ICC CARBON PRICING PRINCIPLES

CASE STUDIES & CRITICAL DESIGN CHOICES

Prepared by

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# INTRODUCTIONThe International Chamber of Commerce (ICC) – as the institutional representative of 45 million companies in over 130 countries and as the official UNFCCC Focal Point for Business and Industry – played a central role at the last UN Climate Change Conference COP26 in November 2021 by bringing the voice of the real economy to the negotiations – most importantly on Article 6 of the Paris Agreement.

The Glasgow Agreement marks an important step and sets the foundation to keep the Paris Agreement goal of limiting global warming to 1.5°C within reach. Whilst the fundamental rules for trading emissions across boarders under Article 6 are now agreed and set the base for certainty and predictability to both market and non-market approaches, significant further technical work will be needed to ensure new mechanisms work for the real economy and protect environmental integrity and the ambition of the Paris Agreement. It is essential for governments to work closely with the business sector in this endeavour to maximise the potential value of the new mechanisms in both environmental and economic terms, as well as to ensure that they are implemented successfully and can deliver real and additional benefits for the climate and society.

The recent 2022 IPCC report[[1]](#footnote-2) underscores that without urgent and concerted global action, a rapidly closing window will be missed to tackle the climate crisis and prevent the most dramatic impacts on planet and people. COP26 saw an unprecedent mobilisation of the private sector with more companies than ever setting net zero targets and aligning their portfolios with the Paris goals. However, pledges alone are insufficient - determination and political will from all governments is needed to build on the achievements of Glasgow, drive forward multilevel and multilateral collaboration as well as design clear and credible decarbonisation and financing plans. This will be integral to strengthening confidence for the business community to invest further and faster in a net zero economy and lead to the ambition and action needed for COP27.

The current geopolitical situation and the energy crisis underscore the need for urgent policy responses to safeguard energy security and affordable access to mitigate the effects of the crisis on consumers, business and society at large. The impacts of the crisis have reverberating consequences internationally and raise concerns for global cooperation, the future of the Paris Agreement and advancing goals towards net-zero. In the face of these challenges, climate change remains a pressing global issue and now, more than ever, it is imperative that all actors work together to take the necessary steps to meet the goals of the Paris Agreement, safeguard and strengthen energy security, access and efficiency, as well as promote investment in energy infrastructures to advance the transition towards a low and net zero emissions energy system. The disruptive effects on energy and energy-intensive industries and ultimately consumers need to be given due consideration, including in the context of carbon pricing discussions.

Carbon pricing and emissions trading are gaining momentum globally and are viewed by many political leaders as the most economically effective way of reducing emissions. In this context, ICC developed a set of Carbon Pricing Principles as further outlined in Section II below. In the second phase of its work, ICC outlines existing carbon pricing policies, elaborates and assesses selected case study examples and provides recommendations on key design features that could be useful for governments to consider in developing carbon pricing measures.

Further work on carbon pricing has also been conducted by international organisations, which has been considered and referenced in the document.[[2]](#footnote-3)[[3]](#footnote-4)[[4]](#footnote-5)

# ICC CARBON PRICING PRINCIPLES

Based on a wide range of business experiences, ICC has developed the principles below which should be taken into account for developing and implementing market-based instruments under Article 6 of the Paris Agreement in order to:

* tackle climate change at the quantitative scale and timescale needed, irrespective of location, and at the lowest cost to consumers and society;
* avoid economic and competitive distortions between regions and sectors in order to achieve net emission reductions on a global scale, while preventing any shifting of emissions within sectors and between regions (carbon leakage); and
* for policy-makers to give companies immediate, medium and long-term frameworks and policy clarity to support their investment decisions.

The principles are aimed at helping policy-makers to find a balance when designing and implementing a carbon pricing instrument that should assist countries in achieving these main objectives:

* halving GHG emissions by 2030 and achieving net zero emissions by 2050 by both reducing emissions and increasing removals, in line with the latest and leading available science;
* contributing to the achievement of the longstanding USD$100 billion climate finance goal and triple annual investments in low and net zero emissions technologies to $3.5 trillion by 2030, further promoting urgently needed climate action and supporting vulnerable actors in their efforts in line with the UN Sustainable Development Goals (SDGs) [[SDG 13](https://sdgs.un.org/goals/goal13)], while at the same time;
* keeping energy prices, also through complementary policies, at a level that does not impede consumer access to affordable and clean energy [[SDG 7](https://sdgs.un.org/goals/goal7)], does not impede economic growth and job creation [[SDG 8](https://sdgs.un.org/goals/goal8)] and does not overburden industry; and
* allowing the continued efficient conduct of business, innovation and infrastructure development [[SDG 9](https://sdgs.un.org/goals/goal9)].



# Outline of Key Greenhouse Gas Emissions Pricing System Policies & Design Features

The purpose of this outline is to provide a framework by which greenhouse gas (GHG) emissions pricing systems can be evaluated in light of the ICC Carbon Pricing Principles. The GHG pricing system in place in a jurisdiction is likely to be composed of one or more of the following six key policies. For each policy, core design features and possible modalities are described.

The six key pricing policies must be read and assessed together because pricing normally requires a policy-mix (e.g. emissions trading schemes accepting project-based offsets and relying on taxes as penalties or, possibly, on international linking with other schemes or even a CBAM). They are presented as an ‘issue-spotter’ to facilitate the analysis of international, regional, country or sub-national pricing systems.

In particular, the focus is on legally required carbon pricing systems. There are a wide variety of voluntary initiatives with different degrees of institutionalisation that could also be relevant. They tend to present broadly similar design features, but there are also significant variations (e.g. voluntary carbon offsets when purchasing a flight ticket, or so-called ‘green investment schemes’ which associate a pro-environment project to a transfer of allowances).

**Policy 1: Emissions Trading Scheme (negative externality internalisation)**

Definition: The regulator requires emitters to compensate for their emissions, which they may do by surrendering tradable credits.

Design features:

1. Regulator: Regional regulator / State government / Substate government
2. Coverage:
	1. Gases: carbon dioxide / Other gases
	2. Emitters: Sector / Facility type / Facility size / Facility location / New or existing
	3. Emissions: Cap-and-trade scheme / Baseline-and-credit scheme
3. Supply of credits: Free allocation / Auctioning / Purchase
4. Price controls: Direct price floors and cap / Alterations to number of credits supplied / ‘Central-bank’-like supply / Demand interventions to keep price within bands
5. Nature of credits: Time-validity / Allowances and/or offsets / Nature of underlying emission reduction or removal / relevant industries / Relevant jurisdictions
6. Compliance obligation: Restrictions on combined credits used / In case of shortfall: fee reflecting the market price for credits / inflated price for the remaining emissions/ greater number of credits by a later date / administrative penalties and fines.
7. Revenue allocation: Revenue-neutral / Climate-related allocation / Non-climate-related allocation

**Policy 2: Crediting Scheme (Project-based offsets)**

Definition:The regulator issues tradeable credits as an incentive to those who achieve emissions reductions or greenhouse gas removals.

Design features:

1. Regulator: International regulator (e.g. CDM Executive Board) / Regional regulator / State government / Substate government
2. Coverage:
	1. Gases: Carbon dioxide / Other greenhouse gases
	2. Activities: Emissions removal / Emissions Reduction

 Carbon removal projects / Operational reductions from BAU industries

* 1. Jurisdiction: Globally / Specified jurisdiction
1. Credit Amount: Baseline-based (emission reductions from BAU) / Based on volume of GHG removed from the atmosphere by the project (removals) / Cap on the number of credits
2. Nature of credits: One or more types of credits (e.g. under Kyoto: CERs, ERUs, RMUs) / Time-validity of credits / Certain types of emitters / industries / certain jurisdictions / Fungibility of credits / Restrictions on use or transfers

**Policy 3: Levy Scheme (negative externality internalisation)**

Definition: The regulator raises revenue in a manner that increases the costs of greenhouse gas intensive products or services.

Design features:

1. Regulator: Regional / State government / Substate government
2. Legal nature:

Collected as a tax / as a regulatory charge

 Raised indirectly by reducing subsidies available to GHG-intensive industries

1. Coverage: Types of emission / Types of products or services
	1. Gases: Carbon dioxide / Other gases
	2. Products and services: Upstream products / Downstream at the point of consumption
2. Price: Based on the GHG intensiveness of the good and granularity / Planned price increases for a certain number of years
3. Revenue allocation: Revenue-neutral / Climate-related allocation / Non-climate-related allocation

**Policy 4: Support Scheme (positive externality internalisation)**

Definition: The regulator provides support, financial or otherwise, to those providing low greenhouse gas intensity products and services to support their viability.

