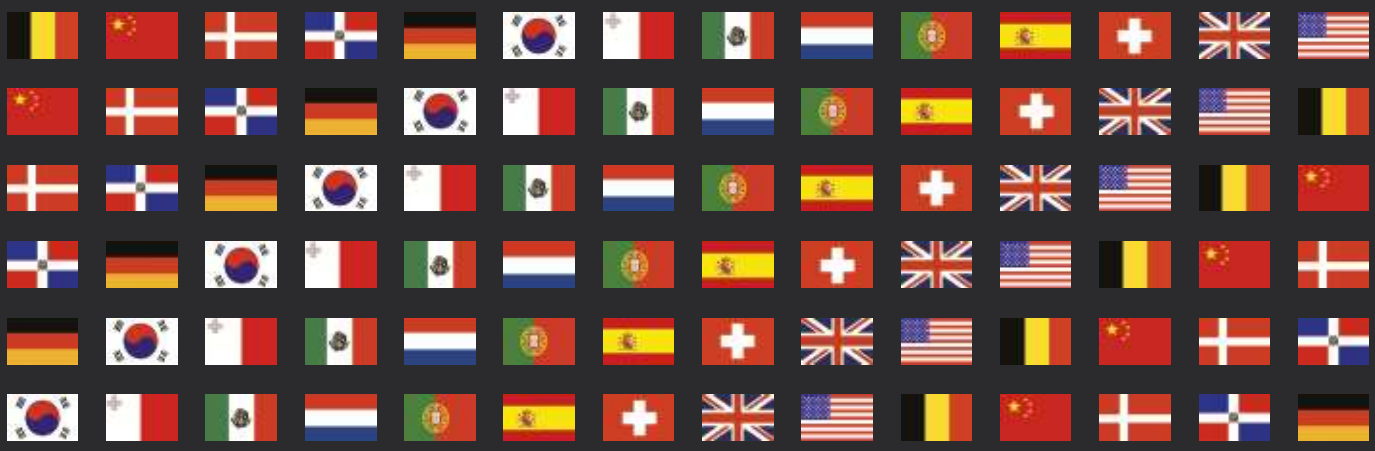
Environment & Climate Regulation 2020

Contributing editors
Carlos de Miguel Perales, Jesús Andrés Sedano Lorenzo and Per Hemmer



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Getting The Deal Through

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Lexology Getting The Deal Through is delighted to publish the fifth edition of *Environment & Climate Regulation*, which is available in print and online at www.lexology.com/gtdt.

Lexology Getting The Deal Through provides international expert analysis in key areas of law, practice and regulation for corporate counsel, cross-border legal practitioners, and company directors and officers.

Throughout this edition, and following the unique Lexology Getting The Deal Through format, the same key questions are answered by leading practitioners in each of the jurisdictions featured. Our coverage this year includes a new chapter on Belgium.

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Every effort has been made to cover all matters of concern to readers. However, specific legal advice should always be sought from experienced local advisers.

Lexology Getting The Deal Through gratefully acknowledges the efforts of all the contributors to this volume, who were chosen for their recognised expertise. We also extend special thanks to the contributing editors, Carlos de Miguel Perales and Jesús Andrés Sedano Lorenzo of Uría Menéndez and Per Hemmer of Bech-Bruun, for their continued assistance with this volume.

LEXOLOGY
Getting The Deal Through

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CLIMATE REGULATION

Switzerland

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MAIN CLIMATE REGULATIONS, POLICIES AND AUTHORITIES

International agreements

1 | Do any international agreements or regulations on climate matters apply in your country?

Switzerland has ratified numerous international agreements that pursue the protection of the environment – for example, Switzerland ratified:

- the Montreal Protocol on Substances that Deplete the Ozone Layer in 1988;
- the United Nations Framework Convention on Climate Change in 1993;
- the Kyoto Protocol on emission reduction targets in 2003;
- the Stockholm Convention on Persistent Organic Pollutants in 2003; and
- the Paris Climate Agreement in 2017.

Most of the international agreements on environmental matters do not contain self-executing provisions. Therefore, after ratifying such agreements, Switzerland amends its national legislation in order to comply with the international requirements. For example, after ratifying the Paris Convention, Switzerland is now in the process of revising the Federal Act on the Reduction of CO_2 Emissions (see question 4).

International regulations and national regulatory policies

2 | How are the regulatory policies of your country affected by international regulations on climate matters?

The commitments Switzerland has made by ratifying international treaties (see question 1) govern national regulatory policies. As soon as international treaties enter into force in Switzerland, they become valid and legally binding in the Swiss legal system. Self-executing provisions of international treaties may be applied directly to private parties. If the international treaties do not contain self-executing provisions, they require implementation in the national legislation.

If a conflict between an international treaty and national law cannot be resolved, the Swiss authorities and courts generally give priority to international law. Excluded from this principle, however, are subsequent, directly applicable constitutional law and subsequently enacted federal laws by which the Federal Assembly deliberately contradicts international law.

Main national regulatory policies

3 | Outline recent government policy on climate matters.

Under the Paris Convention Switzerland has undertaken to halve its greenhouse gas emissions by 2030 compared with 1990 levels. The Federal Council decided in August 2019 to set an even more ambitious target: Switzerland plans to reduce its net carbon emissions to zero by 2050, in order to meet the internationally agreed target of limiting global warming to a maximum of 1.5°C when compared with the pre-industrial era. In Switzerland, CO_2 emissions from transport, buildings and industry could be reduced by up to 95 per cent by 2050 through technologies that are already available and by using renewable energy sources. There is also high potential for reducing greenhouse gases in agriculture, in particular in regard to methane and nitrous oxide.

