

A Carbon Pricing Design for the Energy Community

Workshop

Vienna, Austria, 26/03/2020





Contents

- **Analysis of carbon pricing schemes and MRV mechanisms currently applied in the EnC CPs**
- **Assessment of the readiness level for the implementation of carbon pricing schemes**
- **Evaluation of national and regional carbon pricing schemes in selected EU and non-EU countries relevant for the potential implementation in the EnC CPs**






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National emission reduction targets for 2030 in EnC CPs (1/2)

EnC CP	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	NF ₃	GHG Emissions Target (2030)
	•							11.5 % reduction in the period 2016-2030 compared to a baseline scenario (708 kT CO ₂ reduction in 2030)
	•	•	•					<ul style="list-style-type: none"> emissions are expected to be 18-20% higher than in 1990 a reduction of 3% compared to 1990 is only possible to be achieved with international support
	•	•	•	•	•	•		<ul style="list-style-type: none"> unconditional: 15% reduction compared to the Business-As-Usual (BAU) scenario for the year 2030 conditional*: 25% reduction compared to the BAU scenario for the year 2030 the conditional scenario ensures that GHG emissions by 2030 will stay by 40% below the 1990 targets
	n/a							

National emission reduction targets for 2030 in EnC CPs (2/2)

EnC CP	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	NF ₃	GHG Emissions Target (2030)
	•							30% (36% at a higher level of ambition) reduction of the emissions from fossil fuels combustion compared to the business as usual (BAU) scenario
	•	•	•	•	•	•	•	<ul style="list-style-type: none"> • unconditional: 70% reduction compared to 1990 levels • conditional: 88% reduction compared to 1990 levels
	•	•	•	•	•	•	•	30% reduction compared to 1990 levels
	•	•	•	•	•	•		9.8% reduction compared to 1990 levels
	•	•	•	•	•	•	•	60% reduction compared to 1990 levels

Sectors included in the national emission reduction targets in 2030






EnC CP	Energy*	Industrial processes**	Agriculture	LULUCF***	Waste
	•	•			
	•	•	•	•	•
	•	•	•		•
	n/a				
	•				
	•	•	•		•
	•	•	•	•	•
	n/a				
	•	•	•	•	•

*Energy sector includes mainly fuel combustion activities (power sector, industry, transport etc.)





**Industrial processes include product use in mineral and chemical industry for instance

***Land use, land-use change and forestry

Carbon pricing schemes in EnC CPs (1/2)

EnC CP	Type	Status	Comments
	Carbon Tax	not implemented	n/a
	ETS	under consideration	Intention to use international carbon pricing (NDC)
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	ETS	under consideration	Intention to use international carbon pricing (NDC)
	Carbon Tax	not implemented	n/a
	ETS	not implemented	n/a
	Carbon Tax	not implemented	n/a
	ETS	not implemented	n/a
	Carbon Tax	not implemented	n/a
	ETS	under consideration	Intention to use international carbon pricing (NDC)

Carbon pricing schemes in EnC CPs (2/2)

EnC CP	Type	Status	Comments
	Carbon Tax	not implemented	n/a
	ETS	under consideration	Intention to use bilateral, regional and international carbon pricing (NDC)
	Carbon Tax	implemented	Imposition of an excise tax on coal used for electricity generation since 2019
	ETS	under development	The “Law on Protection from the Negative Impacts of Climate Change” of 2019 and the new regulation on activities emitting GHG of 21.02.2020 define the basic elements for the implementation of the national ETS according to EU ETS standards
	Carbon Tax	not implemented	n/a
	ETS	under development	Serbia is expected to adopt legislative framework transposing elements of EU-ETS scheme in the foreseeable future
	Carbon Tax	implemented	established since 2011
	ETS	under development	<ul style="list-style-type: none"> • ETS in line with its obligations under the Ukraine-EU Association Agreement • Currently, development of the main elements of the national MRV system according to EU-ETS standards

Case of Ukraine (1/2)



Ukrainian Carbon Tax (2011)

Purpose

- Encouragement of business entities to reduce emissions of pollutants,
- Establishment of direct dependence of the amount of tax deductions on the degree of negative impact in the environment
- Mobilization of funds to budgets for financing the costs of protection and rational use of natural resources

Level of Taxes

0.014 €/tCO_{2e} (2018), 0.34 €/tCO_{2e} (2019), 1.11 €/tCO_{2e} (target for 2023). The price is considerably low, however it is considered as good first step.

Tax basis – exemptions

The tax is collected on the use of all fossil fuels and covers over 70% of the nation's GHG emissions

GHG covered: CO₂ emissions of all larger stationary sources

Sectors covered: • Power sector • Building sector

- Industrial sector (metal and coke production, chemical and petrochemical, cement and food industries)

Liable entities:

- > 500 tCO₂ per annum: liable to pay tax
- ≤ 500 tCO₂ per annum: tax exempted

Pay period: quarterly

Case of Ukraine (2/2)



Ukrainian Carbon Tax (2011)

Combination with other taxes and duties

- Ukraine also levies an excise tax on fuel:
 - State part of revenues earmarked for road infrastructure expenditures
 - Local budget part enters general revenues of local government
- Potential complementary and/or co-existence of the carbon tax with the future planned ETS

Use of revenues

General government spending

Ukrainian National ETS:

- Ukraine is in the process of developing the main elements of the national MRV system according to EU-ETS standards
- After the MRV system put in place, Ukraine plans to develop separate legislation to transpose other relevant EU directives based on at least 3 years of data from the MRV system
- The provisions of the Ukrainian ETS will facilitate the future linking with the EU-ETS

Case of Montenegro (1/2)



Montenegro's National ETS (2020)

Purpose

- Limitation of the industrial and energy facilities' GHG
- The introduction of this national ETS will be the step toward the entry into the EU-ETS upon joining the EU

Minimum Price of the emission credits to be auctioned

24 €/tCO_{2e} in 2020

ETS basis - exemptions

Sectors covered: industrial and energy plants

Amount of allowances:

- the benchmarking starting amounts are from the national report on climate
- allowances are set to decrease by 1.5% per year or by 460,000 tons overall from 2020 to 2030 when the level should reach 2.84 million tons

Exemptions:

- some operators* can be awarded free of charge to avoid the displacement of energy-intensive industry out of Montenegro

*Aluminum manufacturer KAP and Toscelik Alloyed Engineering Steel doo were granted 1.02 million tons and 5,800 tons, respectively, for 2020. This amount is cut by 15% every year.