Design features:

1. Regulator: International fund (e.g. GCF) / Regional regulator / State government / Substate government
2. Legal nature:
	1. Investment
	2. Financial: Tax credits, tax rebates, preferential loans, loan support, equity injections or grants
	3. Procurement: direct (low greenhouse gas intensity products, e.g. electricity from modern renewables) or indirect (local content requirements linked to direct procurement)
	4. Mandates
	5. Property: Legal protections for private investments in the target industries
3. Coverage: Specific industries / Products / Services
4. Magnitude of assistance: Direct financial assistance / Increase costs paid as compared to higher GHG intensity alternatives / Other support like intellectual property rights
5. Adjustments over time / Cancellation (pre-determined length of time)

**Policy 5: Carbon Border Adjustment Mechanism**

Definition: The regulator uses trade-related measures to impose costs on imported goods with a view to equalizing the GHG emissions costs faced by domestic and foreign producers.

Design Features:

1. Regulator: Regional regulator (e.g. European Commission) / State government / Substate government (if in charge of trade policy, e.g. Macau or Hong Kong)
2. Legal nature: Import-based, export-based or both / Equalisation duty imposed at the border on foreign goods or at the point of consumption on all goods / Regulation (e.g., extension of an emissions trading scheme to importers, or mirroring regulation imposing similar cost) / Export rebates to remove internal GHG cost when good is exported / Free allocation or other support to equalise situation of domestic producers
3. Coverage: GHG emission-based / Limited to certain goods and materials
	1. Gases: Carbon dioxide / Other gases
	2. Emissions: Schemes may vary in scope of the emissions they target (Scopes 1, 2 or 3 of the Greenhouse Gas Protocol)
	3. Goods and materials: Different goods and materials (raw materials, electricity and manufactured goods including those raw materials or electricity)
	4. Exemptions: origin-based exemptions / subsequent equivalence-based exceptions / specific good or flow carve-outs
4. Additional Cost Imposed: GHG pricing (based on home prices or some common standard) / Administrative costs
5. Revenue allocation: Climate-related allocation / No climate-relate allocation

**Policy 6: Linking Mechanism**

Definition: The regulator(s) create a mechanism by which pricing mechanisms, normally allowances and offsets, can be used in two or more linked jurisdictions.

Design features:

1. Regulator(s) of the linked schemes: Regional / State government / Substate government
2. Recognition: Unilateral / Reciprocal / Multilateral
3. Legal nature:
	1. Type of recognition: Unilateral recognition / Binding agreement between regulators (contract or treaty) / Non-binding cooperative mechanisms
	2. Scope of the linking: allowances and/or offsets and/or compliance certificates with other pricing mechanisms / GHG, project and industry coverage (depending on scope of linked mechanisms)
4. Degree of integration: Completely harmonized / Restricted
5. **[Critical Design Features for Effective Carbon Pricing] - *To be completed***
6. **CASE STUDIES**
7. **CANADA**
8. **INTRODUCTION & FACTSHEET**

Building on the momentum established by the passage and rapid entry into force of the Paris Agreement, Canada passed in 2016 the Pan-Canadian Framework on Clean Growth and Climate Change to provide a structured transition to a low carbon economy.[[5]](#footnote-6) Carbon pricing, characterised by flexibility, complementarity with existing systems at the provincial level, broad application to emission sources and predictable ratcheting up of costs coupled with transparent reporting was identified as a key priority.[[6]](#footnote-7) Canada being a federal system has defined competencies in the constitution relating to GHG emissions, with provincial power grounded in jurisdiction over property and civil rights, and federal power grounded in the doctrine of peace, order and good governance.[[7]](#footnote-8)

In 2018 the Greenhouse Gas Pollution Pricing Act was passed providing a federal backstop for operationalisation of carbon pricing as a crucial modality to enable domestic achievement of Canada’s NDC under the Paris Agreement.[[8]](#footnote-9) In 2021 Canada provided an updated Nationally Determined Contribution (NDC) outlining the target of reducing emissions by 40-45% below 2005 levels by 2030 and achieving net-zero by 2050.[[9]](#footnote-10) Finding a basis in both federal and provincial law, the national approach to carbon pricing in Canada has a harmonised framework that consists of two parts with flexibility provided for nuanced differences at the provincial level.

**Factsheet**

**Year of Implementation**: 2019

**Regulator**: Federal Government, provinces and territories.

Policy mechanism(s): Federal pricing system consisting of (i) a fuel charge on fossil fuels and ii) a performance-based pricing system for large emitters – the federal Output-Based Pricing System (OBPS). Federal backstop provides a backstop to provincial approaches.

**GHGs coverage**: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF₆), perfluorochemicals (PFCs), hydrofluorocarbons (HFCs)
The legislative framework encompasses 33 GHG with the cost for excess emission calculated through the multiplication of the scale of emissions compared to the global warming potential at a prescribed rate based on the type. Distribution and consumption of 22 types of fuel are regulated with differential costs based on pollutant level.

**Pricing**: Following a progressive ratcheting up in price since 2018, 2021 price was CA$40/tCO2e, escalating to $50/t in 2022.

Compliance obligation: If the compliance deadline is missed, compliance is due at an increased rate of four to one (4:1). Facilities are required to submit four compliance units for each tCO2e over the Emissions Limit or four times the Excess Emissions Charge rate

**Revenue allocation**: All proceeds collected from OBPS compliance payments returned directly to regulated emitters to support GHG emission reduction projects and the use of low emissions technologies and processes.

1. **CORE DESIGN FEATURES &** **PRINCIPLE TEST**
* The Federal government of Canada requires provinces and territories to implement a minimum carbon price rising progressively from CAN$10 per ton in 2018 to CAN$50 in 2022 and CAN$170 in 2030. Jurisdictions are free to meet this requirement through carbon taxes or emissions trading systems.
* Canada’s approach allows subnational jurisdictions to either design their own pricing system or adopt the federal pricing system which sets minimum national stringency standards (which is proposed to rise to $170 CAD per tonne of GHG emissions by 2030).  The federal pricing system consists of two parts: a fuel charge on fossil fuels like gasoline and natural gas, and a performance-based pricing system for large emitters, also known as OBPS.
* In certain provinces, emissions-intensive and trade-exposed (EITE) sectors are subject to the federal system. In other provinces, a cap-and-trade system applies to EITE sectors, or a carbon tax applies to both EITE and non-EITE sectors. System designs account for the risks of carbon leakage and adverse competitiveness impacts. Canada is also exploring the potential for a border carbon adjustment to address the risks of carbon leakage.
* The OBPS currently applies to facilities that emit over 50,000 tCO2e/year. Facilities that emit over 10,000 tCO2e in regulated sectors can opt-in at any time. Emission reduction obligations are determined using an output-based standard (OBS), which varies depending on the industrial activity and the competitiveness of the sector. The OBPS is currently implemented in Manitoba, Ontario, New Brunswick, Yukon, Nunavut, and applies to the electricity and natural gas transmission sectors in Saskatchewan.
* Proceeds from the revenue neutral federal carbon pricing system remain in the jurisdiction where they were collected. Proceeds are delivered to individual households and businesses through payments and climate action programs to support further decarbonisation and to address carbon pricing affordability. The Government of Canada also provides targeted support to address the unique cost of living challenges in northern and Indigenous communities. Canadian jurisdictions are returning a portion of carbon pricing revenue through various funding programs to support industry decarbonisation.
* As an example, in the province of British Columbia, a clean industry fund granted roughly $40 million (CAD) in 2021 to 14 oil and gas sector projects that collectively will reduce emissions by over 3.5 million tonnes. Different companies, such as Shell has implemented various low-emissions projects in Canada incented by the rising carbon price and, in some cases, further enabled by funding programs supported through carbon pricing proceeds. At the subnational level, the province of Quebec has linked its economy-wide emissions trading program with the state of California, creating North America’s largest carbon market. Canada has noted that further domestic linking of carbon pricing systems would provide considerable benefits in the longer term, lowering costs of compliance while mitigating carbon leakage.
* Fossil fuel and combustible waste producers, distributors, and importers in provinces and territories that do not have their own legislation must register and provide monthly reporting.[[10]](#footnote-11)
* Rates for distribution of fuel are based on a usage or output-based model with fees established in Schedule 2 of the Act and based on the operator-type, province/territory of operation and fuel type.[[11]](#footnote-12)
* Fees are established for 22 fuel types on a per litre/cubic metre/tonne basis depending upon type and with the prescribed levy increased annually from 2019-2022.[[12]](#footnote-13) Some are reduced for practical reasons such as aviation fuel in the northern territories (CA$0/L), others are modest such as gasoline in (CA$0.1105/L) or marketable natural gas (CA$0.0979/m3), while others with a higher pollutant potential are more robust such as coke (CA$159.99/t) or combustible waste (CA$99.87/t).[[13]](#footnote-14)
* Covered facilities defined as those emitting over 10kt of GHG/year located in Manitoba, Saskatchewan, Prince Edward Island, Yukon, and Nunavut are also required to register, report emissions annually, and provide remittance of compliance units for excess emissions as a result of operations.[[14]](#footnote-15) A tracking system is also established to monitor issuance, transfer, retirement, revocation, suspension and cancellation of compliance units, as well as excess emission charges levied on an operator.[[15]](#footnote-16)
* A total of 33 greenhouse gases are regulated under the Act and are converted into CO2e through the multiplication of the amount by the global warming potential as listed in Schedule 3, and applicable fees for excess emissions progressively increase annually from $10/tonne in 2018 to $50/tonne in 2022.[[16]](#footnote-17)
* As the federal regime provides a backstop for jurisdictions that have yet to develop an adequate approach, provincial frameworks are also of relevance with the approach adopted by British Columbia of note. In addition to a carbon tax originally introduced in 2008 that is annually ratcheted up in line with federal rates for fuel distribution by type and excess CO2[[17]](#footnote-18) the legislative and policy framework on climate change in the province of British Columbia is comprised of several instruments encompassing a broad range of climate-related factors including, industrial reporting, energy production and use, emission, building codes and fuel standards.[[18]](#footnote-19)
* One of the central legislative instruments is the Climate Change Accountability Act passed in 2018 that updated the original approach established in the Greenhouse Gas Reductions Targets Act of 2007. The Act sets in place GHG emission reduction milestones (40% below 2007 level by 2030, 60% by 2040, and 80% by 2050) and establishes the goal of a carbon neutral public sector.[[19]](#footnote-20) An advisory committee is established to provide advice to the minister on plans, actions, and impacts of climate change and opportunities for sustainable development and transition to a low carbon economy.[[20]](#footnote-21) The committee is interdisciplinary and comprised of 20 total members with at least half being women as well as designated representation from Indigenous peoples, local governments, environmental organizations, academics, unions, rural communities, and business leaders.[[21]](#footnote-22)
* An annual provincial report is also to be provided by the minister and the province outlining the scale of GHG emissions, actions taken to reduce provincial emissions, ongoing priorities, status of offset units retired, and future actions to meet established reduction targets.[[22]](#footnote-23) Industrial emissions exceeding 10kt CO2 per year must be reported, and installations exceeding 25kt CO2 per year are required to have independent verification.[[23]](#footnote-24)
1. **ASSESSMENT: USEFUL FEATURES / BEST PRACTICES**
* Creation of a backstop in a federal context provides clarity for economic actors operating across multiple jurisdictions of the long-term policy priority while providing flexibility for provincial approaches.
* Inclusion of a progressive ratcheting up the carbon price allows impacted organizations to adapt over time.
* Alignment of key goals to significantly reduce emissions levels by 2030 and achieve net-zero by 2050 in line with the domestic NDC provides long-term prioritization and certainty for investors, innovators, and operators.
* Encompassing a wide range of fuel and GHG types ensures the framework adequately captures the full scale of potentially harmful practices.
* Integration of an interdisciplinary multistakeholder advisory committee to review and influence policy approaches supports an inclusive approach that can be responsive to localized or industry-specific challenges.
* A continued focus on strong, supportive, predictable and responsive policies intended to grow supply and demand for low- and zero-carbon technologies will be instrumental to drive actions in Canada. The Canadian government’s efforts to promote harmonized international carbon prices and to explore potential for a border carbon adjustment can help mitigate the risks of carbon leakage while maintaining a strong price signal domestically.
* In time, Canada’s offset market should be linked with international markets to potentially further increase the benefit of Canadian offset investments.