A key element to the Swiss policy on climate matters is the Energy Strategy 2050. The Energy Strategy 2050 moves Switzerland's energy policy in a new direction. The aim is to withdraw from the use of nuclear energy on a step-by-step basis and gradually restructure the Swiss energy system by 2050. The new strategy calls for a significant increase in energy efficiency, the increased use of renewable energy and the reduction of energy-related CO_2 emissions (for more details see question 27).

Main national legislation

4 | Identify the main national laws and regulations on climate matters.

The main national act is the aforementioned Federal Act on the Reduction of CO_2 Emissions (the CO_2 Act) enacted in 2000, which aims at the reduction of greenhouse gas emissions and in particular CO_2 emissions that are attributable to the use of fossil fuels (thermal and motor fuels) as energy sources with the aim of contributing to limiting the global rise in temperature to less than 2°C.

The CO_2 Act was superseded by an entirely new version in 2013. At the moment it is being revised to comply with the Paris Convention. The new CO_2 Act is not expected to be passed before 2020. In addition to the CO_2 Act a number of executive ordinances exist that regulate climate matters in more detail. The Federal Ordinance on Reduction of CO_2 Emissions (the CO_2 Ordinance) is of particular importance.

Another key act is the Federal Energy Act (EA). The EA's objective is a sufficient, diversified, secure, economical and environmentally sustainable energy supply. Energy production shall be transformed and based on the use of renewable energies, in particular domestic renewable energy. One of the priorities of the EA is to improve the efficient use of energy. The details for implementing the EA are outlined in the Energy Ordinance (EO).

National regulatory authorities

5 | Identify the national regulatory authorities responsible for climate regulation and its implementation and administration. Outline their areas of competence.

The Federal Office for the Environment (FOEN) is responsible for the implementation of the Kyoto Protocol as well as the Paris Convention and of national law on climate matters. It is equally in charge of finding ways to reduce emissions and adapt to climate change as well as

analyse the effectiveness of these measures. The Swiss Federal Office of Energy (SFOE) has the responsibility of defining and implementing a national energy policy. The Swiss Federal Customs Administration (FCA) is responsible for collection and reimbursement of the CO_2 levy.

GENERAL NATIONAL CLIMATE MATTERS

National emissions and limits

6 What are the main sources of emissions of greenhouse gases (GHG) (or other regulated emissions) in your country and the quantities of emissions from those sources? Describe any limitation or reduction obligations. Do they apply to private parties in your country?

The total amount of 47.24 million tonnes CO_2eq (CO_2eq corresponds to the sum of all greenhouse gases) in 2017 can be attributed to the following main sources of emissions of GHG (as per April 2019):

- transportation: 15.01 million tonnes CO_2eq;
- buildings: 12.59 million tonnes CO_2eq;
- industry: 9.55 million tonnes CO_2eq;
- agriculture: 6.51 million tonnes CO_2eq; and
- waste: 3.58 million tonnes CO_2eq.

In the frame of the Kyoto Protocol, the Paris Convention and the CO_2 Act, there are the following reduction obligations:

- Kyoto Protocol: average reduction of total emissions of all greenhouse gases over the period 2013–2020 by 15.8 per cent relative to 1990;
- Paris Convention: reduction of the greenhouse gas emissions by 50 per cent levels by 2030 compared to 1990; and
- CO_2 Act: reduction of total emissions of all greenhouse gases by 20 per cent by 2020 relative to 1990.

Reduction measures apply to private parties as well.

National GHG emission projects

7 Describe any major GHG emission reduction projects implemented or to be implemented in your country. Describe any similar projects in other countries involving the participation of government authorities or private parties from your country.

To comply with emission targets set out in the Kyoto Protocol and Paris Convention, Switzerland has launched a number of GHG emission reduction projects:

- One of the key tools to achieve the statutory CO_2 emission target is the CO_2 levy that has been imposed on fossil fuels such as heating oil or natural gas since 2008 (for more details see question 12). This levy on fossil fuels intends to create an incentive to use climate-damaging substances more economically and utilise more carbon-neutral or low-carbon energy sources. It increases if emissions are not within the specified target path. CO_2-intensive companies can be exempted from the CO_2 levy if they voluntarily commit to reducing their emissions in return. In addition, in the case of participation in emissions trading, companies are entitled to a refund of the CO_2 levy.
- Swiss emissions trading scheme (Swiss ETS): the Swiss ETS obligates companies engaged in specific activities to reduce their CO_2 emissions. By complying with the prescribed targets, the concerned companies benefit from being exempt from the CO_2 levy. A maximum quantity of emission allowances is defined for each year in advance. This is allocated to the participating companies, which can then trade their allowances. Emission allowances are tradable rights to emit greenhouse gases allocated by the Swiss Confederation or by states with emissions trading schemes (ETS) recognised by the Federal Council. The Swiss ETS is separate from the ETS of the European Union, but both Switzerland and the EU pursue the goal of linking the two systems. An agreement to that effect was signed in 2017. It was approved by the Swiss Parliament in 2019 and must now be ratified by Switzerland and the EU before it can enter into force on 1 January 2020 (see question 13). Under the current CO_2 Act, to a limited degree, trade of emission reduction certificates issued in accordance with the international procedure of the UN Climate Convention and its Kyoto Protocol remains possible under the Swiss ETS. Emission reduction certificates are internationally recognised tradable documents that attest to the reduction of emissions achieved abroad. They authorise the holder (under certain conditions) to offset these against his reduction commitments. In line with the EU, Switzerland plans not to allow any more emission reductions certificates certified under the Kyoto Protocol in the Swiss ETS as of 2021. Which emission reduction certificates will be permitted under the Paris Convention und correspondingly in the Swiss and EU ETS is currently still unclear and a matter of negotiation.
- Building programme: the federal government and the cantons use the building programme to promote energy-efficient renovation of building shells, the use of renewable energies and waste heat and the optimisation of building technology.
- Reduction of CO_2 emissions of new passenger cars, vans and certain lorries: to achieve a reduction in CO_2 emissions, Swiss car importers have been obligated to reduce the emissions of vehicles that are registered in Switzerland for the first time. In 2020, the permitted average emission level will be reduced to 95 grams CO_2 per kilometre for passenger cars and 147 grams CO_2 per kilometre for vans and the concerned lorries. Based on these thresholds, each importer's fleet must meet an individual target which is calculated by the Swiss Federal Council. If an importer exceeds their individual target, a penalty of 95 to 152 Swiss francs will be imposed on each additional gram of CO_2.
- Alongside natural CO_2 sinks (such as forests and the soil), technologies that permanently remove greenhouse gases from the atmosphere and store them (see question 25) are to be used in the future to offset the remaining emissions. Swiss industry and research is playing an important role in the development of these emission technologies.
- Technology Fund: with a technology fund, the Confederation promotes innovations that reduce greenhouse gas or the consumption of resources, the use of renewable energies and increase energy efficiency. Guarantees make it easier for innovative firms to take out loans.