Case of Montenegro (2/2)



Montenegro's National ETS (2020)






Issuance of certificates	<ul style="list-style-type: none">• monthly and annually
Combination with other taxes and duties	<ul style="list-style-type: none">• Introduction of an excise tax on coal used for electricity generation since 2019 (€0.15/GJ or € 1.60/tCO_{2e} in 2019):<ul style="list-style-type: none">◦ Free credit can be approved for coal-fired power plants*
Use of revenues	<ul style="list-style-type: none">• Transfer into the Environmental Protection Fund and allocation for:<ul style="list-style-type: none">◦ environmental protection measures,◦ support for the production of RES energy, and◦ financing innovations.
Next steps	<ul style="list-style-type: none">• Necessity of further progress in aligning with EU-ETS Directive, as well as development of secondary legislation (auditing emissions, establishing a registry, free allocation and auctioning)

*The Pljevlja facility, burning lignite was granted a package of 1.02 million tons, while this level is shrinking by 5% per annum until abolishment after 2025.





MRV mechanisms in EnC CPs

- The EnC CPs are preparing the legal and institutional preconditions for the implementation of the core elements of the Monitoring Mechanism Regulation – MMR (EU 525/2013) in their jurisdictions
- All the EnC CPs (except Kosovo*) are reporting GHG emissions under UNFCCC mechanisms (national communications, biennial reports, GHG inventories):
 - A gap of 3-4 years between the last reporting period and the data of greenhouse gas inventory appears for the majority of the EnC CPs
 - Ukraine reports annually on its GHG emissions and regularly on its Climate change policies & measures to UNFCCC
 - The Republic of Moldova maintains regular reporting to UNFCCC publishing the second most update GHG inventory (covering the period 1990-2016)
 - Albania reports in infrequent intervals maintaining an outdated GHG inventory covering a period by 2009
- Kosovo* has no obligation for reporting on GHG emissions:
 - However, GHG inventories covering the periods 2008-2009, 2008-2013, 2012-2014 and 2015 have been developed

Overview of the institutional framework of the existing MRV mechanisms in the EnC CPs (1/2)

EnC CP	Institutional Framework	Observations
	Clearly defined	<ul style="list-style-type: none"> • Simple structure • Establishment of the institutional framework with the adoption of The “Law on Climate Change” in 2019
	Not clearly defined	<ul style="list-style-type: none"> • Definition of participants' competences and responsibilities shall be included in the national policy and/or regulation
	Sufficiently defined	<ul style="list-style-type: none"> • Lack of human and financial resources • Deployment of external assistance and outsourced technical expertise for the GHG inventories' preparation • A software tool for GHG data management is under development
	Insufficiently defined	<ul style="list-style-type: none"> • The regulatory framework of Kosovo* defines the governance and inter-institutional arrangements for providing data on GHG emissions • Shortage of human resources and proper technical skills
	Clearly defined	<ul style="list-style-type: none"> • Activities and tasks are standardized • Lack of regulatory provisions defining competences • An operational database systemizing collection of data from the industrial sector for the preparation of the inventories is used

Overview of the institutional framework of the existing MRV mechanisms in the EnC CPs (2/2)

EnC CP	Institutional Framework	Observations
	Clearly defined	<ul style="list-style-type: none"> The role of the participants in the existing MRV mechanism is clear Limited financial and technical capacities
	Well-structured	<ul style="list-style-type: none"> Alignment with the requirements of MMR – UNFCCC, as well as EU-ETS An online data management site to collect and store data on GHG emissions and climate change actions is available
	Clearly defined	<ul style="list-style-type: none"> Responsibilities for the GHG emissions MRV scheme and the exchange of information are unambiguous Further legal instruments need to be adopted An online platform and its software development are under preparation
	Well-structured	<ul style="list-style-type: none"> The new “MRV Law” defines further the legal and organizational bases for MRV of GHG aimed to fulfil Ukraine’s obligations under MMR - UNFCCC, as well as EU-ETS

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High-level assessment of the status of climate actions and carbon pricing schemes readiness (1/5)

Readiness Level Indicators	EnC Contracting Party								
	AL	BA	GE	XK	MK	MD	ME	RS	UA
Ratification of Paris Agreement	✓	✓	✓	✗	✓	✓	✓	✓	✓
Inclusion of CO₂ emissions in the national emissions' reduction targets (NDCs)	✓	✓	✓	n/a	✓	✓	✓	✓	✓
National Energy and Climate Plans	✗ under preparation	✗ under preparation	✗ under preparation	✗ under preparation	✗ under preparation	✗ under preparation	✗ under preparation	✗ under preparation	✗ under preparation
Adoption of a low-carbon strategy at policy level	✓	✓	✗	✓	✗	✓	✓	✗	✓

High-level assessment of the status of climate actions and carbon pricing schemes readiness (2/5)

Readiness Level Indicators	EnC Contracting Party								
	AL	BA	GE	XK	MK	MD	ME	RS	UA
CO ₂ intensity (total)	↓	↑	↓	↑	-	↓	↓	↑	↓
CO ₂ intensity of the electricity and heat production sector	↓	↑	↓	↑	↑	-	↑	↑	-
CO ₂ intensity of industrial sector's consumption	↑	↑	-	↑	-	↓	↓	-	-
CO ₂ intensity of road transport sector's consumption	↓	↑	-	↑	↑	↑	↑	↑	-

↓: Low carbon intensity level in comparison with the average carbon intensity in the EnC CPs
 ↑: High carbon intensity level in comparison with the average carbon intensity in the EnC CPs
 -: carbon intensity level is around the average carbon intensity in the EnC CPs

High-level assessment of the status of climate actions and carbon pricing schemes readiness (3/5)

Readiness Level Indicators	EnC Contracting Party								
	AL	BA	GE	XK	MK	MD	ME	RS	UA
Regulatory/Policy Framework transposing MMR Readiness Level	relatively high	low	low	medium	low	relatively high	high	Medium (draft new Climate Change Law)	relatively high
Operational GHG Inventory	✓	✓	✓	✓	✓	✓	✓	✓	✓
Operational Data Recording Process	✓	✓	✓	✓	✓	✓	✓	✓	✓
Established Reporting System	✓	✓	✓	✓	✓	✓	✓	✓	✓