**Business case: Experience with the Canada model: Shell**

Shell’s target is to become a net-zero emissions energy business by 2050, in step with society’s progress in achieving the goal of the UN Paris Agreement on climate change[[24]](#footnote-25). Shell also supports putting a direct price on carbon emissions as part of a broader policy framework to achieve net-zero emissions. The carbon price, whether through taxation, cap-and-trade or a hybrid system, should apply to as many sectors of the economy as possible and increase over time. Policies should be based on robust and transparent modelling of the impacts of carbon pricing on consumers and industry.

To assess the resilience of new projects we consider the potential costs associated with operational GHG emissions. We have developed country specific short, medium, and long-term estimates of future costs of carbon which are reviewed and updated annually. In 2021, we increased the expected cost of carbon, so by 2050, in real terms our cost of carbon estimates for all countries increased to between $125 and $200 per tonne of GHG emissions. The process for developing our cost of carbon estimates uses short-term policy outlooks and long-term scenario forecasts. We believe our estimates appropriately reflect society’s current implementation of the Paris Agreement. Unfortunately, however, society is not yet on track to meet the goals of the Paris Agreement. Shell will continue to update the cost of carbon estimates to take account of changes in the economic environment and pace of energy transition.

Shell has operated in Canada for over 110 years and all of Shell’s global lines of business are represented in the country. Canada champions many of the carbon pricing principles promoted by the ICC. Since 2019, every jurisdiction in Canada has priced carbon and Canada has championed the adoption of a global minimum standard on carbon pricing.

Shell has implemented various low-carbon projects in Canada incented by the rising carbon price and, in some cases, further enabled by funding programs supported through carbon pricing proceeds.

As Shell works to transform its business for a lower carbon future, it supports carbon pricing mechanisms as a key policy tool that governments can use to help increase global ambition and create incentives to invest in lower-carbon technology and infrastructure. The Shell-operated[[25]](#footnote-26) Quest project deploying carbon capture and storage (CCS) in Canada was financially supported by the governments of Canada and Alberta and is the world’s first commercial-scale CCS facility applied to oil sands operations. Quest has captured and permanently stored over 6 million tonnes since start-up in 2015. Following the success of Quest, Shell recently announced a proposal to build another large-scale CCS project at the Shell-owned Scotford refinery[[26]](#footnote-27) and chemicals[[27]](#footnote-28) facilities in Alberta. The project is expected to start operations in the middle of the decade subject to a final investment decision by Shell expected in 2023. Shell[[28]](#footnote-29) is progressing the first phase of the proposed Polaris project on the basis of the lessons learned from Quest, the projected price of carbon, and the proposed Canadian Clean Fuel Regulation.

Shell supports Canada’s carbon pricing framework, which provides policy certainty to support delivery of net-zero emissions. Shell supports the further harmonization of federal and provincial carbon pricing systems across Canada. As an example, linking carbon credit systems would allow parties with greater flexibility to invest in eligible compensation projects without being restricted to jurisdictions where they hold obligations, allowing them to deliver the largest carbon reduction per dollar spent.

1. **EU EMISSIONS TRADING SYSTEM**
2. **INTRODUCTION & FACTSHEET**

The European Union Emissions Trading System (EU ETS) is a cornerstone and key policy instrument of the EU's strategy for reducing greenhouse gas (GHG) emissions cost-effectively since 2005. The system covers ~40% of the EU’s emissions, from the power sector, manufacturing industry and aviation within the European Economic Area. It is the world’s first major carbon market and now second-largest ETS in force. Introduced in 2005, the EU ETS has gone through several reforms, and it is now in its fourth trading phase. The latest reform of the ETS was proposed in July of 2021 as a part of the European Green Deal[[29]](#footnote-30) that introduced a more ambitious intermediate and long-term target of reducing GHG emissions by at least 55% by 2030, compared to 1990 levels and achieve net zero emissions by 2050. The latest reform proposes major changes to the system.

As of January 2020, the EU ETS became linked to the Swiss ETS, the first linking of this kind for both parties. The link allows covered entities in both systems to use allowances from either ETS for compliance. The United Kingdom after withdrawing officially from the EU on 31 January 2020 also stopped participating in the EU ETS.

**Factsheet**

**Years in operation**: Phase 1: 2005-07; Phase 2: 2008-12; Phase 3: 2013-20; Phase 4: 2021-30

**Jurisdictions**: 27 EU members states and three European Economic Area-European Free Trade Association (EEA-EFTA) states: Norway, Iceland and Liechtenstein.

**GHG coverage**: CO2, N2O, PFCs

**Pricing:** Current Allowance Price (per t/CO2): EUR 77.10 (22 March 2022)

EU Carbon Permits reached an all-time high of 98.49 in February of 2022.

**Compliance obligation**: Entities must pay EUR 100/t for non-compliance, adjusted with the EU inflation rate from 2013 onwards. The shortfall incompliance is also then added to the compliance target of the following year.

**Use of revenues**: At least 50% of auctioning revenues or the equivalent in financial value of these revenues should be used by Member States for climate and energy related purposes

1. **CORE DESIGN FEATURES & PRINCIPLE TEST**
* The EU ETS aim is to assist the EU in reaching its medium and long-term climate targets (by 2030 to get to at least 55% below 1990 GHG levels and by 2050 achieve net zero emissions[[30]](#footnote-31)) by “promoting reductions of emissions in a cost-effective and economically efficient manner”[[31]](#footnote-32).
* The EU ETS works on the principle of 'cap-and-trade'. It sets an absolute limit or 'cap' on the total amount of certain GHG that can be emitted each year by the entities covered by the system. This cap is reduced over time so that total emissions fall. The main features of the EU ETS are the emission cap (a ceiling on the maximum amount) and the trading of EU emission allowances (EUAs). The cap represents the maximum absolute quantity of GHG emissions that may be emitted by entities covered by the system and guarantees that total emissions are kept to a pre-defined level. In the current phase 4 (2021-2030), the cap for both stationary installations and aviation is set to decrease annually by the linear reduction factor of 2.2%.[[32]](#footnote-33)
* EUAs are allocated for free or they are auctioned. The trading system provides some flexibility to the entities covered by the scheme as they can decide on taking action or buying EUAs depending on the EUA price. Installations that achieve reduction costs lower than the price are encouraged to take action, while emitters with high mitigation costs can buy EUAs complying with the GHG policy more cheaply.

