes towards climate-friendly procedures. The ecological price share could be intentionally underpriced (greenwashing) in case of insufficient control. Imports of climate-damaging goods from non-participating countries counteract the effectiveness of the upstream ETS.	very low The CO2 tax system is a national instrument and includes an energy price combined with an eco-bonus as a dividend. This incentive tax represents a monetary solution for society as a whole without a CAP, in which all citizens are involved. The taxation of consumption is based on the end consumer. The ton of CO2 is charged with an additional price. The amount can be influenced by referendum in accordance with agreed climate targets. So far, only heating oil and natural gas are affected by this tax, which is why only 40% of CO2 emissions are covered. The additional costs are passed on to the end consumers, so that lower-income households are disproportionately affected by this surcharge. Climate-friendly consumption is rewarded through rebates. 2/3 of the revenue from this tax is returned to the population and the economy. However, the rebate takes place according to the watering can principle. Even very wealthy households receive a rebate in the same amount The CO2 price must grow with inflation, otherwise its effect is reduced. The CO2 tax offers hardly any transparency with regard to the climate price, since the costs are not priced separately. The governmental effort is rather low and is limited to the specification of the tax rate and the distribution of the collected taxes. The additional effort for the companies is limited to the accounting and collection of the CO2 price as a transitory item. There is no risk of carbon leakage. The manipulation security is very high. The CO2 tax is exclusively a national instrument.	very low The CO2 tax system is a national emissions trading system with a fixed price, during the introductory phase until 2026. This incentive tax represents a monetary solution for society as a whole without a CAP, in which all citizens are involved. The taxation of consumption is based on the end consumer. The ton of CO2 is subject to an additional price, the amount of which is adjusted upwards each year. From 2026 onwards, the certificates must be purchased at auction. Prices are determined by supply and demand. So far, only heating and gasoline costs have been affected by this tax, which is why it does not cover all emissions. The additional costs are passed on to end consumers, so that lower-income households are disproportionately affected by this surcharge. The federal government reinvests the revenue from the CO2 price in climate-friendly transport and energy-efficient buildings or as relief for citizens in the form of a reduction in the EEG levy, an increase in housing subsidies, an increase in the tax-free distance allowance and the granting of mobility bonuses. The CO2 price must grow with inflation, otherwise its effect is reduced. The CO2 tax offers little transparency with regard to the climate price, since the costs are not priced separately. The governmental effort is rather low and is limited to the specification of the tax rate and the distribution of the collected taxes. The additional effort for the companies is limited to the accounting and collection of the CO2 price as a transitory item. There is no risk of carbon leakage. The manipulation security is very high. The CO2 tax is exclusively a national instrument.

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