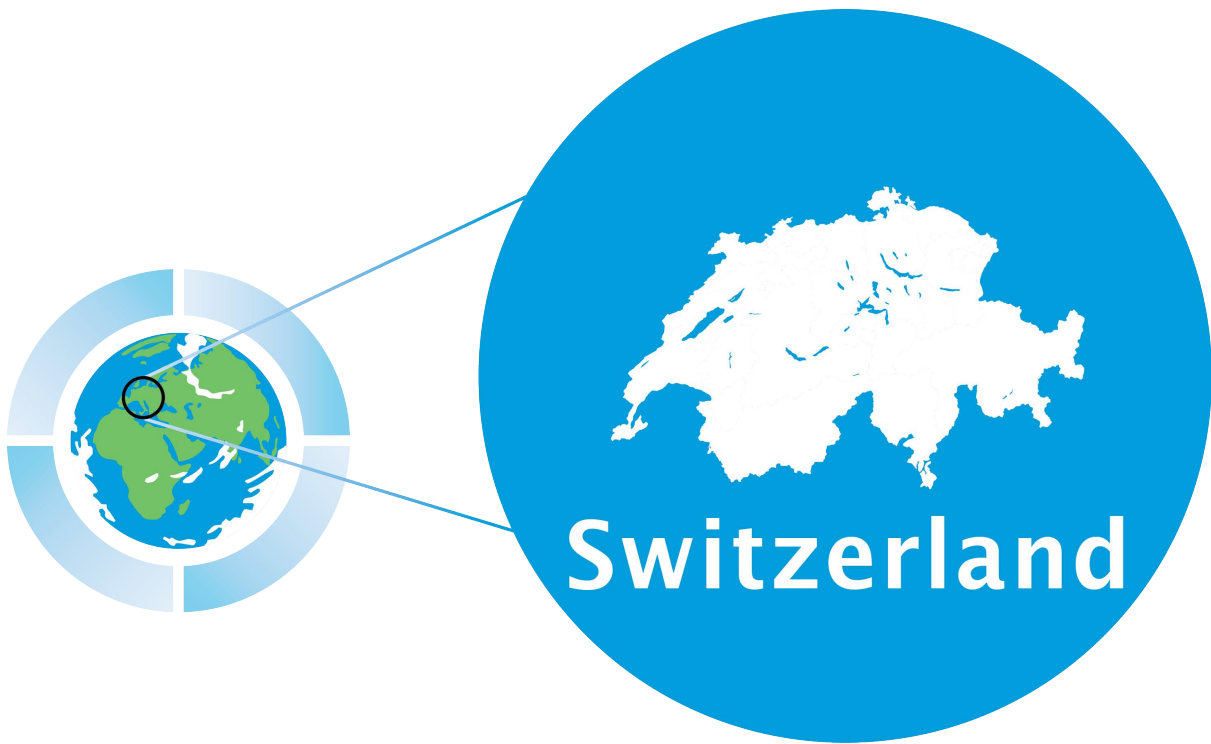




SWITZERLAND: AN EMISSIONS TRADING CASE STUDY



Switzerland

The World's Carbon Markets: A Case Study Guide to Emissions Trading

Last Updated: May, 2015

Switzerland Emissions Trading System: Mandatory Phase (2013-20)	
Target 2020 (KP)	15.8% compared to 1990 levels
Target 2020 (National)	20% compared to 1990 levels
Carbon price	CHF12/tCO ₂ (February 2015)
Greenhouse Gasses covered	Carbon dioxide (CO ₂), nitrous oxide (N ₂ O), methane (CH ₄), nitrogen trifluoride (NF ₃), sulphur hexafluoride (SF ₆) perfluorocarbons (PFCs) and hydrofluorocarbons (HFCs)
Number of Entities Covered	55
Sectors Covered	cement, chemicals, refineries, paper, heat and steel
Threshold	>20MW thermal input and other specific thresholds
% Total emissions covered	85%
Compliance tools & Flexible Mechanisms	Allowance allocation, benchmarks, banking, borrowing, use of offsets