**Key design features developed over time[[33]](#footnote-34)**

**Phase 1 (2005-2007)**

* This was a three-year pilot test to prepare for phase 2, when the EU ETS would need to function effectively to help the EU achieve its UNFCCC Kyoto Protocol targets. The Member States were able to decide on how many EUAs to allocate in total as well as to each installation in their country by preparing national allocation plans (NAPs). Almost all EUAs were allocated for free and were based on historic emissions called “grandfathering”.

Key features:

* Covered only CO2 emissions from power and heat generators and energy-intensive industries;
* Almost all allowances were given to businesses for free; and
* The penalty for non-compliance was €40 per ton

Phase 1 succeeded in establishing:

* A price for carbon;
* Free trade in emission allowances across the EU; and
* The infrastructure needed to monitor, report and verify (MRV) emissions from installations covered.

Phase 1 caps were set on the basis of estimates as no reliable emissions data was available. The total amount of allowances issued exceeded emissions and, with supply significantly exceeding demand, in 2007 the price of allowances fell to zero (phase 1 allowances could not be banked for use in phase 2).

**Phase 2 (2008-2012)**

* Phase 2 was concurrent with the first commitment period of the Kyoto Protocol. Iceland, Norway and Liechtenstein joined the EU ETS and the scope was amended to include nitrous oxide from nitric acid production from several countries.

**Key features**:

* Lower cap on allowances (some 6.5% lower compared to 2005);
* Nitrous oxide emissions from the production of nitric acid included by a number of countries;
* The proportion of free allocation fell slightly to around 90%;
* Several countries held auctions;
* The penalty for non-compliance was increased to €100 per tonne;
* Businesses were allowed to buy international credits (from the Kyoto Protocol’s CDM and JI); totalling around 1.4 billion tonnes of CO2-equivalent;
* Union registry replaced national registries and the European Union Transaction Log (EUTL) replaced the Community Independent Transaction Log (CITL); and
* The aviation sector was brought into the EU ETS on 1 January 2012. In November 2012, the EU temporarily suspended enforcement of the EU ETS requirements for flights operating from or to non-EEA countries (“stop the clock”) while continuing to apply the legislation to flights within and between countries in the EEA. The EU will maintain the intra-EEA scope until 31 December 2023.
* In phase 2 veriﬁed annual emissions data from the pilot phase was now available and the cap on allowances was reduced, based on actual emissions. The expansion of the system to international credits made the EU ETS the main driver of the international carbon market. However, the 2008 financial crisis led to emissions reductions that were greater than expected. This led to a large surplus of allowances and credits, which caused a fall of the price from 30 Euro to less than 7 Euro.

**Phase 3 (2013-2020)**

* The reform for phase 3 included significant changes to the system compared to phases 1 and 2 that aimed to address key inherent weaknesses and challenges of the system: (i) fall of EUAs during phase two greatly undermined the reliability of the EU ETS; (ii) EU ETS did not generate needed transformations or transition towards renewable energies and low-emissions technologies (iii) system was not as cost-effective as initially anticipated; and (iv) it was subjected to several frauds and scams.

**Key changes:**

* A single, EU-wide cap on emissions in place of the previous system of national caps;
* Auctioning as the default method for allocating allowances (instead of free allocation);
* Process of auctioning is supervised by the EU ETS Actioning Regulation to ensure actions correspond to agreed criteria and are performed in open, transparent, harmonised and non-discriminatory manner;
* Introduction of short-term measure “back-loading” to address growing surplus of EUAs transferred from phase 2. The auctioning of 900 million EUAs was postponed to the end of the trading period;
* Harmonised allocation rules applying to the allowances still given away for free, mostly to industry based on benchmarking;
* More sectors and gases included;
* Use of offsets: installations are able to use a limited amount of international credits from the clean development mechanism (CDM) and joint implementation (JI) for compliance. Qualitative criteria were introduced and apply to the types of credits that can be used.
* 300 million allowances set aside in the New Entrants Reserve to fund the deployment of renewable energy technologies and carbon capture and storage through the NER 300 programme. NER 300 is EU low-emission funding programme of approximately EUR 2 billion monetised through the sale off 300 million allowances; and
* A Market Stability Reserve (MSR) was introduced in 2019 to deal with the accumulated surplus of allowances and take into account interaction of other policies on ETS perimeter

**Phase 4 (2021-2030)**

* In July 2021, the European Commission released the “Fit for 55” package – a set of policy proposals spanning all major sectors of the economy to achieve emission reductions of at least 55% below 1990 levels and become a net zero economy by 2050. The EU ETS is seen to play a major role in achieving these objectives and several major changes have been proposed – most importantly:
	+ A new reduction target for the system (61% below 2005 levels by 2030 compared to 43% below 2005 levels currently);
	+ A one-off reduction to the cap and increased linear reduction factor (from 2.2% to 4.2%);
	+ Inclusion of the maritime sector into the EU ETS’ scope from 2023 onwards[[34]](#footnote-35);
	+ Separate ETS system to cover emission from fuels used in transport and buildings;
	+ Strengthened benchmarks and a faster phase down of free allocation which would be tied to low-carbon investment by the receiving entity;
	+ Introduction of a carbon border adjustment mechanism (CBAM) aimed at counteracting the risk of carbon leakage by putting a price on imported goods based on their embedded emissions to come fully operational by 2026;
	+ Updated parameters of the Market Stability Reserve (MSR) including a new buffer threshold and an extension of the current intake rate of 24% beyond 2023;
	+ Use of offsets: based on current legislation there will be no use of international credits.
	+ New regulations to use at least 50% of auctioning revenues or the equivalent in financial value for climate and energy relate around revenue use to address distributional effects and spur innovation, including the creation of the Social Climate Fund to address any social impacts that arise from this new system. Revenues from the ETS should also support EU stakeholders in the low-carbon investment challenge through the Innovation Fund and Modernisation Fund.[[35]](#footnote-36)

* The package is currently going through the EU’s ordinary legislative procedure and is being debated in the Council of the EU and the European Parliament, before entering effect in its final form in the coming years.
1. **ASSESSMENT: USEFUL FEATURES / BEST PRACTICES**
* The EU chose a “cap-and-trade” structure as the best means of meeting the GHG emissions reduction target at least overall cost to participants and the economy as a whole. The cap-and-trade system allows companies in the system to determine what the least-cost option is for them to meet a common fixed cap. The carbon price is then set by the market through trading and based on a wide range of factors.
* The trading system provides some flexibility to the entities covered by the scheme as they can decide on taking action or buying EUAs depending on the EUA price. Installations that achieve reduction costs lower than the price are encouraged to take action, while emitters with high mitigation costs can buy EUAs complying with the GHG policy more cheaply.
* Decision to develop a clear Monitoring, Reporting and Verification framework, as one of the first lesson that EC took into account after the problems that happened in the early years of EU ETS.
* Some small emitters are exempt from the EU ETS. Installations are considered small emitters if they emit less than 25 ktCO2e annually and, if they are combustion installations, have a thermal rated input below 35MW. Hospitals may also opt-out if they are subject to equivalent measures.
* In 2019, the European Commission implemented the Market Stability Reserve (MSR). This withholds a certain amount of auction volume based on the Total Number of Allowances in Circulation. It was introduced at first to remove an anormal surplus that accumulated in ETS in the phase 2 but it is also targeted to remove influence of other policies interacting on the ETS perimeter
* At least 50% of auctioning revenues or the equivalent in financial value of these revenues should be used by Member States for climate and energy related purposes.
* Under proposals to finance the Coronavirus recovery package (NextGenerationEU), revenues gained from introducing emissions trading to new sectors may be diverted for the use of centralised EU expenditure.
1. **INDONESIA**
2. **INTRODUCTION & FACTSHEET**

Indonesia is the world’s eight-biggest GHG emitter and – with its more than 17,000 islands and most of its population living in the low-lying coastal area – the country is highly vulnerable to climate change impacts, including extreme weather events such as floods and droughts, and long-term changes from sea level rise, shifts in rainfall patterns and increasing temperature.