High-level assessment of the status of climate actions and carbon pricing schemes readiness (4/5)

Readiness Level Indicators	EnC Contracting Party								
	AL	BA	GE	XK	MK	MD	ME	RS	UA
Institutional and organizational capacity Readiness Level	high	low	medium	low	medium	medium	high	medium	high
Established Online Reporting system (Portal)	n/a	n/a	under development	n/a	indicatively, EMI software could be used	n/a	available	under development	n/a
Regulatory/Policy framework transposing the requirements of the EU ETS	✗	✗	✗	✗	✗	✗	✓	✓ (with the adoption of the new Climate Change Law)	✓ (at MRV level)
Existing Established Carbon Pricing Scheme	✗	✗	✗	✗	✗	✗	✓ Excise Tax	✗	✓ Carbon Tax

High-level assessment of the status of climate actions and carbon pricing schemes readiness (5/5)

- EnC CPs' "carbon pricing readiness" → relatively low across countries
- Montenegro:
 - Working on the establishment of a national ETS
 - The institutional and organizational MRV's capacity is well-structured
 - Experiment for a link-ready system
- Ukraine:
 - Transposition of EU regulations for the establishment of an integrated MRV mechanism under MMR and EU-ETS
 - Ukrainian existing carbon tax could pave the way to a national ETS (under development); yet, tax rate currently too low
- Serbia: adoption of a draft legislation setting the framework for the establishment of an MRV and the transposition of requirements of EU-ETS
- Bosnia and Herzegovina, Serbia and Kosovo: no carbon pricing scheme in place yet and among the most coal-intensive EnC CPs
 - An acceleration of the processes is advisable

Contents

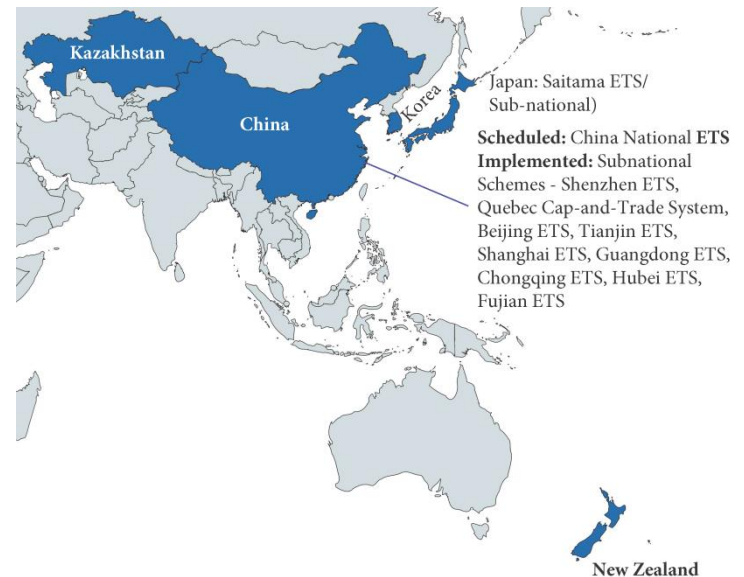
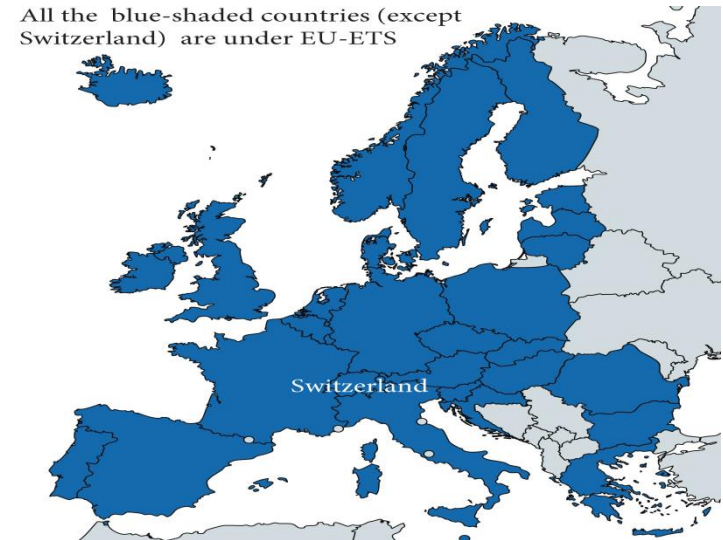
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Mapping of implemented & scheduled ETS