DOMESTIC CLIMATE SECTOR

Domestic climate sector

8 Describe the main commercial aspects of the climate sector in your country, including any related government policies.

Following the Fukushima disaster, the Federal Council and Parliament have decided to phase out nuclear energy gradually. Existing nuclear power plants may continue operation as long as they run safely, but they shall not be replaced. The first Swiss nuclear power plant is to be shut down by the end of 2019. The construction of new nuclear power plants will be prohibited. With this development, there is vast potential for the introduction of renewable energy sources in Switzerland.

The renewable energy sector has been subsidised by national as well as cantonal governments for many years. Hydropower plays a

particularly important role in Switzerland, especially in the Alps where most of the water reservoirs are found. The hydropower market is worth around 1.8 billion Swiss francs and is therefore an important segment of Switzerland's energy industry. In line with its 2050 Energy Strategy the federal government promotes the future use of hydropower by renovating and expanding existing power plants to increase the average annual production of electricity from hydropower to 38,600 gigawatt hours by 2050. The solar power industry is not as significant but has enormous potential: by 2050 it would be possible to meet around 20 per cent of the current level of electricity demand in Switzerland through the use of photovoltaic systems. There is also still plenty of potential for wind energy in Switzerland: by 2030 it would be possible to produce around 600 gigawatt hours of electricity a year.

GENERAL GHG EMISSIONS REGULATION

Regulation of emissions

9 | Do any obligations for GHG emission limitation, reduction or removal apply to your country and private parties in your country? If so, describe the main obligations.

A key instrument of the existing environmental and climate policy is the CO_2 Act. Together with the CO_2 Ordinance, it provides the legal framework for the regulation of domestic greenhouse gas emissions. The CO_2 Act and the CO_2 Ordinance implement the objectives of the Kyoto Protocol and Paris Convention.

The CO_2 Act and CO_2 Ordinance stipulate the following regulations for CO_2 emissions:

- Swiss ETS: pursuant to the CO_2 Act and the CO_2 Ordinance, companies engaged in activities with high greenhouse gas emissions as listed in Appendix 6 of the CO_2 Ordinance are obliged to participate in the Swiss ETS and must surrender emission allowances or emission reduction certificates equal to the emissions caused by their plants to the Swiss Confederation every year. Companies engaged in activities with high or medium greenhouse gas emissions as listed in Appendix 7 of the CO_2 Ordinance with a total rated thermal input of at least 10MW may apply for the participation in the Swiss ETS. If these companies participate in the Swiss ETS, they must surrender emission allowances or emission reduction certificates equal to the emissions caused by their plants to the Swiss Confederation every year (for an overview of the Swiss ETS see question 7; for details on allowances and their trading see questions 14 and 15).
- Import of new passenger cars: Swiss car importers are obligated to reduce the emissions of passenger cars, vans and certain lorries that are registered in Switzerland for the first time. In 2020, the permitted average emissions level will be reduced to 95 grams CO_2 per kilometre for passenger cars and 147 grams CO_2 per kilometre for vans and the concerned lorries (see question 7).
- Buildings: building permits for buildings that are heated with fossil fuels are only granted if the relevant regulations regarding the reduction of CO_2 emissions are complied with.
- Fossil-fuel thermal power plants: fossil-fuel thermal power plants are obligated to completely compensate for their CO_2 emissions. In doing so, they must provide at least 50 per cent of the compensation in the domestic market. They are allowed to compensate for up to 50 per cent of their emissions abroad. Additionally, to achieve maximum reduction of CO_2 emissions, fossil-fuel thermal power plants are obligated to operate the power plant according to the current state of the art. The Federal Council specifies the minimum overall efficiency level that must be guaranteed.
- Manufacturers or importers of fossil fuels have to partially compensate CO_2 emissions resulting from use as motor fuels. From 2020, the compensation amounts to 10 per cent. This amount may be adjusted by the Federal Council. The manufacturers and importers can implement their own projects or acquire certificates.

GHG emission permits or approvals

10 | Are there any requirements for obtaining GHG emission permits or approvals? If so, describe the main requirements.

In principle, the legal regulation in Switzerland does not provide that a permit must be obtained in advance for the emission of GHG, but the various activities that can lead to GHG emissions are regulated by law and violations of the regulations lead to legal sanctions.