Table 1: Programme Overview

Brief History and Key Dates

Date	Event
2000	Act on the Reduction of CO ₂ Emissions adopted (CO ₂ Act)
2006	Kyoto Protocol ratification enters into force
2007	CO ₂ levy Implemented
2011	Established CO ₂ emission reduction target: 20% reduction below 1990 levels by 2020
2013	Revision of the CO ₂ Act enters into force
2013	Mandatory ETS period begins
2014	Parliament ratifies Swiss commitment of
2015	INDC submitted 50% reduction by 2030 compared to 1990 levels

Table 2: Key Dates

The foundation of Swiss environmental policy was established in 1985 with the Act on the Protection of the Environment (PE Act), which was later revised in 1995 and 2003. In 1999, Switzerland adopted the Act on the Reduction of Carbon Dioxide (CO₂) Emissions (CO₂ Act) as a supplementary environmental policy centred on mitigating CO₂ emissions. The goals and mechanisms outlined in these two Acts were designed to help Switzerland meet its Kyoto Protocol commitment of a 8% greenhouse gas (GHG) reduction relative to 1990 during the period 2008 - 2012. The PE Act enumerates mitigation measures for non-CO₂ GHGs from waste disposal (CH₄), synthetic gases (HFCs, PFCs, SF₆), and GHG precursors. The CO₂ Act covers about 80% of Swiss GHGs.¹ In December, 2011 revisions to the CO₂ Act enumerated a CO₂ reduction target of 20% below 1990 levels (52.5 million tonnes of CO₂) by 2020 the revisions entered into force on 1 January 2013.^{2,3} The country's 2013 emissions were about 52.6 million tonnes of CO₂ equivalent (tCO₂e) excluding air traffic and shipping (48 million tCO₂e).

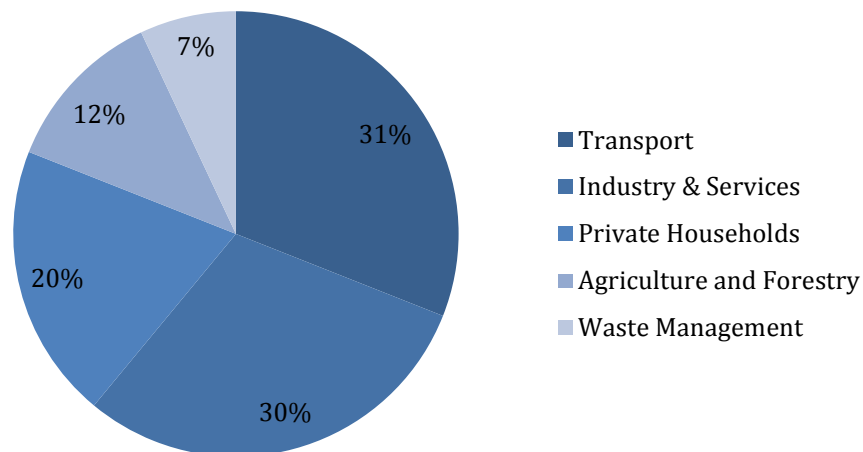


Figure 1: GHG Emissions by Source

Source: UNFCCC, 2015. Available at: unfccc.int

From 2000-12, the overarching goal of the 1999 CO₂ Act was to reduce CO₂ emissions by 10% below 1990 levels. Specifically, the CO₂ Act aimed for a 15% CO₂ reduction from heating and industrial process fuels and an 8% CO₂ reduction from transport fuels. Instruments outlined in the 1999 CO₂ Act included a CO₂ levy^a for heating, industrial process, and transportation fuels, as well as an emissions trading system (ETS) that included Kyoto Protocol flexibility mechanisms.⁴ From 2001 to 2009, approximately 1,900 companies were covered by the levy and/or ETS outlined in the 1999 CO₂ Act.⁵ The CO₂ levy and the ETS are continuing from 2013 to 2020, in accordance with the December 2011 CO₂ Act revisions.⁶

