

September 4, 2023

New Zealand Emissions Trading Scheme (NZ ETS)

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1. Overview of climate change policies

In New Zealand, led by the Climate Change Response Act, the Energy Efficiency and Conservation Act, which encourages energy efficiency, energy conservation, and the use of renewable energy, and the Resource Management Act, which encourages the sustainable management of resources, play an important role.

In October 2016, New Zealand announced its greenhouse gas emissions reduction targets under the Paris Agreement. In the September 2017 general election, the government changed from the National Party to the Labour Party in coalition with the Green Party, establishing the Climate Change Response (Zero Carbon) Amendment Act 2019 in November 2019. The Act sets the long-term targets for 2050 and the emissions reduction amount for each greenhouse gas by 2030. Furthermore, the Act established the Climate Change Commission² to provide specialized advance and monitor the achievement of long-term targets.

2. System design of emissions trading

2.1. An overall of the system

Since 2008, New Zealand has implemented the Emissions Trading Scheme (NZ ETS³) as a critical policy to reduce emissions. Initially covering only the forestry sector, this scheme encompasses all greenhouse gases listed in the Kyoto Protocol. The NZ ETS expanded gradually, including the energy, industrial processes, and transport sectors in 2010, followed by the waste and synthetic gases sectors in 2013. From 2025, the scheme will also incorporate the agriculture sector, the largest emissions source, which previously only had reporting obligations.

Under the revision of the scheme in recent years, the NZ ETS has been transitioning to a scheme that stipulates emissions caps like the EU. From 2008 to the middle of 2015, the NZ ETS adopted a scheme linked to the international carbon market⁴ under the Kyoto Protocol and sold fixed-price

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² <https://www.climatecommission.govt.nz/>

³ Currently, a revision of the NZ ETS is under way and public consultations were implemented until August 11, 2023. Going forward, New Zealand plans to revise the scheme taking into account the results of the public consultations, so there is a possibility that this paper will not match the final scheme revision, although it is partially reflected.

Review of the New Zealand Emissions Trading Scheme <https://consult.environment.govt.nz/climate/nzets-review/>

⁴ The available international credits were the ERU (Emission Reduction Unit) using joint implementation (JI), the RMU (Removal Unit) which is the increase in absorption due to afforestation and reforestation, etc., and the CER (Certified Emission Reduction) of

emission units (NZUs) without limits and no caps for the entire country. Subsequently, the government made several revisions based on experts' opinions, culminating in the June 2020 enactment of the Climate Change Response (Emissions Trading Reform) Amendment Act 2020⁵ was established. NZ Government set the cap of the NZ ETS based on the carbon budget, which harmonizes with the greenhouse gas emissions reduction targets and long-term targets. In 2021, alongside the start of NZUs auctions, the government implemented a series of reforms to the scheme. These included abolishing the previous fixed price option⁶ and introducing the Cost Containment Reserve (CCR) to maintain a price cap. Moreover, the government firmly established the policy to include greenhouse gases from the agriculture sector, New Zealand's largest source of emissions, in the scheme starting from 2025.

Figure 1 shows emissions from the target sectors since the scheme's start. The agriculture sector, on which there are no obligations in the system, accounts for approximately 50% of the total emissions, and the percentage of industrial processes within the remaining emissions is negligible. Fixed emissions sources (stationary energy) consist of mining, imports, and consumption of fossil fuels, and the suppliers of fossil fuels (liquid fossil fuel) are about 40%. It is mandatory for the forestry sector, covered by the scheme from the start in 2008, to make up the difference between the amount of absorption due to afforestation and the increase in emissions due to felling. This situation increased emissions from more extensive felling between 2012 and 2014. However, in other years, significant absorption has translated into a substantial number of credits.

Figure 2 shows the surrender of NZU and offset credits. Operators used CERs and ERUs extensively as international credits until mid-2015, annually surrendering many to fulfill their obligations. From 2015 onwards, they primarily used forestry emission units (Forestry NZUs), other NZUs, and the fixed price option.

the clean development mechanism (CDM).

⁵<https://legislation.govt.nz/act/public/2020/0022/latest/whole.html>

⁶ From the beginning of the scheme the government was selling emission rights to the covered operators at a fixed price in order to curb soaring emission rights prices. Initially, they were sold at NZ\$25/t-CO₂e, and in 2020 the price was raised to NZ\$35/t-CO₂e. This functioned as a de facto price cap on the prices of the available emission rights (NZUs) and offset credits.