The main exemption to this system concerns the operation of fossil-fuel thermal power plants, which are given approval to be constructed and operated only if their operators provide the Confederation in advance with a commitment to compensate in full for the CO_2 emissions caused and operate the power plant according to the current state of the art.

Oversight of GHG emissions

11 | How are GHG emissions monitored, reported and verified?

For Switzerland and all other countries listed in Annex I of the Framework Convention on Climate Change of the United Nations, a compilation of a greenhouse gas inventory according to uniform guidelines is mandatory. The inventory includes detailed documentation describing the data bases, methods and uncertainties, as well as quality management and other aspects for each position of the greenhouse gas inventory. The yearly updated publication presents the evolution of the emissions of all greenhouse gases over time giving an overview over the achievement of the objectives on an international and national level.

In Switzerland, monitoring, reporting and verification obligations are defined in the CO_2 Act and CO_2 Ordinance. Companies participating in the Swiss ETS must implement a concept with measures for monitoring greenhouse gas emissions, which needs to be approved by the FOEN. Additionally, these companies must submit annual greenhouse gas emission reports to the Confederation. Moreover, in other areas such as import of cars or fossil motor fuels or operation of fossil-fuel thermal power plants, the CO_2 Ordinance provides for particular monitoring and reporting obligations.

GHG EMISSION ALLOWANCES (OR SIMILAR EMISSION INSTRUMENTS)

Regime

12 | Is there a GHG emission allowance regime (or similar regime) in your country? How does it operate?

Apart from the regulations for fossil fuel power stations and fossil motor fuel importers (see question 10) the Swiss emission allowance regime is based on incentivised voluntary measures.

One of the main elements of the regime is the CO_2 levy imposed on fossil combustible fuels, such as heating oil and natural gas. Motor fuels (petrol, diesel) are not affected by the CO_2 levy. From 2018 the rate was set at 96 Swiss francs per tonne of CO_2. Companies may apply to the FOEN for exemption of the CO_2 levy if they voluntarily commit to reduce their emission output. To comply with the defined objective, a company may optimise its own energy efficiency, buy emission allowances from other companies or buy emission reduction certificates (eg, CERs or ERUs, see question 14). If the companies do not meet their reduction obligation they must, as a sanction, pay 125 Swiss francs for each excess tonne of CO_2 emitted. Companies who do not use their emission capacity are allowed to trade the remaining allowance in the Swiss

ETS. The Swiss ETS allocates a maximum quantity of emission allowances to the participating companies and is another main part of the Swiss regime for emission allowances (for details on trading of allowances see questions 14 and 15).

Registration

13 | Are there any GHG emission allowance registries in your country? How are they administered?

The FOEN maintains the Swiss Emissions Trading Registry (SETR) where emission allowances, emission reduction certificates and attestations from Switzerland and companies that participate in emissions trading can be recorded. The FOEN uses the register to monitor whether companies have complied with their legal obligations and conducts auctions of emission rights. At the same time, the FOEN ensures that the government's reduction target is met.

The registry is an online accounting system which guarantees the recording of issuance, holding, transfer, acquisition, cancellation and surrender of units. The units themselves exist only in electronic form. The transaction of units that are emitted under the Kyoto Protocol is reviewed and approved by the International Transaction Log (ITL) of the UN Climate Secretariat (UNFCCC). For transactions of all other units (eg, Swiss emission rights, certificates), the verification process is supervised by the Supplementary Transaction Log (STL) of Switzerland.

Obtaining, possessing and using GHG emission allowances

14 | What are the requirements for obtaining GHG emission allowances? How are allowances held, cancelled, surrendered and transferred? Can rights in favour of third parties (eg, a pledge) be created on allowances?

Requirements to obtain allowances

Based on historical data from 2008–2012, an absolute quantity of emission allowances for 2013–2020 was determined in advance by the Swiss Federal Council. Each year, the total amount of emission allowances is reduced by 1.74 per cent of the initial quantity in 2010. Of the total amount, 5 per cent is reserved annually for free allocation to new market participants and for capacity expansions. The remaining emission allowances are allocated annually to companies that are either engaged in activities with high greenhouse gas emissions as listed in Appendix 6 of the CO_2 Ordinance and are thus obliged to participate in the Swiss ETS or to companies engaged in activities with high or medium greenhouse gas emissions, as listed in Appendix 7 of the CO_2 Ordinance, which have successfully submitted a request for participation in the Swiss ETS (see question 10).

How allowances are held

All emission allowances, emission-reduction certificates, attestations and auction bids must be recorded in the SETR. To be able to hold or trade emission allowances, it is necessary to hold either an operator account or a personal account at the SETR. Any natural or legal person may apply for an account at the SETR whereby two different types of accounts are maintained: operator accounts for companies, which must meet obligations under the CO_2 Act, and personal holding accounts for other companies and persons that do not receive emission allowances themselves but aim at trading emission allowances.

How allowances are cancelled, surrendered and transferred

Emission allowances are freely tradable and can be surrendered to the Swiss Confederation to cover the greenhouse gases emitted or sold to other ETS participants. In terms of the trading in the Swiss ETS currently all types of emission reduction certificates under the Kyoto Protocol are freely tradable with the restriction that national transfers, surrendering transactions, and international entries of Certified Emission Reductions (CERs) from projects of the Clean Development Mechanism (CDM, article 12 Kyoto Protocol) and Emission Reduction Units (ERUs) resulting from Joint Implementation projects (JI, article 6 Kyoto Protocol) with applicable commitment period 2008–2012, are blocked.