The Swiss ETS was introduced on 1 January, 2008 as an alternative option for complying with the national CO₂ levy on heating, industrial processes, and transport fuels, which also came into effect on that day. For the period 2008-12, firms covered by the levy had two choices: (1) pay the CO₂ levy, or (2) voluntarily set a verified absolute emissions target and associated allowance allocation and participate in the Swiss ETS, which exempted them from the levy.⁷ In essence, the CO₂ levy functioned as a hard price ceiling for covered entities, and the option for ETS participation allowed firms to potentially pay a lower rate for emissions reductions than this ceiling price. For 2008 and 2009 the CO₂ levy was CHF12/tCO₂, and this rate increased to CHF36/tCO₂ for 2010-13. The ETS (with some mandatory participation) and a CO₂ levy have continued after 2012. December 2011 revisions to the Swiss ETS have increased its similarity to the EU ETS, thereby providing comparable market conditions for Swiss and EU industries and improving the prospect of linking with the EU ETS.⁸

At the beginning of 2013, the CO₂ Act and the revised CO₂ Ordinance entered into force. They form the framework for the current Swiss climate policy from 2013 to 2020. In 2014, the CO₂ levy on thermal fuels was increased to CHF60/tCO₂ (16 ct. per litre of heating oil). Switzerland's Ratification of the Kyoto Protocol's second commitment period (2013-20) is currently under consideration by the Parliament.

On 27 February, 2015, Switzerland submitted its **Intended Nationally Determined Contribution (INDC)** to the United Nations Framework Convention on Climate Change (UNFCCC) committing to a 50% reduction in GHG emissions compared to 1990 levels by 2020.⁹ At least 30% of this reduction must be achieved within Switzerland itself. The rest may be attained through projects carried out abroad. These objectives were approved by the Federal Council in November 2014 as part of the definition of the negotiation mandate for the climate conference in Lima. This effort can be met in part, with the use of international credits and corresponds to an average emission reduction of 35% over the period 2021-30 and an overall emission reduction of 50% by 2030 relative to 1990 levels.

Summary of Key Policy Features

CAP & TARGET: As stated above, the CO₂ levy and voluntary ETS were designed to help achieve the 1999 CO₂ Act's goal of reducing **CO₂ by 10% relative to 1990 levels by 2010**. The CO₂ Act was implemented as a means of achieving most of Switzerland's Kyoto Protocol pledge to reduce total GHG emissions **8% relative to 1990 levels for 2008-12**.¹⁰ For 2013-20, Switzerland aims to reduce GHG emissions by **20% relative to 1990 by 2020**; this target corresponds to an absolute reduction target of around 10.5 million tCO_{2e} by 2020, down from 1990 emissions of 52.7 million tCO_{2e}. Estimates indicate that the CO₂ Act will lead to reductions of 8.5 million tCO_{2e}/year, of which 0.8 million tCO_{2e}/year would come from the ETS and 2 million tCO_{2e}/year would come from the CO₂ levy. The Federal Council may increase this 20% reduction target to up to 40%, if an international agreement were to arise.¹¹

^a According to FOEN, "the term 'levy' has been used in order to distinguish the CO₂ levy from a conventional tax, since the revenue from the levy is not channeled into the national budget, but is returned in its entirety to the population (via reduction of health insurance premiums), to businesses that pay it (in the form of a cut in old-age pension contribution), and to the buildings program." Source: *Supra*, Note 3.

Swiss ETS targets are absolute. In the mandatory phase beginning in 2013 the overall cap of 5.63 million tCO_{2e} was set for 2013 and is to be reduced by 1.74% annually to 4.9 million tCO_{2e} by 2020.¹² In 2015, the cap amounts to roughly 5.44 million tCO_{2e}.¹³

SCOPE & COVERAGE: The Swiss ETS **point of regulation** is at the company-level; at the point of combustion. In the period 2008 - 2012, it covered firms that set absolute caps—approved by federal authorities—for themselves in order to receive exemption from the CO₂ Act's carbon levy. Gasses covered by the levy are: CO₂, nitrous oxide (N₂O), methane (CH₄), nitrogen trifluoride (NF₃), sulphur hexafluoride (SF₆), perfluorocarbons (PFCs) and hydrofluorocarbons (HFCs).¹⁴ The lower **emissions threshold** for a company to qualify as a direct participant is set at 0.25 million tCO_{2e}/year.¹⁵ Medium-sized companies belonging to sectors intensive in greenhouse gases, whose CO₂ tax represents a significant burden in comparison to their value added, and whose total thermal input exceeds 10MW thresholds, can apply to participate in the ETS voluntarily (opt-in). Emission reduction obligations are imposed on installations whose thermal input exceeds 100 MW.¹⁶