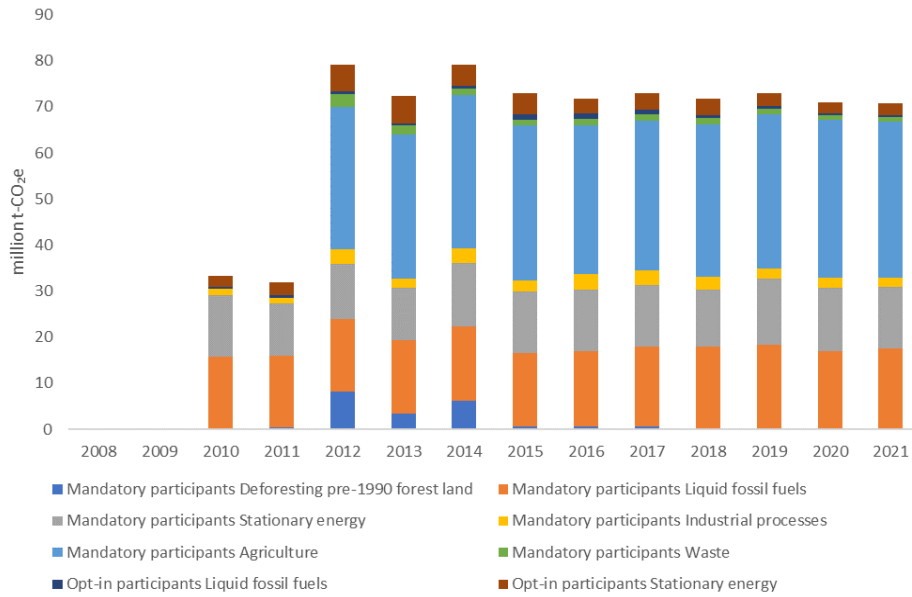


Figure 1: Trends NZ ETS covered emissions

Source: the Environmental Protection Authority, “ETS Participant Emissions” (October 2022)

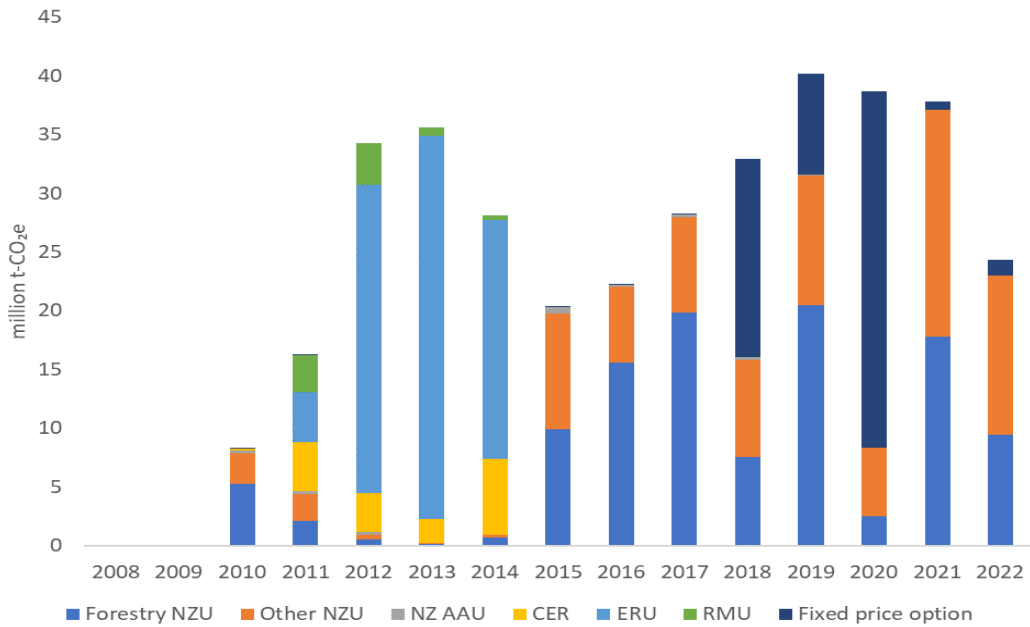


Figure 2: Trends of emission rights and offset credits in NZ ETS

Source: The Environmental Protection Authority, “ETS Unit Movement Report”

On the other hand, NZUs issued in the past have built up a large surplus (it is called a stockpile). As shown in Figure 3, according to the estimate of the NZ government, 151 million t-CO₂e remained in the accounts of NZ ETS participants as of June 2022. The background is that banking of NZUs is allowed in the NZ ETS, and use deadlines, such as in other ETSs, have not been set.