Rights for third parties on allowances

Under Swiss law, it is possible to pledge subjective rights or to establish an usufruct thereon. Claims and other rights may be pledged if they are transferable. As emission allowances are freely tradable, it can – at least theoretically – be assumed that the allowances may be pledged under Swiss law. Usufruct can be created for movable property, real estate, rights or assets. As emission allowances are transferable rights, it can – at least theoretically – be assumed that owners of such allowances may establish an usufruct in favour of a third party on the allowance. However, the practical need for this seems questionable.

TRADING OF GHG EMISSION ALLOWANCES (OR SIMILAR EMISSION INSTRUMENTS)

Emission allowances trading

15 | What GHG emission trading systems or schemes are applied in your country?

The Swiss ETS is regulated in the CO_2 Act and its Ordinance. To reach the relevant emissions target, the Swiss ETS was introduced in 2008.

Pursuant to the CO_2 Act and the CO_2 Ordinance, companies engaged in activities with high greenhouse gas emissions as listed in Appendix 6 of the CO_2 Ordinance are obliged to participate in the Swiss ETS. Research, development and testing facilities as well as special waste management facilities can be excluded from the ETS upon the company's request. If an ETS company's total emissions in each of the previous three years are less than 25,000 tonnes CO_2 equivalent (CO_2eq), the company may apply for an exemption of the ETS obligation ('opt-out'). Companies engaged in activities with high or medium greenhouse gas emissions as listed in Appendix 7 of the CO_2 Ordinance with a total rated thermal input of at least 10MW may voluntarily participate in the ETS ('opt-in'). In return, all ETS participants are exempt from the CO_2 levy. The Swiss ETS currently includes greenhouse gas-intensive companies from the sectors cement, chemicals and pharmaceuticals, refineries, paper, district heating, steel, and other sectors.

ETS companies are allocated emission allowances free of charge on the basis of benchmarks. The free-of-charge allocation is calculated on the basis of product, heat or fuel benchmarks as well as, where appropriate, in accordance with process emissions. Regardless of its actual greenhouse gas emissions, the free-of-charge allocation an ETS participant receives is individually calculated as a function of production volume, heat generated or the amount of fuel used and quantity of emission allowances per unit defined by the respective benchmark. The benchmarks in the Swiss ETS correspond to those in the EU ensuring a level playing field. The risk of relocating production abroad due to CO_2 costs ('carbon leakage') is also taken into account in this calculation.

Based on historical data from 2008–2012, the absolute amount of emission allowances in the system ('cap') was determined for the 2013–2020. The cap represents the maximum of the total quantity of emission allowances, which are made available each year to the companies participating in the Swiss ETS by the FOEN. Since an emission allowance entitles the holder to emit one tonne of CO_2eq, this also corresponds to the permissible greenhouse gas emissions in the system. For 2013, the cap amounted to 5.63 million tonnes CO_2eq and decreases annually by the same absolute amount (1.74 per cent of the 2010 baseline) to around 4.9 million tonnes CO_2eq in 2020. For each year, 5 per cent of the cap is reserved for allocation to new market

participants or for capacity expansions of existing plants. If the reserve is not used, the FOEN will auction this 5 per cent in the following year. Unallocated emission allowances are auctioned multiple times a year by the ETS.

If the sum of all calculated individual allocations exceeds the available quantity of emission allowances (95 per cent of the cap), the allocations are reduced linearly by the same factor (cross-sector correction factor). In 2013, the reduction was 0.09 per cent and increases to 9.91 per cent by 2020.

Under the CDM defined by the Kyoto Protocol, emission reduction measures can be implemented in developing countries and the corresponding savings can be certified. The resulting certificates, the CERs, may be applied to the reduction targets in industrialised countries. Accordingly, the CO_2 Act provides that Swiss ETS participants are allowed to offset a certain amount of their CO_2 emissions with CERs. As a consequence, the total amount of the ETS emission cap is raised and unused emission rights can be saved for the future.

Switzerland's ETS is to be linked to the EU system by 2020. The mutual recognition of emission rights will lead to a harmonisation of prices and create comparable competitive conditions between companies in Switzerland and in the EU.

Trading agreements

16 Are any standard agreements on GHG emissions trading used in your country? If so, describe their main features and provisions.

Transactions between companies participating in the Swiss ETS have been few and on a strictly bilateral basis. Accordingly, there are no standard agreements on GHG emissions commonly used for trading in the Swiss ETS.

SECTORAL REGULATION

Energy sector

17 Give details of (non-renewable) energy production and consumption in your country. Describe any regulations on GHG emissions. Describe any obligations on the state and private persons for minimising energy consumption and improving energy efficiency. Describe the main features of any scheme for registration of energy savings and for trade of related accounting units or credits.

The following chart shows energy consumption in Switzerland from 2016 to 2018.

	2016	2017	2018
Net import (balance of imports and exports)			
Crude oil in 1,000 tonnes	10,297	10,215	9,501
Coal in 1,000 tonnes	197	189	141
Natural gas in terajoules	125,460	125,990	119,510
Electricity in GWh	3,923	5,550	-1,587
Production of electricity			
Total in GWh	28,694	57,327	63,571
Share of hydropower plants in %	59.0	59.6	55.4
Share of nuclear power stations in %	32.8	31.7	36.1
Final consumption			
Total in terajoules	854,230	849,830	830,880
Share of heating fuels in %	16.0	15.1	13.9
Share of motor fuels in %	34.2	34.1	35.4
Share of electricity in %	24.5	24.8	25.0
Share of natural gas in %	13.7	14.0	13.5
Share of other energy sources in %	11.6	12.0	12.2
Share of renewable energy in %	22.1	22.3	23.3
Final consumption expenditure			
In million Swiss francs	24,980	26,480	28,870
in % of GDP	3.8	4.0	4.2
Household expenditure on energy			
In Swiss francs per month per household	262		
Public expenditure on energy research			
In million Swiss francs	399	410	

The chart demonstrates that with regard to oil, coal and natural gas, Switzerland is dependent of imports from other countries. A considerable part of electricity is still provided through nuclear energy plants (36.1 per cent in 2018) but the major part is produced through hydropower plants (55.4 per cent in 2018).