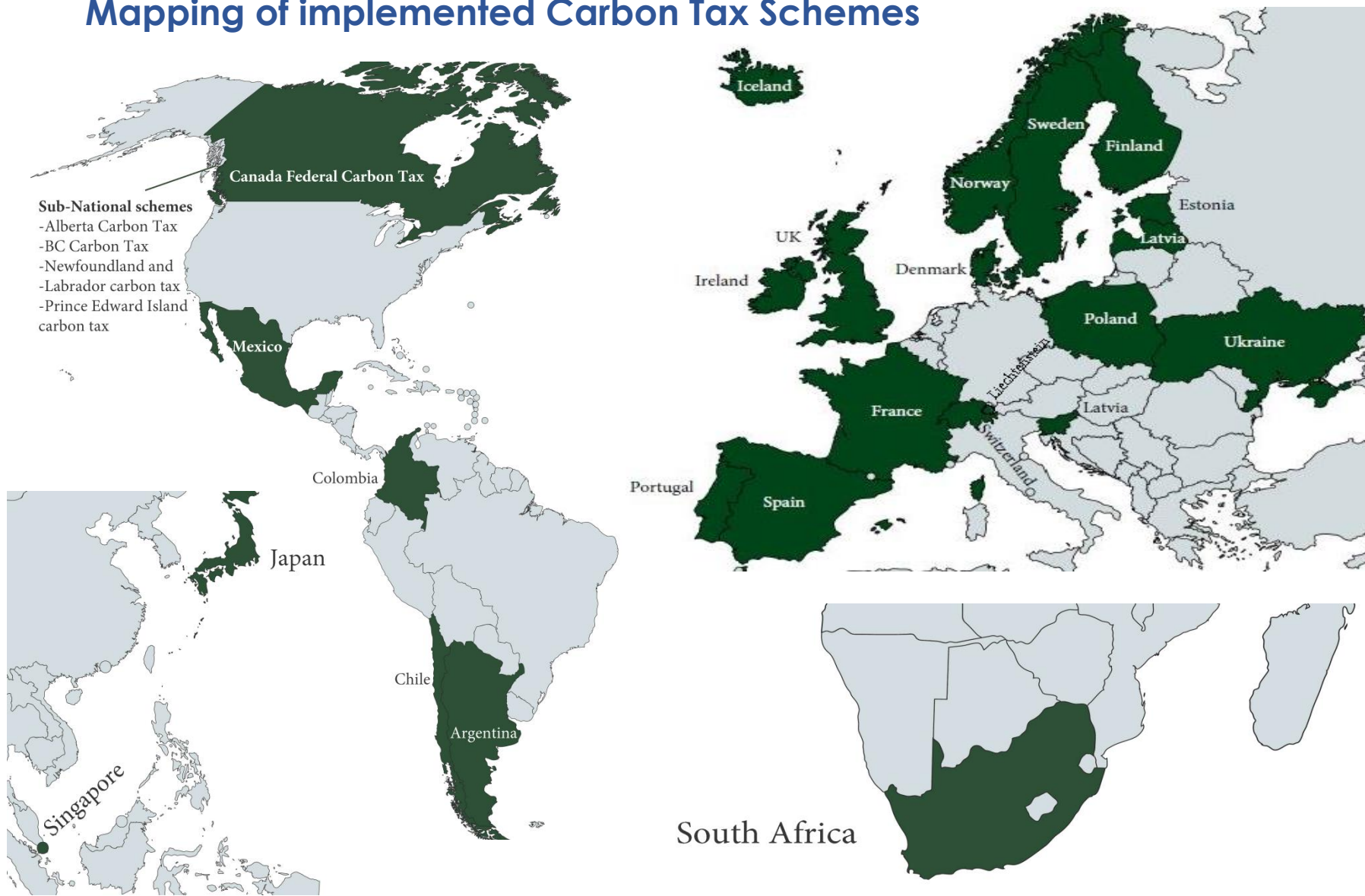
* Canadian Federal "backstop" measure applied to provinces not already implementing carbon pricing. As of April 2019 this includes Ontario, Saskatchewan, Manitoba, and New Brunswick



All the blue-shaded countries (except Switzerland) are under EU-ETS



Mapping of implemented Carbon Tax Schemes



There are many opportunities to tailor a carbon price instrument to reflect country's specific circumstances

- Key design features:
 - Scope: sector coverage and regulated gases
 - Stringency: cap level or tax rate
 - Use of auction revenues and tax revenues
- Other key design features (predominantly relevant for ETS)
 - Temporal flexibility (banking and borrowing provisions)
 - Price and tax management and market intervention
 - Compliance and market oversight

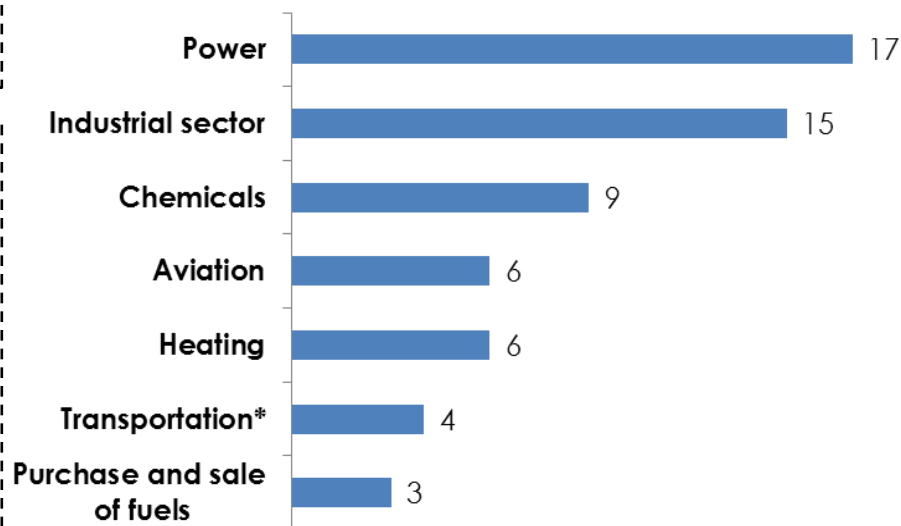
Sectoral Coverage: ETS

- Sectoral coverage decisions → from upstream to downstream
- The larger the number of regulated sectors, the broader the set of abatement opportunities → lower total abatement costs
- Yet, administrative and transaction costs can be relevant → large energy and industry players might be better prepared (level of sophistication)
- Most of the schemes started by covering the power sector and gradually include other industrial sectors

• EU ETS covers 4 sectors: electricity generation, industry, aviation and some chemicals

- nearly all the implemented ETSs cover the electricity generation and major industrial emissions
- the aviation sector attracts a lot of attention as the years go by, and currently it is covered under several ETS (EU, Swiss and China, etc.)
- The chemicals and petrochemicals sectors are receiving particular attention under the China's ETS Schemes

19 reviewed ETS Schemes*



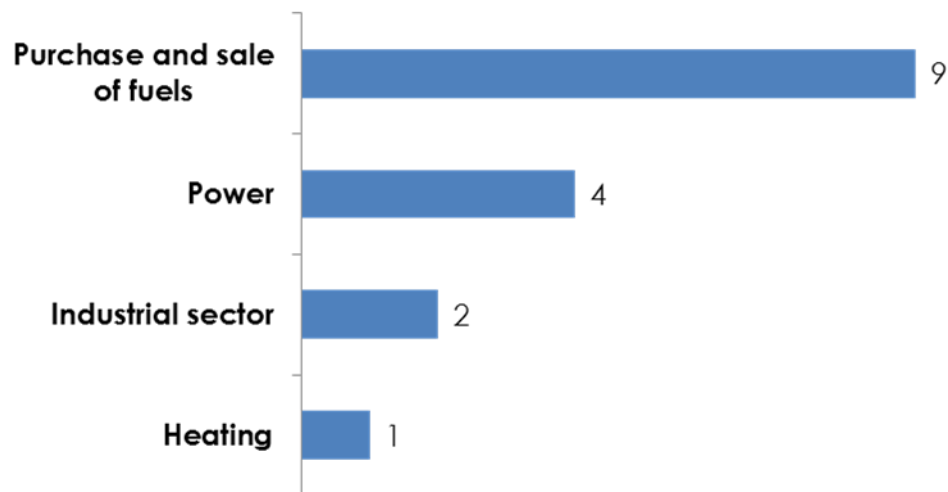
* A scheme can cover more than one sectors