Another cause is that, as shown in Figure 2, from 2012 to 2014, many ERUs were surrendered to comply with the obligations, and NZUs distributed using free allocation were banked in the operators' accounts. The government began considering withdrawal from the offset credit system based on the future Kyoto Protocol in 2012, spurring the stockpiling.

Furthermore, the emission units acquired using the fixed price option from 2018 to 2020 have been amortized and, in the context of ongoing discussions of a scheme revision which would restrict the amount of supply of future NZUs, this has been one of the factors behind many operators selecting the banking of NZUs here as well. In the future, the distribution of NZUs using auctions is planned, but emission rights prices fluctuate due to various factors, so risk avoidance by keeping NZUs close at hand became an objective.

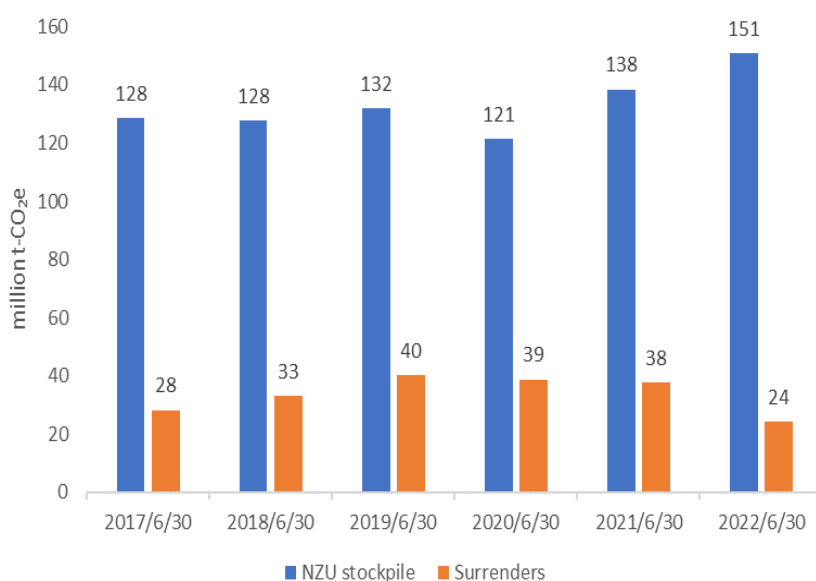


Figure 3: Trends in NZ ETS surplus emission amounts and surrenders of emission rights/offset credits

Source: the Environmental Protection Authority, “Privately Held Units” and “ETS Unit Movement Report”

2.2. Allocation

The NZ ETS has gradually reduced the free allocation from when the scheme was initially started and is advancing the transition to sold allocations using auctions.

When the scheme started in 2008, the government provided a one-off free allocation to owners of forests planted before 1990. From 2010, for industrial sectors, to mitigate impacts on international

competition and cost burdens, the government used the average CO₂ intensity⁷ from 2006 to 2008 in New Zealand as a benchmark (allocative baseline). It distributed 60% of medium emission intensity⁸ (800 to less than 1,600 t-CO₂e/million NZ\$) and 90% of high emission intensity (at least 1,600 t-CO₂e/million NZ\$) as free allocations. Initially, a plan was to decrease these free allocations gradually, but the 2012 revision retracted this. In the 2020 revision, the government reduced free allocations to industrial sectors by 1% annually from 2021 to 2030. Sectors not covered by these free allocations sold NZU using the fixed-price option

The 2020 revision transformed the scheme based on free allocations to auctions. This revision introduced the cost containment reserve (CCR) and a confidential reserve price, in addition to maintaining the previous reserve (floor) price.

The CCR aims to curb rapid rises in the price of emission units by establishing a fixed upper limit to the auction's clearing price and supplying the emission units possessed by the government to the market if the price goes higher than that level. The emission units the government possesses as the CCR are in the form that adds to the emissions cap and differs from the emission units provided to ordinary auctions. If the CCR is triggered, it is designed to ensure that the NZ ETS emissions cap and the NZ ETS emissions amount substantially match by securing emission units through domestic emissions reductions and overseas offset credits following the amount sold.