With regard to energy production, consumption and a sustainable energy management, the main regulations are the EA, the EO, the CO_2 Act, the Nuclear Energy Act (NEA) and the Electricity Supply Act (ESA). Since 1990, all cantons have enacted additional energy laws and energy policy regulations. Emissions from energy consumption are primarily regulated by the CO_2 Act. There is no separate scheme for registration of energy savings and for trade of related accounting units or credits in Switzerland (see question 19 for trade with renewable energy). Emission allowances from companies within the energy sector may be traded in the Swiss ETS.

Pursuant to the EA, the average energy consumption per person and year shall be reduced by 16 per cent by 2020 and by 43 per cent by 2035 compared with 2000 levels. Pursuant to article 5 EA, authorities, energy supply companies, planners, manufacturers and importers of energy-consuming equipment, vehicles and appliances, and consumers shall observe the following principles:

- all energy must be used as sparingly and efficiently as possible;
- a significant proportion of total energy consumption must be covered by cost-efficient renewable energies; this proportion must be increased continuously; and
- the costs of energy use must be borne as far as possible according to the polluter-pays principle.

The EA also includes various programmes to promote efficient energy consumption.

Other sectors

18 Describe, in general terms, any regulation on GHG emissions in connection with other sectors.

Emissions from other sectors are, in general, governed by the regulations as outlined in questions 3 and 7. With regard to international aviation an important development is under way. In October 2016, the general assembly of the International Civil Aviation Organization (ICAO) confirmed the objective of targeting CO_2-neutral growth of international aviation as of 2020, and for this purpose decided to introduce a global market-based measure for compensating CO_2 emissions above that level, namely the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). From 1 January 2019 the aircraft operators of all the

ICAO member states (including Switzerland) who emit more than 10,000 tonnes of CO_2 per year on their international flights have to monitor the CO_2 emissions of these flights and present them in a report to the competent authority. From 2021, aircraft operators will have to compensate for part of their CO_2 emissions by purchasing and cancelling CO_2 emission units.

Aircraft operators in Switzerland that are obligated to participate in CORSIA had to submit their Emission Monitoring Plan by 15 October 2018 to the Federal Office of Civil Aviation (FOCA). How the EU intends to integrate international aviation into the ETS after 2020 and how a potential interaction with CORSIA may be structured has yet to be decided.

RENEWABLE ENERGY AND CARBON CAPTURE

Renewable energy consumption, policy and general regulation

19 | Give details of the production and consumption of renewable energy in your country. What is the policy on renewable energy? Describe any obligations on the state and private parties for renewable energy production or use. Describe the main provisions of any scheme for registration of renewable energy production and use and for trade of related accounting units or credits.

For an overview of production and consumption of renewable energy see question 17 with the corresponding table.

Until 2007, the Federal Council based its energy strategy on four pillars: energy efficiency, renewable energies, replacement and new construction of large-scale power plants for electricity production (including nuclear power plants), and foreign energy policy. Following the Fukushima disaster, the Federal Council and Parliament decided to phase out nuclear energy in Switzerland. This decision, together with other far-reaching changes in the international energy environment, necessitates a reorganisation of the Swiss energy system. To this end, the Federal Council has drawn up the Energy Strategy 2050. It follows the Energy Strategy 2007 and sets new objectives. What is fundamentally new is that the existing five nuclear power plants are to be decommissioned at the end of their safety-related operating period and not replaced. Furthermore, energy efficiency is to be increased and renewable energy sources such as solar energy expanded (the 'first package of measures', for more details see questions 3, 8 and 27).

Pursuant to the EA, the production of electricity from renewable energy sources other than hydropower shall aim at an expansion with an average domestic production of at least 4,400GWh in 2020 and at least 11,400GWh in 2035. The production of electricity from hydropower shall aim at an expansion with an average domestic production of at least 37,400GWh in 2035. The use of renewable energies and their expansion is granted the status of a national interest. The average energy consumption per person and year shall be reduced by 16 per cent by 2020 and by 43 per cent by 2035 compared to 2000 levels. Average electricity consumption per person per year should be reduced by 3 per cent by 2020 and by 13 per cent by 2035 compared to 2000.

As the Swiss regime is based on incentivised voluntary measures with regard to renewable energy, there are only few obligations on state or private parties to produce or use renewable energy.

According to the CO_2 Act and the EA, the cantons can define a maximum percentage of energy for heating and hot water that may originate from non-renewable sources for new buildings.

Electricity supply companies are obliged to inform end-users of the percentage of the provided electricity from renewable and non-renewable sources. The Ordinance of the Federal Department of the Environment, Transport, Energy and Communications (DETEC) governing the certification of production method and origin of electricity defines clear legal and non-discriminatory requirements governing the certification of origin of electricity in Switzerland which are in line with the relevant EU regulations. These requirements facilitate international trading in electricity produced from renewable energy sources, and ensure that the electricity consumed by end-users can be traced back to its origin.