Sectoral Coverage: Carbon Tax Scheme

- Countries that simultaneously implement a carbon tax and an ETS often apply the carbon tax to sectors that are exempted from the ETS
- A carbon tax might be easier to implement as it often uses the established channels of the tax system and does not require new infrastructure for trading carbon permits

- the majority of the countries has selected to impose a carbon tax on one or more specific fuels (mostly oil, gas and coal)

15 reviewed Carbon Tax Schemes*

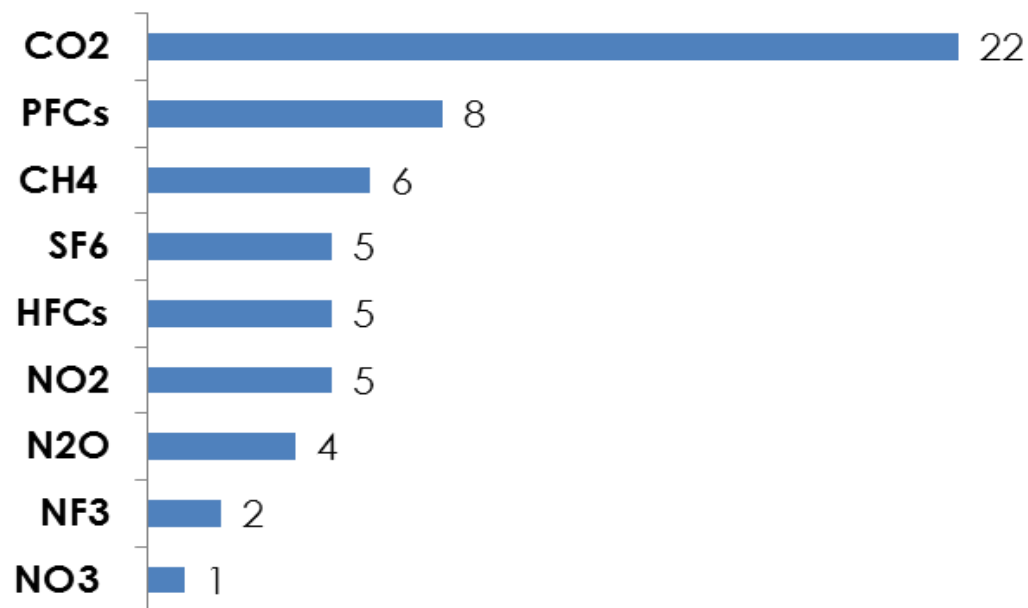


* A scheme can cover more than one sectors

Gases Covered under ETS

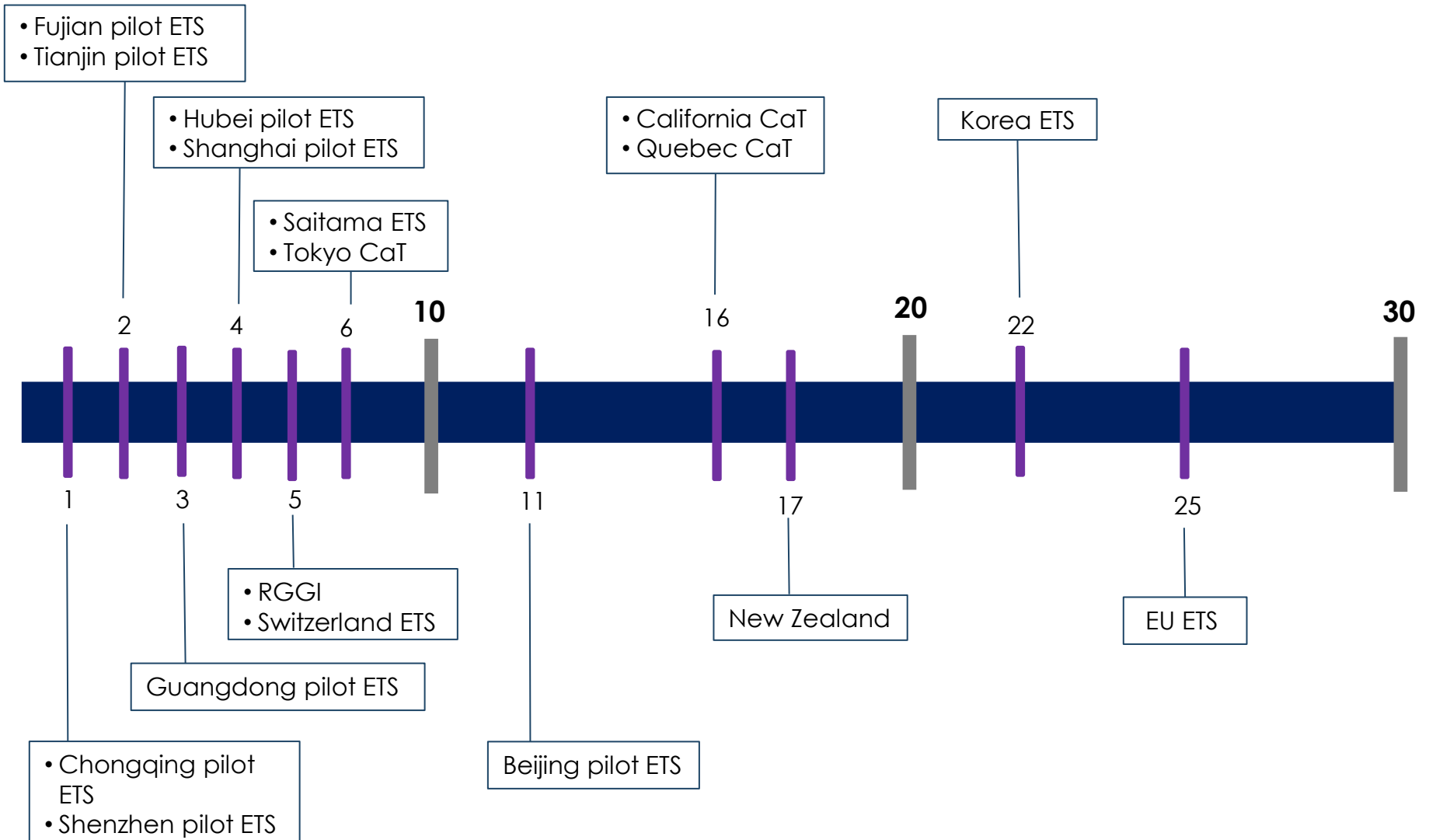
- The vast majority of implemented ETS covers more than one gas
- All currently implemented ETS cover emissions from CO₂