In 2008-12, the Swiss ETS covered heating and process fuels. Sectors with companies covered by the ETS included ceramics, paper, plastics, aluminium, glass, chemistry, metal-working and engineering, foodstuffs and lime, foundries, printers, and haymakers. The compliance periods within the Swiss ETS were annual.¹⁷

For 2013-20, the Federal Council will specify economic sectors whose installations operating with high or moderate GHG emissions may **apply to participate in the ETS**. In designating the covered economic sectors, the Federal Council must take into account: (1) the correlation between the CO₂ levy burden and the value added of the specified economic sector, and (2) the extent to which the CO₂ levy adversely affects the specified sector's economic competitiveness. In addition, the **Federal Council may mandate compulsory ETS participation** from sectors with high GHG emissions per installation. As was the case during 2008-12, ETS participants are exempted from the CO₂ levy in 2013-20.¹⁸

ALLOWANCE DISTRIBUTION & AUCTION OVERVIEW: From 2008-12, allowances were **distributed free of charge** to Swiss ETS participants. The quantity of allowances that a company received was determined via a **“bottom-up” approach**. Federal authorities verified the company's potential to reduce CO₂ emissions from both a technical and economic standpoint, based on both projected production and CO₂ emissions, and CO₂ reduction measures already implemented. As mentioned above, small and medium enterprises (SMEs) that volunteered to set an emissions target or follow an emissions reduction plan did not receive free emissions allowances. If, however, the emissions for an SME exceeded the target level, then the company was allowed to purchase allowances in order to fulfil its commitment.¹⁹

For 2013-20, the Federal Council allocates allowances annually. Allocations are calculated using benchmarks similar to those applied in EU ETS allocation. The maximum amount of emission allowances that can be assigned per unit of production are defined by product benchmarks for new entrants, the Federal Council has created a reserve of 5% of emissions allowances. The number of free allowances is adjusted to account for the risk of carbon leakage.²⁰ Since the start of the Second Period (2013-20), allowances that have not been freely allocated are auctioned by the Federal Office for the Environment (FOEN) on the Swiss emission trading registry (EHR).

FLEXIBILITY PROVISIONS:

International offsets

Emission Reduction Units (ERUs), Certified Emission Reductions (CERs), and Removal Units (RMUs) are accepted international offset credits within the Swiss ETS. Temporary certificates from carbon sink projects (RMUs, tCERs, and ICERs), such as afforestation and reforestation, are allowed, but they cannot be banked for use in future commitment

periods. The FOEN may ask companies that use temporary credits to guarantee that additional offsets are purchased once temporary credits expire.

- Based on the revised CO₂ Act, the Swiss ETS defined similar offsets use rules to the EU ETS. As a consequence, the maximum quantity of emissions reduction certificates that an ETS company may surrender is calculated as follows.²¹ For fixed installations that have already been taken into account in the ETS from years 2008-12: 11% of five times the average allowances allocated annually in this period; the emission reduction certificates taken into account in this period are deducted. For the remaining fixed installations and greenhouse gas emissions: 4.5% of the greenhouse gas emissions from years 2013-20^b
- For fixed installations during the years 2013-20 have only been intermittently taken into account in the ETS, the maximum quantity of emission reduction certificates is reduced according to the applicable duration.^c

The maximum quantity of emission-reduction certificates for fixed installations is reduced to a maximum of 8% of five times the average allowances allocated annually during the years 2008-12 minus the emission-reduction certificates taken into account in this period.²²

There are no limits for **banking** Swiss allowances or international AAUs for use in 2013-20. The banking limit through the next commitment period for both CERs and ERUs is 2.5% of banked AAUs. However, companies may not bank RMUs, tCERs, and ICERs for use in the next commitment period.²³ **Banking** and **Borrowing** were allowed within the first commitment period, 2008-12.²⁴ Most credits issued from Clean Development Mechanism (CDM) projects in Non-Annex I countries are allowed, whereas credits from other countries need to have been registered and implemented before 31 December 2012.