The government sets the confidential reserve price independently from the former reserve price, keeping it undisclosed before and after the bidding. Regulations mandate that the Minister for Climate Change decides⁹ the confidential reserve price level before each auction, considering the market price of emission units. This design aims to align the auction prices with those in secondary markets, preventing significant divergence.

Figure 4 shows the clearing prices of the emission units auctions started in 2021, the trigger prices of the CCR, and the reserve prices. Furthermore, the government decided¹⁰ that starting from December 2023, the trigger price of the CCR will be divided into two tiers, and the reserve price will also rise. This revision is based on a recommendation of the Climate Change Committee and aims to induce the level of emission rights prices necessary for the achievement of the carbon-neutral target in 2050.

⁷ The amount of CO₂ emissions when calculating the benchmark of the CO₂ intensity is the sum of the amount of direct emissions and the amount of indirect emissions (the electricity emission factor is 0.537 t-CO₂e/MWh).

⁸ Amount of emissions per net sales. 1NZ\$ = 87 yen (August 2023).

⁹ Climate Change (Auctions, Limits, and Price Controls for Units) Regulations 2020

¹⁰ Annual updates to the NZ ETS limits and price control settings for units 2023
<https://consult.environment.govt.nz/climate/annual-updates-nz-ets-unit-settings-2023/>

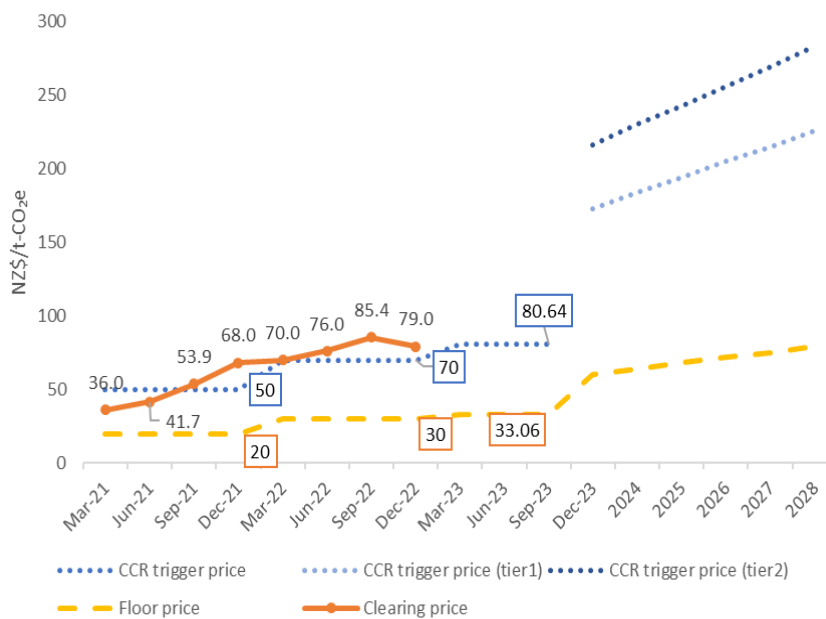


Figure 4: NZ ETS auction contracted prices, price caps, and reserve prices

Sources: the auction contracted prices based on the New Zealand ETS Auctions website and the price caps and reserve prices based on New Zealand government materials

2.3. Offset credits

As shown in Figure 2, until 2015, it was possible to use offset credits based on the Kyoto Protocol, but as of 2023, the transfer of offset credits from overseas is not allowed, and the scheme is confined to New Zealand only.

Furthermore, the Permanent Forest Sink Initiative (PFSI), which until now has issued credits using afforestation from 1989 onward as emission units (Forestry NZUs) of the NZ ETS, was introduced in 2006, but due to the 2020 NZ ETS scheme revision, it has been integrated into the NZ ETS as permanent forestry from 2023.

2.4. MRV

Operators must report their emissions for January to December of the previous year by March 31 every year and submit the same amount of emission units to the register by May 31.

A default emission factor calculated by the government based on the average emissions of each sector is provided for the emissions calculation. Third-person verification is not mandatory, but ETS operators must store the related materials used in their emissions reports for the past seven years, and the government has the authority to audit the materials as necessary. Each year, the Environmental Protection Authority (NZ EPA) randomly selects operators to conduct internal and third-person

verifications of the accuracy of their applications for free allocations and emissions reports. The regulations include penalties such as public disclosure of non-compliant companies and fines for failures to surrender necessary emission units or inaccuracies in emissions reports. These penalties underwent strengthening in the 2020 revision.