22 reviewed ETS Schemes*

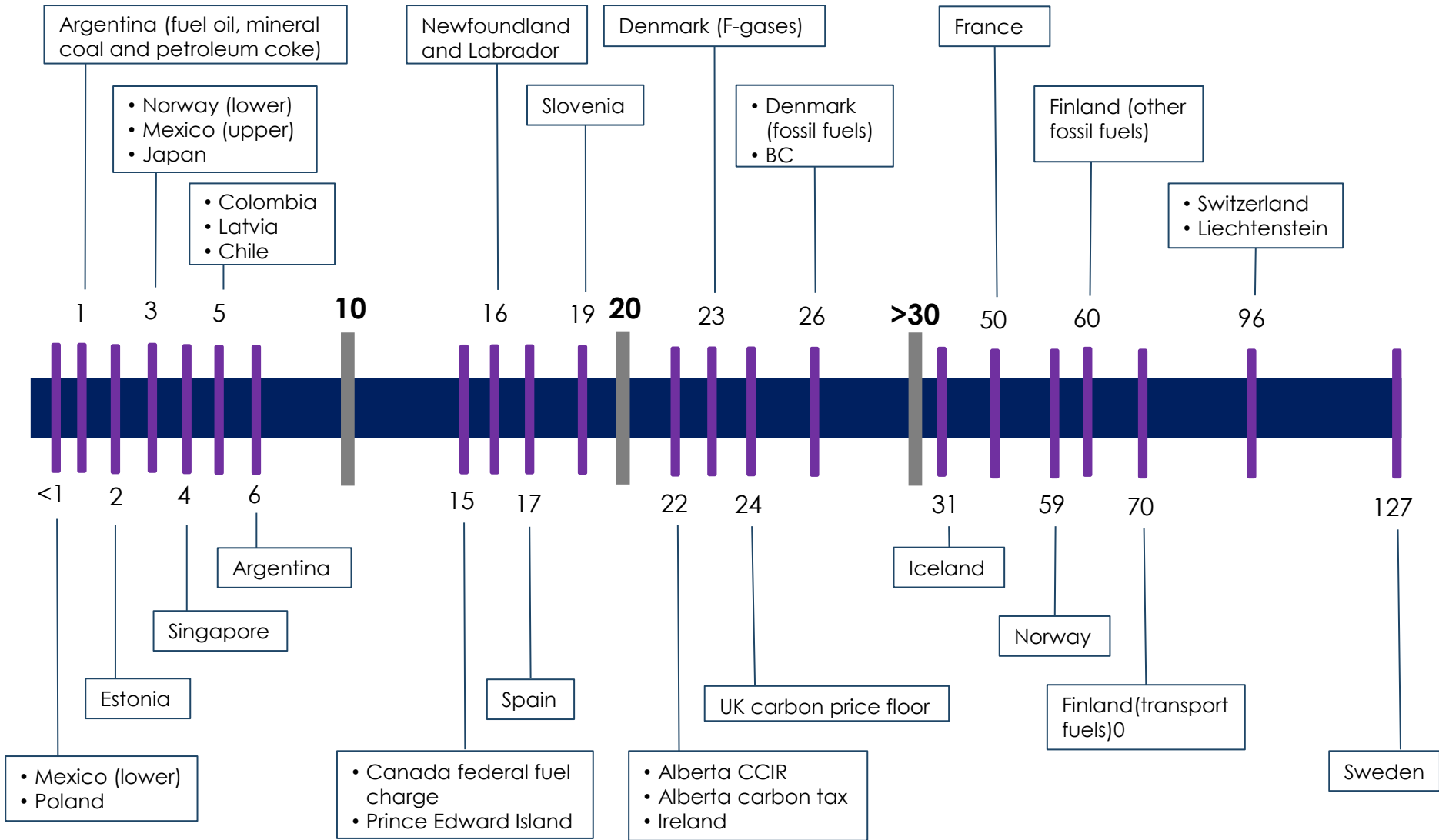


* A scheme can cover more than one GHG

ETS (average) prices in 2019 (USD/tCO₂)



Carbon Tax Scheme rates in 2019 (USD/tCO₂)



Use of revenues under ETS

Use of revenues	EU ETS	Swiss ETS	USA – California Cap-and-Trade Program	USA Regional GHG Initiative (RGGI)	Canada – Nova Scotia	Canada – Quebec Cap-and-Trade System	China – Hubei pilot ETS	China – Shanghai pilot ETS	China – Shenzhen pilot ETS	China Guangdong pilot ETS	Korea Emissions Trading Scheme
Income/ Property tax reduction and credits		•									
General Budget/ Deficit reduction								•		•	
Social Policy, Education, Health			•								
Energy assistance to low income households	•			•	•						
Market Liquidity/Market supply			•				•		•		•
Promotion of low carbon technologies		•									•
Energy Efficiency	•			•		•					
RES	•			•							•

Use of revenues under Carbon Tax Scheme

Use of revenues	Denmark	Finland	France	Norway	Portugal	Sweden	Switzerland	UK	Iceland	Ireland	Mexico	Chile	Austrailia	India	Japan	South Africa	British Columbia
Income/ Property tax reduction and credits		•	•	•	•	•						•	•				•
General Budget/ Deficit reduction		•		•	•	•		•	•	•	•		•				
Social Policy, Education, Health	•	•		•			•					•	•				
Energy assistance to low income households			•										•			•	
Promotion of low carbon technologies														•	•		
Energy Efficiency	•						•								•	•	
RES														•	•	•	