In 2021, Indonesia set its goal for achieving net zero emissions by 2060 and communicated its revised national climate targets or NDC, confirming its existing 2030 targets to an unconditional 29% reduction in emissions below a business-as-usual (BAU) scenario by its own efforts and a conditional 41% reduction in emissions below the same BAU, that could be achieved with the necessary help of international funding and transfer of technology.[[36]](#footnote-37) To meet these goals, the country also passed a Presidential Regulation on the Economic Value of Carbon for NDC (Carbon Economic Value Bill) that serves as national framework for carbon pricing, including a carbon tax and ETS.

A carbon tax will be piloted beginning in April 2022, with the first one on coal-fired power plants. By 2025, the government plans to also establish an ETS and expand the carbon tax to other sectors.

**Factsheet**

**Year of Implementation**: 2022 for pilot of carbon tax and 2025 for the emissions trading market system

**Policy system/mechanism(s)**: emissions trading through ETS (cap and trade system) or crediting scheme (Project Based Offsets); levy scheme (tax levy) and other linking mechanisms.

**GHGs coverage**: a) CO2e; b) products and services: tax is payable on purchase of goods containing carbon and activities that produce GHG emissions.[[37]](#footnote-38)

**Pricing**: By Law, the carbon tax rate is set to be higher than or at market price, with a minimum rate of Indonesian Rupiah (IDR) 30 (US$ 0.002) per kilogram of CO2 equivalent (CO2e), or US$ 2.13 per ton of CO2e emission above the stipulated cap (cap and tax). CO2e is a representation of greenhouse gas emissions that includes CO2, N2O and CH4 compounds.

**Revenue allocation**: revenues from the carbon tax would be allocated for climate change mitigation activities.



1. **CORE DESIGN FEATURES &** **PRINCIPLE TEST**

* In 2021, the Indonesian government introduced a new tax law, namely Law No.7 of 2021 regarding the Harmonization of Taxation ("Taxation Harmonization Law”), which entered into force in October 2021 and introduced a carbon tax, with the aim of achieving Indonesia’s climate mitigation targets. This is the first time the country has imposed taxation on emissions.
* According to Article 13 paragraph (1) of the Taxation Harmonization Law, the carbon tax will be imposed on CO2 emissions “that have a negative impact on the environment”. The tax is payable by individuals or legal entities on (a) purchased goods containing carbon and (b) activities that produce GHG emissions. The tax rate is set to be “higher [than] or equal to the carbon market price per kilogram of carbon dioxide or its equivalent”.
* The minimum carbon tax rate is set at IDR 30 per kilogram (USD2.11 per tonne) of CO2e or its equivalent. This rate is among the lowest carbon tax rates in the world and significantly lower than the World Bank, IMF’s and the High Commission on Carbon Pricing suggested carbon tax rate for developing countries (between USD$ 30 – USD$ 100 t/CO2)[[38]](#footnote-39). The goods tax will be due at the time of purchase and the activities tax will be assessed annually. Taxable goods containing carbon include, but are not limited to, fossil fuels. Regulated activities will include those activities that produce carbon emissions in the energy and transportation, agriculture, forestry and peat lands, industry, and waste treatment sectors. These sectors are identified in the Indonesia’s NDC as the five main sectors in terms of GHG contributions.
* The carbon tax is part of Indonesia’s larger emissions reduction framework. The levy follows a “cap and trade” system, which imposes a tax for carbon emissions in excess of a stipulated cap and where allowances can be traded within the country and cross-border. Taxpayers who participate in emissions trading may receive a reduction of carbon tax. This levy scheme is not the only carbon pricing measure since the new regulation also refers to potential links to emission trading and offsetting schemes as part of a carbon market roadmap.
* The income generated from the carbon tax is set to be allocated for the country’s climate change mitigation and adaptation activities. The income will be managed by the Environmental Fund Management Agency (Badan Pengelola Dana Lingkungan Hidup or BPDLH), an independent management fund formed by the government and tasked with accumulating, managing, and distributing funds for mitigation and adaptation actions.
* In 2021 the Indonesian Minister of Energy and Mineral Resources also ran a voluntary emissions trading trial for the power sector that included 80 coal-fired power plants, of which 59 are owned by the state electricity company PLN. The results of the pilot will be used to inform the mandatory ETS.
* The overall cap for the pilot was intensity-based, with different intensity benchmarks for three subgroups: generators with a capacity between 100 and 400 MWh, with a capacity of over 400 MWh, and generators (with a capacity between 100 and 400 MWh) that are located directly next to a coal mine. Benchmarks are based on the weighted average of GHG emissions intensity of power generators in each participant subgroup in 2019. Participants can trade allowance units as well as offset credits from renewable energy generation. The voluntary programme is set to continue, with yearly trading periods and reviews, until the implementation of a national ETS.
1. **ASSESSMENT: USEFUL FEATURES / BEST PRACTICES**
* The government hopes that the introduced measures incentivise consumers to decrease their carbon footprint by switching to more sustainable practices and utilise low-emission fuels. The carbon tax may also help generate more investment in renewable energy sources, which would support the government’s plan to achieve a renewable energy account of at least 23% of the country’s total energy mix by 2025.
* We are seeing some examples of businesses rethinking their business models, i.e. MedcoEnergi, one of the largest oil and gas companies in Indonesia, has a liquefied petroleum gas sister company that captures and processes associated gas that would otherwise have been released and created more emissions. This gas recovery and utilisation project has allowed MedcoEnergi to generate profit through the issuance of Verified Carbon Units (VCUs) and the sale of carbon credits on the international voluntary carbon market.
* Despite some positive signs, businesses in carbon-intensive sectors such as coal-fired power plants, oil and mining, pulp and paper, cement, plastic, petrochemicals, and palm oil plantations, among others, will be the most heavily affected by the new carbon tax. Responding to the measures, businesses, in particular those in the coal and cement industries, have expressed concern that the carbon tax would place too high a burden on their operations and activities and have also questioned the carbon tax rate calculation.
* Some experts also estimate that the current minimum rate of IDR 30 per kg CO2e will very unlikely trigger the expected transformation and behavioral change. Several business representatives interviewed stated that they would rather pay the carbon tax than invest in new technologies or use renewable alternatives to reduce carbon emissions[[39]](#footnote-40).
1. **NEW ZEALAND EMISSIONS TRADING SCHEME**
2. **INTRODUCTION & FACTSHEET**

Under the 2015 Paris Agreement, New Zealand has committed to join with other countries in holding the increase in the global average temperature to 1.5°C and reaching net zero global emissions by 2050. In 2019, it set a new domestic emissions reduction target by 2050 into law with the Climate Change Response (Zero Carbon) Amendment Act40[[40]](#footnote-41) and established an independent Climate Change Commission to provide advice to Government on climate change mitigation and adaptation and to monitor progress towards the new 2050 target emissions budgets as well as the implementation of a National Adaptation Plan.

During COP26 in November 2021, New Zealand announced an updated NDC under the Paris Agreement for the period 2021 to 2030, committing to reduce emissions to 50% below gross 2005 levels by 2030. The country sees effective and adequate pricing of emissions as an important tool to achieve its goals.[[41]](#footnote-42) Carbon pricing is seen to help set economic incentives for a transition to a sustainable, net zero emissions economy by also mobilising the financial investments required to stimulate deployment and development of climate technologies and market innovation, and also fuelling new, low-emissions drivers of economic growth.

The government first launched an ETS in 2008 as a central policy for climate change mitigation. It has broad sectoral coverage, including forestry having emissions surrender obligations and the opportunity to earn units for emissions removals. Currently, biological emissions from agriculture have reporting obligations without surrender obligations. The Climate Change Response Act 2002 sets the legislative framework for the NZ ETS and incorporates all of New Zealand’s key climate legislation under one Act. Legislation to reform the NZ ETS was introduced to Parliament in October 2019 and passed in June 2020.[[42]](#footnote-43)

**Factsheet**

**Year of Implementation**: 2008

**Policy System/Mechanism(s)**: Emissions Trading System

**GHGs coverage**: CO2, CH4, N2O, HFCs, PFCs and SF6. However, nitrous oxide and methane emissions from agriculture are not covered by the NZ ETS emissions price.

**Pricing**: Latest update on prices (1 January 2022): a rising price corridor has been created; the price at which extra units could be released for sale from the cost containment reserve during NZ ETS auctions will increase from $50 to $70 and will increase by 10 per cent plus inflation each year. The auction price floor will increase from $20 to $30 and increase at 5 per cent plus inflation each year. Further increase in prices may be established in 2023 or later. Modelling from the Productivity Commission found that an emissions price of $150–250 per tonne of carbon is needed to achieve net zero emissions by 2050.

**Price ceiling mechanism**: participants can purchase unlimited NZUs from the government for immediate surrender (not banking or trading) at a fixed price of NZ$25 per NZU.

**Revenue allocation**: The government has been considering options for how to better use the revenues to also support low-income households and different climate projects. In December 2021, a Climate Emergency Response Fund (CERF), made up of $4.5 billion in proceeds from the Emissions, was established to help meet New Zealand’s climate objectives, including moving to a “low emissions and climate resilient economy in a way that protects vulnerable communities”.