Operators mining or burning fossil fuels can use a unique emission factor. When using a unique emission factor, the participants must calculate it themselves, receive third-person verification, and then apply it to the government by January 31 every year.

2.5. Relation with other policies

The revenue from the emission rights auctions begun in 2021 was transferred to the Climate Emergency Response Fund (worth NZ\$45 billion) established in the same year and is being utilized for emissions reduction and adaptation measures.

The auction revenue came to NZ\$1.3 billion in 2021 and NZ\$2 billion in 2022, but in 2023, there were no bidders, so there was no revenue.

3. Implications for GX ETS

The NZ ETS, which started in 2008, is an ETS that includes absorption activities using afforestation in the scheme and has characteristics different from the ETSs of other countries and regions based on the industrial and power generation sectors. Furthermore, until 2015, it was a scheme that mainly made international offset credits usable. However, due to the recent scheme revisions, including the transition to auctions and the reduction of free allocations in stages, it has again been positioned as a significant tool for achieving carbon neutrality by 2050.

These experiences can provide implications for the detailed scheme design of the GX ETS from three perspectives.

Firstly, the ETS covers the forest sink from afforestation, providing a reference for future emissions reduction and atmospheric removal activities in the GX ETS. Domestically, the existing methodology for forestry in the J-Credit Scheme is applicable and could be instrumental in shaping the handling of the future ETS.

Next is the transition from a scheme centered on offset credits to auctions. The background is the international transition trend from the Kyoto Protocol to the Paris Agreement. However, the change to a scheme that restricts the use of offset credits as a national scheme sells emission units at a fixed price and transitions to auctions serves as a reference for one method of transitioning to emission rights auctions for power generation operators from FY2033 as planned by the GX ETS.

Finally, the characteristic cap and reserve price are set in the NZ ETS. It is planned that the GX ETS will also set upper and lower price corridors to encourage emissions reductions, and knowing how those levels were set in NZ ETS is helpful in discussions of the scheme design going forward.

<References>

- Leining, Catherine (2021). "Future Options for Industrial Free Allocation in the NZ ETS." Motu Working Paper 21-13. Wellington: Motu Economic and Public Policy Research https://www.motu.org.nz/wpapers/21_13.pdf
- Leining, Catherine (2022) "A Guide to the New Zealand Emissions Trading Scheme: 2022 Update" Motu Economic and Public Policy Research <https://www.motu.nz/assets/Documents/our-research/environment/climate-change-mitigation/emissions-trading/A-Guide-to-the-New-Zealand-Emissions-Trading-System-2022-Update-Motu-Research.pdf>
- Climate Change Response Act 2002
<https://legislation.govt.nz/act/public/2002/0040/latest/whole.html>
- Climate Change (Eligible Industrial Activities) Regulations 2010
<https://www.legislation.govt.nz/regulation/public/2010/0189/latest/whole.html#DLM3075101>
- Climate Change (Auctions, Limits, and Price Controls for Units) Regulations 2020
<https://www.legislation.govt.nz/regulation/public/2020/0264/latest/whole.html#LMS463952>
- Environmental Protection Authority "Emissions Trading Scheme" <https://www.epa.govt.nz/industry-areas/emissions-trading-scheme/>
- Ministry for the Environment "New Zealand Emissions Trading Scheme"
https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/ets/?limit_27838=9&limit_27365=8
- Ministry for the Environment "Annual updates to the NZ ETS limits and price control settings for units 2023" <https://consult.environment.govt.nz/climate/annual-updates-nz-ets-unit-settings-2023/>
- NZ ETS Auctions <https://www.etsauctions.govt.nz/>
- NZ Treasury "The Climate Emergency Response Fund" <https://www.treasury.govt.nz/information-and-services/nz-economy/climate-change/climate-emergency-response-fund>

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Overview of the New Zealand Emissions Trading Scheme (NZ ETS)