ETS vs. Carbon Tax: key difference

- By setting the cap, an ETS determines the total amount of emissions and thereby assures the mitigation outcome of the policy. As a result, the carbon price in an ETS fluctuates depending on the demand for allowances
- On the other hand, a carbon tax provides price certainty but the resulting mitigation outcome cannot be set
- In an ETS, the carbon price may be higher when the economy is booming and lower during a downturn



ETSs and Carbon Taxes: simplicity vs. flexibility & linking

- A Carbon Tax can be easier to implement as it often uses the established channels of the tax system and does not require new infrastructure for trading carbon permits
- ETS provides more flexibility: for example, provisions such as offsets, banking and limited borrowing give covered firms options for when and where to reduce emissions
- Linking:
 - Carbon Tax: Linking between two domestically imposed carbon taxes is feasible, however such type of linkage is financially and politically more challenging comparing to an ETSs linkage
 - ETS: systems generate allowances which constitute a natural unit of exchange for linkage. Thus, a linking among different ETS is easier to be implemented

Case Study 1: EU ETS (1/4)



EU Emissions Trading Scheme (EU ETS)

PHASE 1 (2005-2007) and PHASE 2 (2008-2012): The EU cap resulted from the aggregation of the National Allocation Plans of each MS. Phase 1: 2,096 MtCO₂e (2005), Phase 2: 2,049 MtCO₂e (2009).

PHASE 3 (2013-2020): Single EU-wide cap for stationary sources: 2,084 MtCO₂e in 2013, which is annually reduced by a constant linear reduction factor (currently 1.74% or ~38.3 million allowances).

PHASE 4 (2021-2030): A linear cap reduction factor of 2.2% (48.4 million allowances) annually for both stationary sources and the aviation sector will exist beyond 2030.

Amount of allowances

Aviation Sector Cap:

Following the “stop the clock” temporary suspension until the end of 2016, the number of aviation allowances put into circulation in 2013-2016 was significantly lower than the original cap (210 MtCO₂e/year) reflected the initial inclusion of all flights from, to, and within the EEA.

In 2017, the intra-EEA scope for aviation was prolonged until 2023.

Case Study 1: EU ETS (2/4)



EU Emissions Trading Scheme (EU ETS)

GHG covered: CO₂, N₂O, PFCs

Sectors covered and thresholds:

PHASE 1 (2005-2007): Power stations and other combustion installations with >20MW thermal rated input (except hazardous or municipal waste installations), industry including oil refineries, coke ovens, iron and steel plants, as well as production of cement, glass, lime, bricks, ceramics, pulp, paper, and board.

PHASE 2 (2008-2012): Aviation was introduced in 2012.

N₂O emissions were included by some countries.

PHASE 3 (2013-2020): Carbon Capture and Storage installations, production of petrochemicals, ammonia, nonferrous and ferrous metals, gypsum, aluminum, as well as nitric, adipic, and glyoxylic acid were introduced.

Number of liable entities:

- > 11,000 power plants and manufacturing installations
- aircraft operators are covered for all flights except (temporarily) flights between the EEA and a third country.

Obligations
-
exemptions

Case Study 1: EU ETS (3/4)



EU Emissions Trading Scheme (EU ETS)

Allocation method

PHASE 1 (2005-2007): Allocation established through the MS National Allocation Plans. Nearly 100% free allocation through grandfathering.

PHASE 2 (2008-2012): Similar to Phase 1 with ~90% of allowances allocated for free.

PHASE 3 (2013-2020): Over the whole trading period, 57% of allowances will be auctioned, while the remaining allowances are available for free allocation.

- **Electricity Sector:** 100% auctioning with optional derogation for the modernization of the electricity sector in certain MS.
- **Manufacturing Sector:** Free allocation is based on product-based benchmarks.
- Subsectors deemed at risk of carbon leakage receive free allocation at 100% of the predetermined benchmarks.
- **Aviation Sector (intra-EEA scope):** 15% of allowances are auctioned, 82% allocated for free based on benchmarks and 3% constitutes a special reserve for new & fast-growing airlines.

PHASE 4 (2021-2030): Ensure that the declining number of free allowances is distributed in the most effective and efficient way:

- Twice update of benchmarking reflecting technological progress
- Potential annual update of free allocation to mirror sustained changes in production
- Carbon leakage rules will be more robust.

Case Study 1: EU ETS (4/4)



EU Emissions Trading Scheme (EU ETS)

Temporal flexibility and provisions

Banking and borrowing:

- Unlimited banking has been allowed since 2008,
- Borrowing is not allowed.

Offsets and credits:

- Clean Development Mechanism (CDM) and Joint Implementation credits (JI) were allowed in Phase 1 and Phase 2.
- For Phase 3, newly generated (post-2012) international credits may only come from projects in Least Developed Countries. Credits from CDM & JI projects from other countries are eligible only if registered & implemented before 31/12/2012.
- The use of offsets is not envisaged for PHASE 4 (2021-2030).

Market Stability Reserve (MSR)

The MSR started operating in January 2019 aiming to neutralize the negative impacts of the existing allowances surplus and to improve the system's resilience to future shocks.

Use of revenues

- EUR 35.9 billion since 2005
- EU ETS revenues from auctioning accrue to EU MS (at least 50% of revenues should be used for climate- and energy-related purposes).
- MS are obliged to inform the EC about how they use the revenues (~80% for domestic and international climate-related purposes).

Case Study 2: British Columbia Tax



British Columbia Tax

Rationale

- Indicative example of a carbon tax applied as broadly as is feasible within the limitations presented by factors such as MRV and administration.
- Indicative example of a sub-national carbon tax.

Level of Taxes

20 USD/tCO₂ in 2019

Tax basis – exemptions

- **Tax basis:** Purchase and sale of fossil fuels
- **Exemptions:** Interjurisdictional commercial marine, interjurisdictional commercial aviation, exports, and colored gasoline and diesel used solely for farm purposes

Adjustment of similar taxes and subsidies

Climate Action Tax Credit to \$154.50 per adult and \$45.50 per child as of July 1, 2019, to improve affordability

Use of revenues

- Provide carbon tax relief and protect affordability
- Maintain industry competitiveness
- Encourage new green initiatives

Case Study 3: USA-California Cap –and-Trade Program (1/2)



USA-California Cap –and-Trade Program

- Cap decline factor was ~3.3% between 2018 and 2019 and is estimated at an average of over 4.1% in the 2021-2030 period.