Pursuant to article 15 EA, grid operators are obliged to accept the electricity from renewable energy sources they are offered within their grid area and pay appropriate compensation for it. Moreover, until 2022 producers of renewable energy are guaranteed a price corresponding to their production costs (feed-in remuneration at cost). From then on, no new producers will be included in the promotion system.

In Switzerland, eco-friendly electricity may be traded at electricity exchanges such as the Ökostrombörse Schweiz, where the producers sell the ecological added value of green electricity. Companies or private individuals may buy this electricity.

Wind energy

20 | Describe, in general terms, any regulation of wind energy.

According to article 9 EO, new wind turbines or wind farms are of national interest if they have an average expected annual production of at least 20 GWh. This makes it more difficult to object against power plants by referring to nature and heritage protection.

In 2015, a total of 34 large Swiss wind turbines produced around 100GWh of wind power. This covered the electricity consumption of around 28,000 households. By 2020, wind turbines are expected to produce around 600GWh of electricity per year. By 2050 it should be 4,000GWh.

Like all buildings in Switzerland, the planning and construction of wind turbines is subject to a complex approval process. The most important steps are:

- The Confederation defines the framework conditions and makes recommendations for planning (wind energy concept) in accordance with article 13 Spatial Planning Act.
- Each canton issues its own regulations and laws for the planning and construction of wind farms. The cantons decide in which areas these plants may be built and where they may not. This is done in the structural planning.
- The municipality or region where the wind turbine shall be placed is responsible for land use planning and the building permit. It stipulates the detailed requirements and determines whether a plant can be built.

Large wind turbines (usually of a total height of 30 metres or more) are subject to a statutory planning obligation. The federal government has published comprehensive recommendations in the form of the wind energy concept. To obtain a permit, an environmental impact assessment is required, including noise generation and nature and species protection.

The federal government promotes electricity generation from renewable energies and the operators of new installations producing electricity from wind energy may profit from the feed-in remuneration at cost (see question 19).

Solar energy

21 | Describe, in general terms, any regulation of solar energy.

Generally, a building permit governed by cantonal law has to be obtained for the installation of a solar panel. The Spatial Planning Act (SPA) regulates the permission of solar installations in building and agricultural zones. Pursuant to article 18a SPA, for solar installations that are carefully integrated into in the roof or facade of a building, a notification to the building authorities instead of a building permit is sufficient.

The federal government promotes electricity generation from renewable energies and the operators of new installations producing electricity from photovoltaics of at least 100kWp may profit from the feed-in remuneration at cost (see question 19).

Hydropower, geothermal, wave and tidal energy

22 | Describe, in general terms, any regulation of hydropower, geothermal, wave or tidal energy.

With its Energy Strategy 2050, the Swiss Confederation intends to increase the average annual production of electricity from hydropower to 38,600GWh by 2050 (and to 37,400GWh by 2035). To exploit the realisable potential, existing power plants are to be renovated and expanded while taking the related ecological requirements into account. The instruments to be used here include cost-covering remuneration for feed-in to the electricity grid for new hydropower plants with a capacity up to 10 megawatts as well as planned investment contributions for renewals and expansions of hydropower plants up to an output of 10MW. In terms of quantity, the goal is to increase the average estimated production level by at least 2,000GWh versus the level recorded in 2000 by renovating existing hydropower plants and constructing new ones.

The Swiss Federal Office of Energy deals with policy-related aspects of hydropower (promotion, strategies, perspectives, etc) as well as technical and safety aspects, while the Swiss Federal Office for the Environment is responsible for environmental aspects (residual water, protection of bodies of water, etc).

Article 2 of the Federal Act on the Exploitation of Hydropower (WRA) states that cantonal law determines which community (canton, district, municipality or corporation) is entitled to exploit the public waters for hydropower. The community may then make use of the hydropower itself or confer the right to third parties. For the installation of a hydropower plant the operator must acquire a permit and a concession from the relevant canton or municipality. In accordance with cantonal law, the awarding authority shall determine the services and conditions against which the licensee is granted the right of use, such as fees, water interest, water or electricity supply, duration of the licence, provisions on electricity prices, community participation in profits, reversion of the licence and repurchase. The procedure for the award by the cantonal authority is to be regulated by the cantons.

Currently, no electricity is being produced from geothermal sources in Switzerland. One of the main obstacles to the development of this technology is the fact that very little is known yet about the geological conditions of the deep underground. For this reason, geothermal energy projects are able to benefit from a guarantee financed from the network surcharge fund. Experts anticipate that, by 2030, around a dozen geothermal plants will be in operation, which will produce a combined total of 800 GWh of electricity. With regard to deep geothermal systems, there are several in operation that are used to supply heat, for example, for district heating grids. Various deep geothermal energy projects are currently being planned in Switzerland and are at various stages of progression.

The Confederation supports projects for the direct use of geothermal energy for heat supply in order to reduce CO_2 emissions from buildings in the long term. The federal government promotes electricity generation from renewable energies, among others, the operators of new installations producing electricity from geothermal energy may profit from the feed-in remuneration at cost (see question 19).

As Switzerland has no direct access to the sea, there is no potential for wave and tidal energy.

Waste-to-energy

23 | Describe, in general terms, any regulation of production of energy based on waste.

Combustible waste from households and waste wood that is not suitable for recycling undergo thermal treatment in waste incineration plants or waste wood furnaces. The heat released in the process is used to generate electricity and heat buildings. Waste with a high calorific value and low level of pollutant contamination can be used in industrial plants (eg, cement plants) as an alternative to fossil fuels.