Overview	Name	New Zealand Emissions Trading Scheme
	Legal basis (name of the law)	The Climate Change Response Act 2002 and the related laws
	Overview	The regulations cover this scheme under which forestry, energy (fixed emissions sources), industrial processes, transport (liquid fossil fuels), etc. The obligation to report emissions is imposed on all sectors, including agriculture.
	Supervisory agencies	Ministry for the Environment, Environmental Protection Authority, Ministry for Primary Industries (about forestry)
	scheme started	January 2008
	Period covered by the trading	Regarding the forestry sector, five years has been established (selection of one year is also allowed), but the period is one year for the other sectors covered by the regulations.
Target	Unit	Each owner and operator of forestry
	Main requirements for eligibility	2008 onward: forestry 2010 onward: energy (fixed emissions sources), industrial processes (iron and steel, aluminum, etc.), transport (liquid fossil fuels) 2013 onward: waste, synthetic gases
	Covered gases	CO ₂ , CH ₄ , N ₂ O, SF ₆ , HFCs, PFCs
	Emission point (direct or indirect)	Direct emissions
	Coverage	50% of all emissions ¹¹
	Handling of supplied/purchased heat	-
Target-setting method	Allocation method	<ul style="list-style-type: none"> ● Forestry <ul style="list-style-type: none"> ➤ A one-time-only free allocation was distributed to owners of forestry from before 1990. ➤ Possessors of forestry registered after 1989 are allocated an emission quota by participating voluntarily. ● Industrial processes <ul style="list-style-type: none"> ➤ A free allocation is distributed to maintain international competitiveness concerning industrial and trade activities with a high emission intensity.

¹¹ <https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/ets/coverage-of-the-nz-ets/>

		<ul style="list-style-type: none"> ➤ A free allocation ratio of 90% or 60% of the baseline is applied based on the emission intensity and the content of the trade activities. It has been decided to reduce the free allocation amount in stages from 2021. ● Energy/transport/waste <ul style="list-style-type: none"> ➤ Sold allocations using auctions
Flexibility measures	Banking and borrowing	For banking, excluding the emission quota purchased using the fixed price option is possible. For borrowing, this is not allowed.
	Utilization of other credits	Until June 1, 2015, international credits (CERs, ERUs, RMUs) were allowed without restrictions, but their use has not been allowed since then.
	Price countermeasures (setting of a price cap and reserve price, the market surveillance mechanism)	<p>A reserve price was introduced when the scheme started.</p> <p>2020: the level of the fixed price option was revised from NZ\$25/t-CO₂e to NZ\$35/t-CO₂e</p> <p>2021: a new price cap (cost containment reserve) and confidential reserve price were introduced instead of the fixed price option</p> <p>2023: the levels of the price cap and reserve price were revised</p>
	Burden mitigation and leakage countermeasures	Amortization of an emission quota of one t-CO ₂ e concerning emissions of two t-CO ₂ e in the non-forestry sector was allowed, but the burden mitigation measures ended as of January 2019
	Prices (trading price and auction price), auction volume, market trading volume, breakdown of the market trading participants)	The average price in the trading market in 2022 was NZ\$77.6/t-CO ₂ e.
	Distribution volume	ND
	Trading format	Exchange trading and negotiated trading
Market	Links to other systems (status of consideration)	New Zealand is considering but has not realized collaboration with the emissions trading schemes of other countries.
	Register/MRV method	A register managed by the government
	Background to introduction	Initially, a carbon tax was planned, but support for introducing a carbon tax could not be obtained from the citizens. Finally, the emissions trading scheme was introduced in 2008. The agriculture sector, New Zealand's largest source of emissions, was not covered by the regulations, and only an obligation to report emissions was imposed on that sector

	Effect (emissions reduction effect)	The evaluation of the government is that companies have purchased a large number of international credits through the emissions trading scheme and, as a result, have contributed to the achievement of New Zealand's targets under the Kyoto Protocol, while on the other hand, it has also evaluated that the extent to which this has contributed to the reduction of emissions from the BAU level is unclear.
Reporting method		Generally, reports are to be made by March 31 of the year following the covered year. If the default value is used, third-person verification is unnecessary.
Penal provisions	Compliance cost (on the companies' side), administrative cost (on the regulatory authority's side)	In the case that compliance cannot be achieved, there is a penalty of three times the market price per ton for the excess amount. There is a fine of a maximum of NZ\$50,000 for false reports, etc.
Effect, recent trends, other	Uses for revenue	The auction proceeds are utilized as a Climate Emergency Response Fund
	Recent trends	The cap and reserve price from 2023 onward will be decided and applied in stages from December.