For 2013-20, measures carried out abroad may achieve a maximum of 75% of additional reductions in GHG emissions. Reductions that qualify as “abroad reductions” must have been achieved without support of Switzerland, and, in developing countries, they must contribute to sustainable development while having zero negative social or ecological impacts.²⁵

Linking

Switzerland and the EU have been involved in discussion regarding the linking of their ETS programmes since 2010. On 26 March, 2015, Switzerland and the EU entered into the seventh round of negotiations on linking their emission trading schemes.²⁶ In order to successfully link programmes, emission allowances need to be mutually recognisable within both systems. The design of the revised CO₂ Act (which entered into force 1 July, 2013) has taken into account the possibility of linking and contains provisions that are compatible with EU ETS design. The Swiss are in favor of linking with the EU ETS because a larger market^d provides for greater cost-effective reduction potential, liquidity, price stability, and flexibility in achieving targets. Furthermore, linkage would enable Swiss companies to participate in the same market as EU business partners which can help minimize potential competitiveness concerns.²⁷ Both sides have confirmed their desire to finalize a linking agreement in the first half of 2015.²⁸

MARKET REGULATION & OVERSIGHT: Swiss ETS credits exist electronically and are listed on the FOEN-managed²⁹ **National Emissions Trading Registry**, which is an online accounting system that, according to FOEN “ensures the issuance, holding, transfer, acquisition, cancellation and surrender of emission credits are accurately recorded” and that federal reduction targets are achieved.³⁰ After the federal government approves a company’s baseline, the agreed-upon quantity of allowances (the amount of tax-exempt emissions) appears on the Registry under the company’s name. Companies with emissions that exceed their allowance allocation buy credits on the Registry, and

^b Amended by No I of the Ordinance of 8 Oct. 2014, in force since 1 Dec. 2014 (AS 2014 3293).

^c Amended by No I of the Ordinance of 8 Oct. 2014, in force since 1 Dec. 2014 (AS 2014 3293).

^d EU scheme includes over 11,500 companies covering approximately 2 billion tCO₂

companies that emit below their caps either bank or sell credits. The annual submission of credits occurs via the Registry and Registry data must be published electronically, unless specially protected. The Registry also connects Swiss ETS participants to Kyoto flexibility mechanisms, and transactions involving these units are subsequently approved by the UN.

Companies with obligations under the CO₂ Act are required to have an account in the **Swiss Emissions Trading Registry** between 2013 and 2020. Businesses and individuals wishing to voluntarily trade emission allowances can also open an account in the Registry.

For 2008-12 period, the **penalty** for companies that failed to achieve their Swiss ETS targets required the retroactive payment of the carbon levy (plus interest) for each ton of CO₂ emitted since the company's exemption.³¹ For 2013-20, companies that fail to surrender enough emissions allowances and/or emissions reduction certificates **must pay the Confederation CHF125/tCO₂e** by the following year.³²

COMPLEMENTARY MEASURES:

CO₂ Levy

As noted above, the CO₂ Act envisions the Swiss ETS and the carbon levy as alternative compliance options. This dual-policy approach allows companies to bypass carbon levy payments if they voluntarily join the Swiss ETS. Beginning in 2013, specified companies face mandatory ETS participation.³³

From 2008-12, companies were covered by the **CO₂ levy** if its emissions exceeded a set percentage of its 1990 emissions from fuel combustion. Beginning 1 January, 2009, a company that emitted greater than 90% of its 1990 emissions level in 2007 was covered by the levy. By 2010, if a company emitted more than 90% of its 1990 emissions level in 2007 it would be covered by the levy. In 2010, if a company emitted more than 86.5% of its 1990 emissions in 2008, or more than 85.5% in any subsequent year, it would be covered by the levy.³⁴ For 2008 and 2009, the levy was CHF12/tCO₂. The rate was increased to CHF36/tCO₂ in 2010 and remained in place through 2012.³⁵ There were reduced levy rates for natural gas and biofuels.³⁶ In addition, the CO₂ Act earmarked a maximum of up to CHF200 million of government revenue from the CO₂ levy for the financing of CO₂ reduction measures in buildings.³⁷

The December 2011 revisions to the CO₂ Act altered future (2013-20) aspects of the CO₂ levy. The revisions enumerate how **revenues are returned to the population**. One-third of revenue from the CO₂ levy, but no more than CHF300 million/year, may be used to finance measures to reduce CO₂ emissions from buildings.³⁸ In addition, a maximum of CHF25 million/year of revenues from the CO₂ levy may be allocated to the Technology Fund, which will use this money to guarantee loans to companies that aim to develop and market equipment and processes to reduce GHG emissions, facilitate the use of renewable energies, or encourage the economic use of natural resources.³⁹