Amount of allowances

1st Compliance Period (2013-2014): 159.7 MtCO₂e (2014)

2nd Compliance Period (2015-2017): 370.4 MtCO₂e (2017)

3rd Compliance Period (2018-2020): 334.2 MtCO₂e (2020)

From 2021-2031, every Compliance Period will be 3 years: 320.8 MtCO₂e (2021)
193.8 MtCO₂e (2031)

Obligations - exemptions

Sectors covered:

- electricity generation & electricity imports
- other stationary combustion
- large industrial facilities
- CO₂ suppliers
- suppliers of NG
- suppliers of LNG
- suppliers of LPG in California
- suppliers of reformulated blendstock for oxygenate blending and distillate fuel oil

Inclusion thresholds: Facilities $\geq 25,000$ tCO₂e/data year.

Allocation method

Allowances are distributed via auction and/or free allocation.

Case Study 3: USA-California Cap –and-Trade Program (2/2)



USA-California Cap –and-Trade Program

Tradability mobility

- Banking is allowed (general holding limit).
- Borrowing of future vintage allowances is not allowed.

Market Stability provisions

Auction Reserve Price:

- 2019: USD 15.62 per allowance
- Annual increase: 5% plus inflation

Reserve: An Allowance Price Containment Reserve allocates allowances from various budget years:

- 2013-2014: 1%
- 2015-2017: 4%
- 2018-2020: 7%

Use of revenues

- USD 9.47 billion since 2013
- Revenue From Auction of California-owned Allowances:
 - Most of this goes to the GHG Reduction Fund for the benefit of disadvantaged and low-income communities and for projects that reduce GHG emissions.
- Revenue From Auction of Utility-owned Allowances:
 - Auction proceeds must be used for ratepayer benefit and for emissions reductions.

Lessons learned from the implementation of carbon pricing schemes – ETS (1/2)

Design Element	Lessons Learned
Amount of allowances	<ul style="list-style-type: none">• Intensity caps are administratively more complex• Absolute caps are administratively easier and facilitate alignment between caps and targets when considering linking• Price management possible via supply control mechanisms
Obligations-exemptions	<ul style="list-style-type: none">• There is no best practice to follow, but the power sector is easier to regulate compared to other industrial sectors• The inclusion of industrial sectors, depending on their trade exposure, requires time and a phased approach
Free allocation and/or auctions	<ul style="list-style-type: none">• There are several type of allocation methods of allowances• Free allocation of allowances could improve acceptability• Free allocation of allowances often gradually replaced by auctioning, improve political acceptability across regulated firms• The power sector usually moves to 100% auctioning (high-pass through and low risk of carbon leakage)

Lessons learned from the implementation of carbon pricing schemes – ETS (2/2)

Design Element	Lessons Learned
Tradability-mobility	<ul style="list-style-type: none">• Banking has been proved as an efficient method in mitigating price volatility and spreading abatement costs across time• Borrowing is never allowed; it has been proven to be difficult to monitor the creditworthiness of the borrowers
Market control measures	<ul style="list-style-type: none">• Auction price floor are easy to implement and provide some price certainty (no hard price floor though) and government revenues are secured even if emissions demand goes below cap• Measures like the EC Market Stability Reserve allow cap adjustments and increase system responsiveness
Use of revenues	<ul style="list-style-type: none">• Auction revenue predominantly used to fund additional GHG mitigation policies and activities; these climate and energy programs raised the acceptability of such schemes

Lessons learned from the implementation of carbon pricing schemes – Tax Schemes

Design Element	Lessons Learned
Level of taxes	<ul style="list-style-type: none">• The majority of the jurisdictions has started with a low level of a tax rate and gradually increased the rate with relevant exceptions
Tax basis-exemptions	<ul style="list-style-type: none">• Countries with an established ETS usually apply a carbon tax on sectors not covered by the ETS
Combination with other taxes and duties	<ul style="list-style-type: none">• Combinations of a carbon tax and an ETS is possible and can address problems such a low-prices in the ETS market
Use of revenues	<ul style="list-style-type: none">• The acceptability of carbon taxes highly depends on the use of tax revenues (tax cuts, rebates or other support programmes)• Transparency and revenue recycling are paramount

Linking between different Emission Trading Schemes

- In principle, when ETS are linked, allowances are fungible (can be used for compliance in different, non-domestic systems)
- The process in order to establish a successful linking between 2 markets will be considerably influenced by the relationship between the 2 parties, the level that both parties will agree on the degree of alignment, as well as the desired type of linkage

Essential features allowing the Linking between different ETS

Type of cap (abs. vs. intensity)
Stringency of the cap (price differences)
Offset crediting provisions
Commitment periods
Stringency of enforcement
Cost containment provisions
No ex-post issuance of allowances (except for new entrants)

- Article 25 of the EU ETS Directive allows for the EU ETS to be linked with other ETS provided that:
 - they are mandatory
 - they have an absolute cap on emissions,
 - they are compatible
- EU ETS is the oldest and largest working ETS, so far only the Swiss ETS has managed to complete a linkage with the EU ETS since 1st January 2020

The case of linking EU-ETS with Swiss ETS

- The link will allow participants in the EU ETS to use allowances from the Swiss system for compliance, and vice versa
- The agreement's purpose is also to ensure compatibility between the two systems until 2030

Similarities of EU & Swiss ETS

same GHG and industry sectors are covered and the same thresholds for inclusion apply

the Swiss ETS became mandatory in 2013 for large, energy intensive entities and puts an absolute cap on GHG

the annual decrease in the quantity of allowances in the Swiss ETS is in line with annual decrease in the EU ETS

the allocation methodologies for the two systems are compatible, the standard method is auctioning and benchmarks are used when industries receive transitional free allocation

current period for trading covers the same years: 2013 -2020,

penalties in the systems are similar if failing to surrender sufficient allowances

Difference among the EU and the Swiss ETS

The Swiss ETS does not cover aviation activities, yet. Switzerland is however preparing an inclusion in its ETS of aviation that reflects the EU ETS rules.