1. **CORE DESIGN FEATURES & PRINCIPLE TEST**
* The New Zealand Emissions Trading Scheme (ETS) works with an emission price that is based on unit supply and demand. The limit of emissions is defined by the number of tradable emission units in the market, which reduces over time. The government allocates emission units into the market and ETS market participants trade emission units and/or surrender emission units for compliance. Businesses and households also receive an emission price incentive to choose lower-emission goods, services and activities. Emission units are supplied only by government for industrial free allocation and removals by forestry and industrial activities, and no emission units are supplied through international offset mechanisms or international trading.
* The NZ ETS currently operates as a domestic-only system. (The NZ ETS allowed trading of units to and from the international Kyoto market from 2008 to mid-2015, at which point it de-linked). The system applies unit obligations to about 51% of New Zealand’s gross emissions (It covers almost all emissions from fossil fuels, industrial processes and waste). New Zealand Units (NZUs) are the primary domestic unit of trade. An NZU represents one metric tonne of carbon dioxide equivalent and can cover both emissions and removals. NZUs have no vintage date and do not expire.
* Failure to surrender emission units results in a requirement to make good those units alongside a financial penalty of NZ$30 per unit. Interest accrues until the penalty is paid. Failure to comply with data collection, record-keeping, reporting, registration, or notification requirements carries a fine. Providing false information carries a larger fine and/or a prison term.
* Free allocation exist for businesses that are undertaking activities that are both emissions intensive and trade exposed.
* Forests are treated differently in the NZ ETS depending on if they were planted before 1990 or after 1989. Participation in the NZ ETS for post-1989 forests is voluntary, therefore there is a significant part area of this forest that is not necessarily in the scheme. If registered in the NZ ETS, these forests can earn units for the carbon they store as they grow, but units must be paid back for the loss of carbon on deforestation. Pre-1990 forests cannot earn units but are subject to a mandatory liability to pay units to the Government if they are deforested.
* Obligations to both report emissions and surrender emission units apply to the following sectors: forestry, stationary energy (electricity and heat), transport, industrial processes, synthetic GHGs and waste. Biological emissions from agriculture (which account for about 49% of New Zealand’s gross emissions) carry reporting obligations only.
* In most of the sectors, obligations generally apply at the point of emission (Energy-sector obligations generally apply upstream of emissions at the point of fuel production or import, but major fuel users can opt in as points of obligation with a corresponding carve-out of the upstream obligation).
* For a given year, free allocation is awarded provisionally based on production in the previous year and adjusted once actual production has been reported for that year. Highly emissions-intensive producers receive 90% of an allocative baseline as the starting point. Moderately emissions-intensive producers receive 60%.
* The NZ ETS does not allow borrowing of NZUs from future years. However, emissions are reported on a calendar-year basis and compliance units must be surrendered by 31 May in the following year. This enables free allocation recipients to help meet obligations from one year using free allocation received in respect of the following year’s emissions.
* The system pioneered upstream points of obligation in the stationary energy and transport sectors.
* As a result of global oversupply of Kyoto units exacerbated by the global financial crisis and withdrawal of the US and Canada from the Kyoto Protocol, the prices of international Kyoto units declined from mid-2011 and NZU prices followed suit. When the prospect of future de-linking from the Kyoto market arose in late 2012, NZUs began to command higher prices than international Kyoto units. This means that NZUs takes even more responsibility than Kyoto Protocol assumes, as the NZU prices are now higher.
* Unit transactions under the NZ ETS are managed through the New Zealand Emissions Trading Register (NZETR). Selected information on unit holdings and transactions is reported publicly on an annual basis in accordance with legislative requirements.
* Participants follow a “self-assessment” model for emissions monitoring, reporting and verification (MRV). No independent third-party verification is required of emission reports, but the government has the power to conduct audits. Each year, the Environmental Protection Authority selects a sample of NZ ETS participants and free allocation recipients for internal and third-party reviews of compliance.
1. **ASSESSMENT: USEFUL FEATURES / BEST PRACTICES**
* Inclusion of the forestry sector with emission liabilities as well as credits, an ETS world first, was intended to both discourage deforestation and incentivise afforestation.
* Free allocation can help producers adjust more gradually to the cost of emission constraints while they continue to face incentives to reduce emissions. Ongoing output-based free allocation to emissions-intensive and trade exposed industrial producers was intended to support their international competitiveness and prevent leakage of production and emissions offshore. Non-trade-exposed producers (such as electricity generators and transport fuel suppliers), which can pass on emission costs to their customers, are not eligible for free allocation.
* Enabling unique emission factors offers a fair approach – and a further emission-reduction incentive – for those whose emissions may fall below the industry average.
* Applying a unit make-good requirement in addition to a financial penalty for failing to surrender units is intended to safeguard the environmental integrity of the system.
* The separation of administrative and registry functions from policy making functions has helped to distribute effort and decision-making authority across departments and improve transparency.
* The Government has put an overall limit (cap) on the emissions that participants produce. As the NZU supply decreases over time, the demand will increase, causing the price to rise. This makes emissions-intensive technology and behaviour more expensive and encourages businesses and individuals to find ways to reduce their emissions and increase removals, such as by planting forests.
* Main drawback: the NZ ETS in its current form does not differentiate between carbon removals by forests and gross emissions reductions. If left unchanged, this will drive the relatively low short-run cost abatement option of planting pines, rather than more costly gross emissions reductions that put Aotearoa on a path to net zero that is sustainable over the long term beyond 2050.
1. **SOUTH AFRICA CARBON TAX**
2. **INTRODUCTION & FACTSHEET**

In 2009, South Africa made a voluntary commitment to reduce its GHG emissions by 34 percent in 2020 and 42 percent in 2025. As part of its Low Emission Development Strategy developed in 2020 and signatory to the Paris Agreement, it committed to become a net zero emissions economy by 2050[[43]](#footnote-44). South Africa presented an updated NDC in September 2021 where it states to “peak, plateau and decline” its GHG emissions, so that its 2025-30 emissions will be in a range from 398 million to 614 million tCO2e, then decline from 2036 onwards.[[44]](#footnote-45) Carbon tax, along with recycling of the revenues raised, has been recognised as a key policy instrument to support the achievement of the country’s mitigation goals.

In 2019, South Africa passed a Carbon Tax Act[[45]](#footnote-46) and started pricing GHG emissions in all sectors other than waste and Agriculture, Forestry and Other Land Use (AFOLU) - making it the first African county to introduce a carbon pricing scheme.

**Factsheet**

**Year of implementation**: 2019

**Policy system/mechanism(s)**: Levy scheme – carbon tax

**GHGs coverage**: CO2, CH4, N2O, PFCs, HFCs, and SF6

**Pricing**: South Africa's 2021 carbon tax rate is R134/tCO2e (US$7/tCO2e)

**Revenue allocation**: Revenue-neutral during the first phase but includes measures to address negative impacts on low-income households.