Pursuant to the Waste Ordinance (AWDO), proprietors of waste disposal facilities must operate the facilities in such a way as to avoid any harmful or nuisance effects on the environment. They must keep a record of the accepted quantities of the types of waste mentioned in Appendix 1 of the AWDO with details of their origin and of the residues and emissions arising in the facilities, and submit that record to the competent authority each year. The proprietors must ensure that they have the required specialist knowledge to operate the facilities properly and provide the authority on its request with the relevant proof of basic and continuing education and training. In case the waste disposal facilities dispose of more than 100 tonnes of waste each year, the proprietor must draw up operating regulations that, in particular, specify the requirements for the operation of the facilities and submit these regulations to the authority for feedback.

Pursuant to the AWDO, proprietors of waste disposal facilities must ensure that the energy content of the waste is exploited as far as possible in its disposal. The AWDO stipulates that, from 1 January 2026, proprietors of waste disposal facilities must operate their facilities in such a way that at least 55 per cent of the energy content of municipal waste and waste of comparable composition is used outside of the plant.

Biofuels and biomass

24 | Describe, in general terms, any regulation of biofuel for transport uses and any regulation of biomass for generation of heat and power.

Fuels are generally subject to the mineral oil tax. Pursuant to the Mineral Oil Tax Act, biofuels (eg, biogas, bioethanol, biodiesel, vegetable and animal oils) may currently profit from full tax relief (depending on the product up to 75 cents per litre). Thereby environmentally compatible biofuels are fiscally promoted. The current tax relief provisions are limited until the entry into force of the revised CO_2 Act, but at the latest until 31 December 2021. After that, the promotion is to be continued in an alternative form. The tax relief on biofuels is only granted if the domestic manufacturer or importer has provided evidence that the fuels comply with the ecological and social requirements.

According to the EA, grid operators are required to purchase and adequately remunerate electricity in their grid area. The federal government promotes electricity generation from renewable energies, among others, the operators of new installations producing electricity from biomass may profit from the feed-in remuneration at cost (see question 19). Moreover, the EA states that operators of biomass plants may obtain an investment contribution. The investment contribution for biomass installations is determined on a case-by-case basis and shall not exceed 20 per cent of the eligible investment costs.

Carbon capture and storage

25 | Describe, in general terms, any policy on and regulation of carbon capture and storage.

At present, Switzerland does not govern any regulation of carbon capture and storage.

In May 2017, a number of scientists working in Switzerland addressed the public in a white paper, in which they argued that an open societal conversation on the role of negative emissions technologies (NETs) and solar radiation management (SRM) in achieving internationally agreed climate targets was overdue. Their analysis is based on the science underpinning the Paris Convention. Many questions, such as long-term safety, the tightness of these storage facilities, the costs, the infrastructure as well as the legal basis, still need to be clarified. In addition, there is likely to be a shortage of large enough reservoirs for the vast amounts of CO_2 to be stored. Research projects are ongoing in Switzerland.

As there is a growing realisation that the Paris climate goals can no longer be met by emission reductions alone; in Switzerland a number of recent political initiatives have been submitted on federal and cantonal level. The Risk Dialogue Foundation conducted a stakeholder dialogue in 2018–2019 at the request of the FOEN. Switzerland is aiming to implement a regulation for carbon capture and storage but is currently still at the research stage.

CLIMATE MATTERS IN TRANSACTIONS

Climate matters in M&A transactions

26 | What are the main climate matters and regulations to consider in M&A transactions and other transactions?

In principle, the same due diligence must be adhered to in an M&A transaction in the climate sector as in any other transaction. However, some aspects require closer attention. In the event the target company that is engaged in CO_2-intensive activities voluntarily commits to reducing its emissions, or if it is a participant in the Swiss ETS, it may be exempted from the CO_2 levy. An M&A transaction or other restructuring of such a target may trigger immediate information obligations or may lead to alterations in the reduction targets, the available emission allowances or the status under the legal obligations to participate in the Swiss ETS.

A buyer should always investigate in advance what obligations and rights arise under the CO_2 Act due to changes in the size, composition, etc, of the target. It must also be ensured that the target complies with all applicable climate regulations.

UPDATE AND TRENDS

Emerging trends

27 | Are there any emerging trends or hot topics that may affect climate regulation in your country in the foreseeable future?

Total revision of the CO_2 Act

The present CO_2 Act regulates the reduction of GHG emissions until 2020, in line with the second commitment period under the Kyoto Protocol, which lasts from 2013 to 2020. With the approval of the Paris Convention, the Federal Assembly approved, among others, the goal of reducing GHG emissions by 50 per cent by 2030 compared with 1990 levels. To implement this, a total revision of the current CO_2 Act for the period after 2020 is under way.

Energy strategy 2050

At present, Switzerland has a secure and cost-effective energy supply. Economic and technological developments as well as political decisions at home and abroad are currently leading to fundamental changes in the energy markets. To prepare Switzerland for this, the Federal Council has developed the Energy Strategy 2050. This strategy is projected to enable Switzerland to take advantage of the new situation and maintain its high supply standard. At the same time, the strategy contributes to reducing Switzerland's energy-related environmental impact. With the new Energy Act created within the framework of the Energy Strategy 2050, the Swiss people voted in favour of increasing energy efficiency (for buildings, mobility, industry and appliances), expanding renewable energies (ie, promoting and improving the legal framework) and phasing out nuclear energy (no new general licences and gradual phaseout, with safety being the only criterion).

Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

With regard to international aviation an important development is under way as the project CORSIA targets CO_2-neutral growth of international air traffic as of 2020 (see question 18).

At an international level, the Swiss Federal Council is engaged in the negotiations of the measures to be implemented under the climate regime of the Paris Convention after 2020.

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