The rate of the levy began with CHF36/tCO₂e, the Federal Council may increase the rate if interim targets are not met but cannot raise this levy above CHF 120/tCO₂e.⁴⁰ The Federal Council has authority to designate economic sectors subject to the levy, taking into account: (1) the correlation between the CO₂ levy burden and the value added of the economic sector concerned; (2) the extent to which the CO₂ levy adversely affects international competitiveness; and (3) the average GHG emissions agreed on for the years 2008-12. From 2013-20, companies that commit to a quantified emission limitation or participate in the ETS may be eligible for exemption. The noncompliance penalty is CHF125 for each excess tCO₂e that is emitted.⁴¹ In January 2014, the Federal Council made the first adjustment to the levy increasing it to CHF60.⁴²

Supplementary Measures⁴³

Apart from the carbon tax and the opt-in ETS compliance option, the **CO₂ Act of 1999** outlined the following supplementary measures: (1) a binding target for average CO₂ emissions from new cars; (2) the implementation of emissions reduction measures at home and abroad that allows producers of fossil propellant fuels to fulfil an obligation to cover a quarter of their emissions; and (3) enhanced climate change adaptation activity.⁴⁴ The **December 2011 CO₂ Act revisions** focus on emissions reductions from buildings, passenger cars, and sinks.⁴⁵ The following programs are examples of these initiatives;

Buildings Program: Aims to improve thermal regulation of buildings by promoting renewable energy sources, waste-heat recovery and building technology.

Reducing transport emissions through: (1) the introduction of CO₂ limits from new cars; (2) domestic and international projects to reduce emissions from specific parts of the transport sector; and (3) the option to introduce a CO₂ levy on transport fuels. In addition to this, motor fuel importers are required to pay compensation in the form of a surcharge of 2-5% of CO₂ emissions between 2014 and 2020.

Supporting international emission reductions: The Swiss Agency for Development and Cooperation (SDC), the State Secretariat for Economic Affairs (SECO) and the Federal Office for the Environment (FOEN) support various international initiatives to reduce emissions and help combat the effects of climate change.

RESULTS: From 2008 to 2010, ETS emissions were lower than targeted levels (Table 3). According to FOEN (2011), *“this outperformance demonstrates that the companies take their responsibilities towards the federal authorities seriously and in some cases have invested early in carbon reduction measures.”*⁴⁶

	2008	2009	2010
Emission Target (Allocated emission allowance)	3.3 MtCO ₂	3.1 MtCO ₂	3.42 MtCO ₂
CO₂ Emissions (effective)	2.9 MtCO ₂	2.6 MtCO ₂	2.85 MtCO ₂
Over-performance (surplus emission allowances)	0.4 MtCO ₂	0.5 MtCO ₂	0.57 MtCO ₂

Table 3: Overview of ETS Performance 2008-10 (million tonnes CO₂)

Source: FOEN, 2011. Available at: bafu.admin.ch

Overall Switzerland has experienced “zero growth” in emissions since 1990, without the implementation of climate and energy policies in the early 2000’s, emissions for the 2008-12 period are estimated to have been 8% higher than 1990 levels.⁴⁷