1. **CORE DESIGN FEATURES & PRINCIPLE TEST**
* In May 2013 the National Treasury released its “Carbon Tax Policy Paper: Reducing Greenhouse Gas Emissions and Facilitating the Transition to a Green Economy”[[46]](#footnote-47), which lays out the proposed design for the carbon tax and various revenue recycling options. Following several years of consultations and numerous price modelling exercises to determine the appropriate carbon price, the Carbon Tax Act was finally signed in 2019 and came into effect on 1 June 2019. South Africa’s National Treasury decided to implement a carbon tax instead of an ETS because of the oligopolistic structure of industries (few large emitters) and for cost reasons.
* The Carbon Tax Act gives effect to the polluter-pays-principle for large emitters and helps to ensure that firms and consumers take the negative adverse costs (externalities) into account.
* The mechanism includes a two-phase implementation procedure: First phase from 1 June 2019 to 31 December 2022, when the carbon tax is only applied to emitters, and second phase from 2023 to 2030, according to the original schedule. However, the country recently extended the first phase by three years until 31 December 2025. Until then, taxpayers will continue to enjoy sizeable tax-free allowances.
* During the first phase of the carbon tax that has now been extended until December 2025, covered entities are eligible for a series of relief measures, which include:
	+ A basic tax-free allowance of 60% is offered to all emitters;
	+ Entities with process or fugitive emissions are eligible for a further 10%;
	+ A variable tax-free allowance for trade-exposed sectors (up to a maximum of 10%);
	+ Emitters with above average performance relating to sectoral benchmarks will be eligible for a further 5%; and
	+ A further 5% can be applied by companies that have developed an annual carbon budget and report it to the government.
* In the second phase of the carbon tax the above allowances, except for the offset allowance, will fall away.
* As a result of delaying the second phase, some sectors will remain beyond the reach of the carbon tax for now. These include agriculture, forestry and other land use and waste sectors, as well as Eskom, the state-owned power utility. Eskom had factored in the projected cost of the carbon tax in its proposed 21% increase in electricity prices.
* The tax started at R120/tCO2e e (US$6.90/t) and increases each year by 2% plus inflation; accordingly, the tax rate in 2020 was R127/tCO2e coupled with tax-free allowances of 60-95%, a modest rate compared to [international standards](https://static1.squarespace.com/static/54ff9c5ce4b0a53decccfb4c/t/59b7f2409f8dce5316811916/1505227332748/CarbonPricing_FullReport.pdf) of US$40 to US$80 a ton by 2020. After 2022, only increases in line with inflation are expected. An increase to the carbon tax rate to R144 (about US$9) was recently announced and is effective from 1 January 2022.  The tax rate will increase each year by at least US$1 until it reaches US$20. From 2026, the government intends to escalate the carbon price more rapidly every year to reach at least US$30 by 2030, and US$120 beyond 2050.
* Burning fossil fuels for electricity production accounts for the [largest share](https://ourworldindata.org/grapher/ghg-emissions-by-sector?time=latest&country=%7EZAF) of South Africa’s carbon emissions, followed by transport, and the industrial production of materials such as cement. Coal makes up [75%](https://www.dmr.gov.za/news-room/post/1946/remarks-by-the-honourable-minister-of-mineral-resources-and-energy-mr-gwede-mantashe-on-the-occasion-of-the-coal-colloqiuim) of the country’s primary energy supply.[[47]](#footnote-48) The carbon tax has a broad coverage and applies to most stationary and specific non-stationary GHG sources including: (I) Fossil fuel combustion and electricity generation; (ii) fugitive emissions such as methane emissions from mining; and (iii) industrial processes: cement, iron, steel, glass, ceramics. All activities that emit GHGs above a specified threshold will be liable. In general, the threshold is thermal design capacity of 10MW. The waste and AFOLU sectors are exempt from paying the tax or performing MRV until 2022. From the above, it is quite clear that the aim of the Carbon Tax Act is to include the largest emitters of GHG, which is in line with the “polluter-pays” principle (on which the Act is based).
* The carbon tax applies as an addition to pre-existing fuel excise taxes. Exemptions and offset allowances vary by sector. Residential transport is exempt from the carbon tax.
* Companies that are liable to pay the carbon tax may offset between 5% or 10% of their taxable emissions using credits issued by the Clean Development Mechanism, the Verified Carbon Standard or the Gold Standard. Only credits originating in South Africa and from projects that don’t receive benefits from other government incentives, such as the renewable energy procurement programme or the energy efficiency tax incentive, are eligible. The government will consider developing a national carbon standard and assessing other standards.
* The carbon tax aims to provide a price signal to producers and consumers of carbon intensive products, creating an incentive to reduce emissions and invest in low and net zero emissions technologies. While providing a price signal to incentivise the transition to a low-carbon economy, the proposed policy is also intended to reduce the risk of negative competitiveness implications and leakage through special provisions for sectors considered to be at risk. It further aims to pre-empt any possible impacts on trade with countries that may implement Border Carbon Adjustments.
* The carbon tax will be revenue-neutral during the first phase but revenue recycling measures to complement the carbon tax regime have been put in place to: (i) address concerns about the impacts of the carbon tax on the competitiveness of firms operating on international markets (e.g., via tax reductions, tax incentives); (ii) to help address any potential negative impacts on the welfare of poorer households (in particular on the cost of energy and transport). The introduction of the carbon tax will also not have any impact on the price of electricity during the first phase.
* The South African carbon tax is considered an environmental levy, not a tax, as contemplated in Section 54A of the Customs and Excise Act 91 of 1964. Therefore, the administrative actions, as well as the collection and payment of the levy, are also regulated by the Customs and Excise Act. Penalties for non-compliance with the carbon tax would impose a criminal penalty upon conviction and/or an administrative penalty in terms of the Customs and Excise Act.
* The carbon tax is collected and administered by South Africa Revenue Service (SARS). Every facility generating GHG emissions above the threshold must be licensed with SARS as customs and excise manufacturing warehouses for environmental levy purposes.
* The recently announced policy changes also include:
	+ A [tax incentive](https://www.sars.gov.za/wp-content/uploads/Legal/Notes/LAPD-IntR-IN-2017-01-IN95-Deduction-for-energy-efficiency-savings.pdf) for energy efficiency to be extended to 31 December 2025. This tax benefit aims to encourage investment into low and net zero emissions technologies;
	+ Support measures to buffer electricity prices against the carbon tax until 31 December 2025; and
	+ A trade exposure allowance of up to 10 per cent of total GHG emissions for companies that face potential adverse impacts on their competitiveness especially when it comes to exports (the mining sector, for example).
1. **ASSESSMENT: USEFUL FEATURES / BEST PRACTICES**
* Relatively modest carbon tax rate ranging from R6 to R48 per tonne of CO2 equivalent emitted, which is a relatively low tax rate to further provide current significant emitters time to transition their operations to cleaner technologies through investments in energy efficiency, renewables and other low carbon measures.
* Carbon tax on electricity will be revenue neutral in the first phase and have no impact on the price of electricity.
* The methodology for determining the sector-based trade exposure allowance was elaborated in close collaboration with private sector. It has been adjusted from a company to a sector-based trade exposure allowance and will also include imports in the revised formula.
* The South Africa carbon tax targets primarily the large emitters, making them to change their behaviour while giving them time to transition to cleaner technologies by introducing a low carbon tax rate in the first phase.
* To date, the country’s revised NDC targets are still insufficient to limit global warming to 2°C, not to mention the Paris Climate Agreement target of 1.5°C.