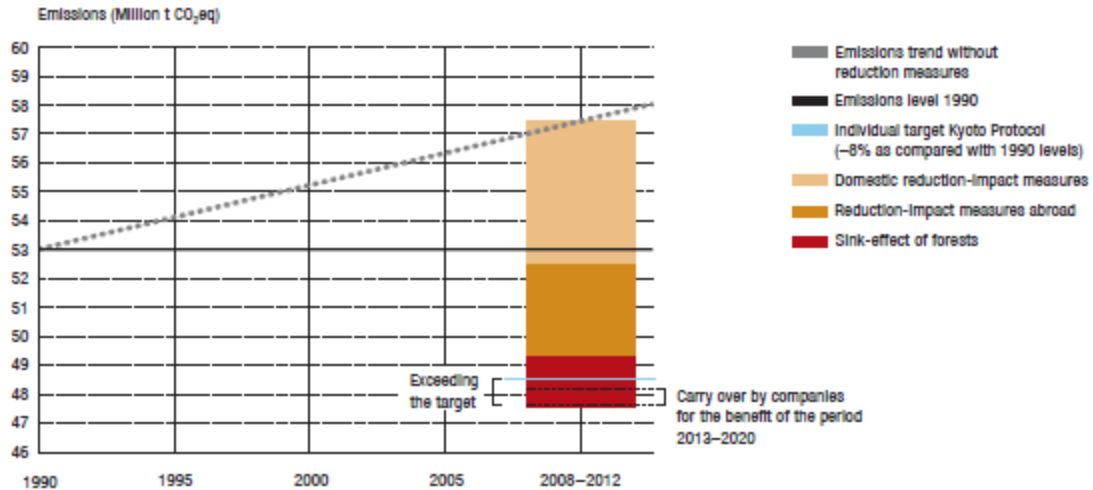


Figure 2: Measures to meet the Kyoto Protocol Target.

Source: FOEN, 2014. Available at: bafu.admin.ch pg. 11

Price development

Since the start of the Second Period (2013-20), eight auctions have been organized (four competitive and four noncompetitive).⁴⁸ The first auction took place in May 2014, where 150,000 emission allowances were auctioned at CHF40.25 /tCO₂ over these two distinct proceedings. Since May 2014, the price of Swiss emission units (CHU) has been declining. In November 2014, the CHU auctioning average price was CHF20/tCO₂ and reached CHF12/tCO₂ in February 2015.⁴⁹

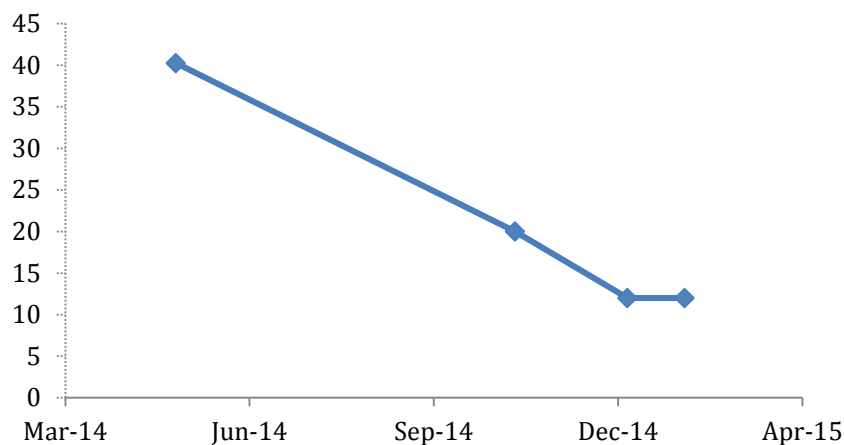


Figure 3: Swiss carbon price development, 2014 to 2015 (price p/tCO₂)

Source: Swiss emission trading scheme registry, 2015. Available at: emissionsregistry.admin.ch

What Distinguishes This Policy?

UNIQUE ASPECTS

1. During the period 2008-12, the ETS worked as a **voluntary opt-in program that provided an alternative way to comply with a carbon levy**. This is not how the vast majority of emissions trading systems have been designed. In 2013-20, the Swiss ETS **will move from a customized system to a standardized (EU-style) system**, as Switzerland continues linkage negotiations with the EU.
2. Entities face absolute caps, but the system as a whole does not stipulate an absolute cap. This is a byproduct of the **“bottom-up” allowance allocation methodology**.
3. The Swiss ETS is relatively **small in size**—3.42 million tCO₂ in 2010. By contrast, the Tokyo ETS covers approximately 13 million tCO₂e annually,⁵⁰ and the EU ETS (Phase II) covers approximately 2,083 million tCO₂e/year; so, the Swiss ETS’s emissions coverage is 26.3% that of the Tokyo ETS and approximately 0.16% that of the EU ETS.

CHALLENGES

1. Modifying certain program characteristics in order to **link with the EU ETS**, and defining terms for the inclusion of emissions from aviation.
2. The **small size** of this market results in less cost-effective reduction potential, liquidity, price stability, and flexibility in achieving targets.

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