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2. [OECD Carbon Pricing and COVID-19](https://www.oecd.org/environment/carbon-pricing-and-covid-19-8f030bcc-en.htm) [↑](#footnote-ref-3)
3. [OECD Framework to Decarbonise the Economy](https://www.oecd.org/economy/greeneco/framework-to-decarbonise-the-economy/) [↑](#footnote-ref-4)
4. [World Bank Group Carbon Pricing Dashboard](https://carbonpricingdashboard.worldbank.org/) [↑](#footnote-ref-5)
5. Government of Canada, Pan-Canadian Framework on Clean Growth and Climate Change (2016), online: <www.canada.ca/content/dam/themes/environment/documents/weather1/20170125-en.pdf>. [PCF] [↑](#footnote-ref-6)
6. PCF, at 6-7. [↑](#footnote-ref-7)
7. *References re Greenhouse Gas Pollution Pricing Act*, 2021 SCC 11. [↑](#footnote-ref-8)
8. *Greenhouse Gas Pollution Pricing Act*, S.C. 2018, c. 12, s. 186, preamble. [GHG PPA] [↑](#footnote-ref-9)
9. Government of Canada, Canada’s 2021 Nationally Determined Contribution Under the Paris Agreement (2021), online: <www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Canada%20First/Canada%27s%20Enhanced%20NDC%20Submission1\_FINAL%20EN.pdf>. [↑](#footnote-ref-10)
10. GHG PPA, Sec 40-41, 55-63, 68, [↑](#footnote-ref-11)
11. GHG PPA, Sec 17-35, 165, 168, Schedule 2; *Fuel Charge Regulations* (2018, c. 12, s. 187) [↑](#footnote-ref-12)
12. GHG PPA, Schedule 2, Table 1-4; Includes: aviation gasoline, aviation turbo fuel, butane, ethane, gas liquids, gasoline, heavy fuel oil, kerosene, light fuel oil, methanol, naphtha, petroleum coke, pentanes plus, propane, coke oven gas, marketable natural gas, non-marketable natural gas, still gas, coke, high heat value coal, low heat value coal, and combustible waste. [↑](#footnote-ref-13)
13. GHG PPA, Schedule 2, Table 4. [↑](#footnote-ref-14)
14. GHG PPA, Sec 168, 171, 173-174; *Output-Based Pricing System Regulations* (SOR/2019-266), Sec 8-9. [↑](#footnote-ref-15)
15. GHG PPA, Sec 179-181, 185. [↑](#footnote-ref-16)
16. GHG PPA, 170, Schedule 3-4. [↑](#footnote-ref-17)
17. *Carbon Tax,* SBC 2008, c.40, Schedule 1-2. [↑](#footnote-ref-18)
18. *Greenhouse Gas Industrial Reporting and Control Act*, SBC 2014, c.29; *Greenhouse Gas Emission Reporting Regulation* (B.C. Reg. 249/2015) [GGERR]; *Greenhouse Gas Emission Control Regulation* (B.C. Reg. 250/2015); *Greenhouse Gas Emission Administrative Penalties and Appeals Regulation* (B.C. Reg. 248/2015); *Zero-Emission Vehicles Act* SBC 2019, c 29; *Greenhouse Gas Reduction (Emissions Standards) Statutes Amendment Act* (Bill 31, 2008); *Landfill Gas Management Regulation* (B.C. Reg. 391/2008); *Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act,* SBC 2008 c.16; *Renewable and Low Carbon Fuel Requirements Regulation* (B.C. Reg. 394/2008); *Climate Change Accountability Act*, SBC 2007, c.42; *Clean Energy Act*, SBC 2010, c.22; *Energy Objectives Regulation* (B.C. Reg. 234/2012 ); *Clean or Renewable Resource Regulation* (B.C. Reg. 291/2010); *Carbon Neutral Government Regulation*, B.C. Reg. 392/2008; BC, Climate Leadership Plan (2016); BC, Clean BC Strategy (2018); Climate Solutions and Clean Growth Advisory Council (2018). [↑](#footnote-ref-19)
19. *Climate Change Accountability Act*, SBC 2007, Ch 42, Sec 2-3, 5-6 [CCAA]; *Carbon Neutral Government Regulation*, B.C. Reg. 392/2008. [↑](#footnote-ref-20)
20. CCAA, Sec 4.2(1-3). [↑](#footnote-ref-21)
21. CCAA, Sec 4.2(4). [↑](#footnote-ref-22)
22. CCAA, Sec 4.3, 7.1. [↑](#footnote-ref-23)
23. GGERR, Sec 8, 27, 29. [↑](#footnote-ref-24)
24. The companies in which Shell plc directly and indirectly owns investments are separate legal entities. In this report “Shell”, “Shell Group” and “Group” are sometimes used for convenience where references are made to Shell plc and its subsidiaries in general. Likewise, the words “we”, “us” and “our” are also used to refer to Shell plc and its subsidiaries in general or to those who work for them. These terms are also used where no useful purpose is served by identifying the particular entity or entities. ‘‘Subsidiaries’’, “Shell subsidiaries” and “Shell companies” as used in this report refer to entities over which Shell plc either directly or indirectly has control. Entities and unincorporated arrangements over which Shell has joint control are generally referred to as “joint ventures” and “joint operations”, respectively. Entities over which Shell has significant influence but neither control nor joint control are referred to as “associates”. The term “Shell interest” is used for convenience to indicate the direct and/or indirect ownership interest held by Shell in an entity or unincorporated joint arrangement, after exclusion of all third-party interest. This report contains forward-looking statements (within the meaning of the U.S. Private Securities Litigation Reform Act of 1995) concerning the financial condition, results of operations and businesses of Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management’s current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Shell to market risks and statements expressing management’s expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as “aim”, “ambition”, ‘‘anticipate’’, ‘‘believe’’, ‘‘could’’, ‘‘estimate’’, ‘‘expect’’, ‘‘goals’’, ‘‘intend’’, ‘‘may’’, “milestones”, ‘‘objectives’’, ‘‘outlook’’, ‘‘plan’’, ‘‘probably’’, ‘‘project’’, ‘‘risks’’, “schedule”, ‘‘seek’’, ‘‘should’’, ‘‘target’’, ‘‘will’’ and similar terms and phrases. There are a number of factors that could affect the future operations of Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this [report], including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for Shell’s products; (c) currency fluctuations; (d) drilling and production results; (e) reserves estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, judicial, fiscal and regulatory developments including regulatory measures addressing climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; (m) risks associated with the impact of pandemics, such as the COVID-19 (coronavirus) outbreak; and (n) changes in trading conditions. No assurance is provided that future dividend payments will match or exceed previous dividend payments. All forward-looking statements contained in this report are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Readers should not place undue reliance on forward-looking statements. Additional risk factors that may affect future results are contained in Shell plc’s Form 20-F for the year ended December 31, 2020 (available at [www.shell.com/investor](http://www.shell.com/investor) and [www.sec.gov](http://www.sec.gov/)). These risk factors also expressly qualify all forward-looking statements contained in this report and should be considered by the reader. Each forward-looking statement speaks only as of the date of this report, [***insert date*]**. Neither Shell plc nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this report. The content of websites referred to in this report does not form part of this report. We may have used certain terms, such as resources, in this report that the United States Securities and Exchange Commission (SEC) strictly prohibits us from including in our filings with the SEC. Investors are urged to consider closely the disclosure in our Form 20-F, File No 1-32575, available on the SEC website [www.sec.gov](http://www.sec.gov). Shell’s operating plan, outlook and budgets are forecasted for a ten-year period and are updated every year. They reflect the current economic environment and what we can reasonably expect to see over the next ten years. Accordingly, Shell’s operating plans, outlooks, budgets and pricing assumptions do not reflect our net-zero emissions target. In the future, as society moves towards net-zero emissions, we expect Shell’s operating plans, outlooks, budgets and pricing assumptions to reflect this movement. [↑](#footnote-ref-25)
25. Shell Canada Energy [↑](#footnote-ref-26)
26. Shell Canada Products [↑](#footnote-ref-27)
27. Shell Chemicals Canada Ltd [↑](#footnote-ref-28)
28. Shell Canada Products [↑](#footnote-ref-29)
29. In July 2021, the Commission adopted a package of proposals to deliver the European Green Deal. The proposals aim to make the EU's climate, energy, land use, transport and taxation policies fit for the task of reducing net GHG emissions by at least 55% by 2030 compared to 1990 levels. [↑](#footnote-ref-30)
30. Both updated targets (2030 and 2050) were enshrined into the European Climate Law on 9 July 2021. [↑](#footnote-ref-31)
31. European Parliament (2003) Art. 1, Directive EC/87/2003 [↑](#footnote-ref-32)
32. See figure 1. Cap reduction applying the linear reduction factor of 2.2% as of 2021 (<https://ec.europa.eu/clima/system/files/2021-10/com_2021_962_en.pdf>) [↑](#footnote-ref-33)
33. Development of EU ETS (2005-2020) <https://ec.europa.eu/clima/eu-action/eu-emissions-trading-system-eu-ets/development-eu-ets-2005-2020_en> and International Carbon Action Partnership (ICAP) EU Emissions Trading System <https://icapcarbonaction.com/en/?option=com_etsmap&task=export&format=pdf&layout=list&systems%5B%5D=43> [↑](#footnote-ref-34)
34. Full list of sectors covered: power and heat generation; industrial processes, including oil refineries, coke ovens, iron and steel plants; cement manufacturing; glass; lime; bricks; ceramics; pulp; paper and board; aviation; CCS networks; petrochemicals; ammonia; non-ferrous metals; gypsum; aluminium; and nitric, adipic and glyoxylic acids. [↑](#footnote-ref-35)
35. See <https://ec.europa.eu/clima/eu-action/funding-climate-action/innovation-fund_en> and <https://ec.europa.eu/clima/eu-action/funding-climate-action/modernisation-fund_en>

Since beginning of program: EUR 69.7 billion (USD 80.7 billion) Collected in 2020: EUR 19.2 billion (USD 21.8 billion) [↑](#footnote-ref-36)
36. See [https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Indonesia%20First/Updated%20NDC%20Indonesia%202021%20%20corrected%20version.pdf](https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Indonesia%20First/Updated%20NDC%20Indonesia%202021%20-%20corrected%20version.pdf) and <https://unfccc.int/sites/default/files/resource/Indonesia_LTS-LCCR_2021.pdf> [↑](#footnote-ref-37)
37. OECD: <https://www.oecd.org/tax/tax-policy/carbon-pricing-indonesia.pdf> [↑](#footnote-ref-38)
38. UN Handbook on carbon taxation for developing countries, 2021 <https://www.un.org/development/desa/financing/sites/www.un.org.development.desa.financing/files/2021-10/Carbon%20Taxation.pdf> [↑](#footnote-ref-39)
39. See <https://www.thejakartapost.com/news/2021/10/18/carbon-tax-despite-paltry-rate-has-businesses-on-edge.html> [↑](#footnote-ref-40)
40. See <https://environment.govt.nz/acts-and-regulations/acts/climate-change-response-amendment-act-2019/> [↑](#footnote-ref-41)
41. See <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/New%20Zealand%20First/New%20Zealand%20NDC%20November%202021.pdf> [↑](#footnote-ref-42)
42. See https://www.mpi.govt.nz/forestry/forestry-in-the-emissions-trading-scheme/updates-and-changes-to-the-ets/ [↑](#footnote-ref-43)
43. See [South Africa's Low Emission Development Strategy](https://unfccc.int/sites/default/files/resource/South%20Africa%27s%20Low%20Emission%20Development%20Strategy.pdf) 23 September 2020 [↑](#footnote-ref-44)
44. See <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/South%20Africa%20First/South%20Africa%20updated%20first%20NDC%20September%202021.pdf> [↑](#footnote-ref-45)
45. See <https://www.gov.za/documents/carbon-tax-act-15-2019-english-afrikaans-23-may-2019-0000> [↑](#footnote-ref-46)
46. <http://www.treasury.gov.za/public%20comments/Carbon%20Tax%20Policy%20Paper%202013.pdf> [↑](#footnote-ref-47)
47. See The Conversation, 2022. <https://theconversation.com/south-africas-carbon-tax-rate-goes-up-but-emitters-get-more-time-to-clean-up-177834> [↑](#footnote-ref-48)